

Sidney Wallace, MD

Interview #7

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Sidney Wallace, M.D

Interview #7

Interview Profile

Interview Information:

Two interview sessions:
Total approximate duration: 5 hours
Interviewer: Tacey A. Rosolowski, Ph.D.

For a CV, biosketch, and other support materials, contact:

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Special Note on this Interview:

This transcript of Dr. Wallace's interviews has a different character than others in the collection. In accordance with oral history best practices, the Research Medical sends the transcript of the interview sessions to the interview subject for review and approval. Dr. Wallace took this opportunity to revise the text, with substantial alterations to Session One. In 2013, he authorized his edited transcript for the two sessions collected in 2011. The Research Medical Library makes available this approved version of his transcript. The Library also complied with Dr. Wallace's request to delete the audio files for these interview sessions.

About the Interview Subject:

Dr. Wallace joined MD Anderson Hospital and Tumor Institute in 1966 as an Associate Professor and Head of the Section of Diagnostic Radiology. At the time of these interview sessions, Dr. Wallace was a Professor Emeritus in the Division of Diagnostic Imaging. He was serving as Deputy Division Head of Research when he retired in 1996. Over the course of his career he established laboratories and institutes that have spurred the evolution of Interventional Radiology. He has overseen work on devices and procedures such as embolization, chemoembolization, infusion for treatment of tumors, and methods for biopsies.

Major Topics Covered:

Personal and educational background

Overview of interventional radiology and history of emerging field

Research: devices and techniques, collaborations

Angiographic Interventional Laboratory: Setting it up, its operation

Interventional radiology at MD Anderson; Impact on care

Working with Dr. Cesare Gianturco and Dr. Gerald Dodd

The Dunn Chemistry Research Laboratory

Training interventional radiology clinicians and researchers

Artwork: a practicing sculptor and painter, lecturer on artists

**University of Texas MD Anderson Cancer Center
Making Cancer History Voices® Oral History Project**

Research Medical Library: Historical Resources Center

Original Interview Profile: Dr. Sidney Wallace, M.D.
Submitted by: Tacey A. Rosolowski, Ph.D.
Date revised: 27 July 2014

Overview and note on the transcripts:

At the time of these interview sessions, Dr. Wallace was a Professor Emeritus in the Division of Diagnostic Imaging. He was serving as Deputy Division Head of Research when he retired in 1996. The two interview sessions took place in Dr. Wallace's office in the Department of Interventional Radiology in the Pickens Tower on the Main Campus of MD Anderson Cancer Center, Houston, Texas. Tacey A. Rosolowski, Ph.D. was the interviewer.

Users of the Oral History Collection will note that this transcript of Dr. Wallace's interviews has a different character than others in the collection. In accordance with oral history best practices, the Research Medical sends the transcript of the interview sessions to the interview subject for review and approval. Dr. Wallace took this opportunity to revise the text, with substantial alterations to Session One. The Research Medical Library makes available this approved version of his transcript. The Library also complied with Dr. Wallace's request to delete the audio files for these interview sessions.

Background:

Dr. Wallace joined MD Anderson Hospital and Tumor Institute in 1966 as an Associate Professor and Head of the Section of Diagnostic Radiology. Over the course of his career he has established (and helped establish) laboratories and institutes that have spurred the evolution of Interventional Radiology and its role in patient care. In 1968 he established Angiographic/Interventional Laboratory (w/ Drs. Gerald Dodd and Cesare Gianturco); in 1980 he worked to establish the John S. Dunn Research Foundation Center for Radiologic Sciences in Diagnostic Imaging; in 1992 he received funding from the Texas Outreach Program and Levit Family and established (with Dr. John Batsakis) the Levit Radiologic-Pathologic Institute). In these laboratories, Dr. Wallace has overseen work on devices and procedures such as embolization, chemoembolization, infusion for treatment of tumors, and methods for biopsies. Dr. Wallace has received numerous awards, including the Leaders in Innovation Award by the Society of Interventional Radiology (2009), the First International Gold Medal Award, XXXIV Brazilian Congress of Radiology (2005), the American College of Radiology Gold Medal Award (1998) and the Antoine Beclere Award for work in interventional management of cancer patients (1983).

Dr. Wallace attended Temple University in Philadelphia and received his BS in 1949 and his M.D. in 1954. From 1955-'56 he was a Surgical Resident at Philadelphia General Hospital. After two years as a general surgeon in the army, he shifted specialties. From 1959-'62 he undertook a Radiology residency Radiology training at Jefferson Medical College Hospital in Philadelphia then deepened his training from 1963-'64 with a Fellowship in Vascular Radiology,

at the University of Lund, Sweden. He was also teaching in the Department of Radiology during this time, first and as an instructor, then as an Assistant Professor, until 1966, when he was hired by MD Anderson Hospital and Tumor Institute as Associate Professor and Head of Section of Diagnostic Radiology. Dr. Wallace passed away on 25 May 2013.

In this transcript, Dr. Wallace gives an in-depth look at the practice of interventional radiology through vivid descriptions of the devices and chemical procedures used to enhance patient care. Dr. Wallace also gives a dynamic view of MD Anderson's Department of Interventional Radiology as it expanded into new areas of research and describes key figures such as Dr. Cesare Gianturco and Dr. Gerald Dodd. In addition to his research and efforts to build the institutional foundation for his specialty, Dr. Wallace also speaks about his interest in art and his own artwork.

Sidney Wallace, M.D

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Segment 00B

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Sidney Wallace, M.D

Interview #7

Segment Summaries

Interview Session One: 29 November 2011

Segment 00A
Interview Identifier

Segment 01
Defining Interventional Radiology
A: Overview
[0:00:01.1]

Story Codes
A: Overview
A: Definitions, Explanations, Translations
A: The Researcher
A: The Clinician

Dr. Wallace defines Interventional Radiology and describes this specialty's link with surgery.

Segment 02
A Butcher Shop and Cartooning: Early Experience with Anatomy and Images
A: Personal Background
[0:08:09.6]

Story Codes
A: Personal Background
A: Character, Values, Beliefs, Talents
A: Professional Path
A: Inspirations to Practice Science/Medicine
A: Influences from People and Life Experiences

In this segment describes his family –immigrants from Russia—and sketches the origin of his interest in surgery and radiology. Dr. Wallace helped out in his father's butcher shop, learning about anatomy from an early age. He was also skilled with images as a child (precursor to a career focused on images). He began drawing (cartoons) at the age of five and he jokes that he later thought cartooning would be an alternative career if he couldn't get into medical school.

Segment 03
From Surgery to Radiology to Scandinavia

A: Educational Path
[0:13:00.1]

Story Codes

A: Professional Path
A: Inspirations to Practice Science/Medicine
A: Influences from People and Life Experiences
C: Evolution of Career
C: Professional Practice
C: The Professional at Work
C: Collaborations
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care
A: Overview
A: Definitions, Explanations, Translations

In this segment, Dr. Wallace sketches his educational path and notes that he shifted from surgery into radiology because he particularly enjoyed “the visual aspect” of the specialty. He then lists the institutions where he trained in radiology, focusing in particular on his key experiences at the University of Lund in Sweden in 1963 –’64, where radiology was key to all other medical specialties (unlike the radiology’s more subordinate position in the U.S.). There Dr. Wallace learned to perform diagnostic studies of blood vessels anywhere in the body using the Seldinger technique and also performed double contrast barium studies of the colon. He also describes traveling to Norway for exposure to neuroradiology and the ongoing studies of the brain and spinal cord conducted under Dr. Per Amudsen.

Segment 04

MD Anderson’s Radiology Department

B: An Institutional Unit
[0:26:10.7]

Story Codes

A: The Researcher
A: The Clinician
A: Professional Path
A: Influences from People and Life Experiences
C: Evolution of Career
C: Professional Practice
C: The Professional at Work
C: Collaborations
A: Overview
A: Definitions, Explanations, Translations
D: On Research and Researchers
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care

Dr. Wallace next explains how he implemented the knowledge he gathered abroad once he returned to the Department of Radiology at Jefferson Hospital in Philadelphia. He also notes some of the primary radiological researchers and the state of the field in the U.S. at that time (1964). Then he details the types of tumors and diseases he began to treat at Jefferson and the

techniques used, and his particular interest in the lymphatic system. He describes meeting Dr. Gerald Dodd, who worked at Jefferson and who would also come to MD Anderson. He tells how he came to MD Anderson in 1966. He underscores the contrast between the position of radiologists in Sweden and the United States and explains that he believed MD Anderson offered greater opportunity for his career growth. He describes the Department of Radiology at that time (at first, the Department of Radiology did not retain patients' films and the faculty "had to go around stealing them back"), lists the faculty, and notes the goals that Dr. Dodd established for the Department, including building up to an "exponential growth."

Segment 05

The Angiographic Interventional Laboratory: Setting the Pieces in Place

B: Building the Institution

[0:43:43.5]

Story Codes

B: MD Anderson History

B: Building/Transforming the Institution

B: Multi-disciplinary Approaches

B: Growth and/or Change

B: Obstacles, Challenges

C: Portraits

A: Influences from People and Life Experiences

A: Overview

A: Definitions, Explanations, Translations

A: The Researcher

A: The Clinician

In this segment, Dr. Wallace narrates the progression that led to the creation, in 1968, of the Angiographic Interventional Laboratory. He lists the individuals involved and the studies performed, focusing in particular on Dr. Cesare Gianturco, who made great contributions to the Department of Radiology and invented many interventional devices. Dr. Wallace provides a character portrait, sketches Dr. Gianturco's background, and explains how he came to MD Anderson in 1968. He describes how Dr. Gianturco mechanized the Department of Radiology. Dr. Gianturco was the inventor of many devices that the Department of Radiology tested. His first project was systemic heparinization during vascular catheterization, however, Dr. Gianturco left after a year and a half.

Segment 06

Interventional Radiology: Devices and Therapies

B: Devices, Drugs, Procedures

[1:04:43.2]

Story Codes

A: The Researcher

A: The Clinician

C: Patients

C: Patients, Treatment, Survivors

C: Professional Practice

C: The Professional at Work

A: Overview
A: Definitions, Explanations, Translations
D: The History of Health Care, Patient Care

In this segment, Dr. Wallace talks about the link between his research and cancer treatment. He describes how interventional radiological techniques can diagnose cancer and also treat cancer with the insertion of particles, emboli, and through chemotherapy. He then talks about where the idea of blocking the blood supply to a tumor originated and gives a detailed explanation of the physical form and use of the Gianturco Coil. To illustrate the use of a coil, he tells a story about an emergency when a surgeon called on him and Dr. Gianturco to treat a patient with a communication site between an artery and vein in his neck. He explains what happens to such stents and emboli as they stay in the body long term, illustrating with his own experience of having his kidney embolized for cancer in 1984. Based on his experience, Dr. Wallace believes that embolization stimulated his T-cell formation and improved immunological reaction. Dr. Wallace then continues with a detailed discussion of interventional devices (referring to a PowerPoint presentation he shows to the Interviewer). He also talks about challenges of naming the field of interventional radiology as it was evolving.

Segment 07
Interventional Radiologists in Collaboration
B: An Institutional Unit
[1:39:42.8]

Story Codes
B: Institutional Processes
B: Devices, Drugs, Procedures
B: Institutional Mission and Values
B: MD Anderson Culture
B: Multi-disciplinary Approaches
C: Portraits
C: Patients
C: Patients, Treatment, Survivors
C: Collaborations

Dr. Wallace begins this segment with brief observations about the MD Anderson presidents. Then he talks about the collaborations that the Department of Interventional Radiology has built over the years with other Departments and specialties, notably surgery. He explains that good communication and collaboration contribute to excellent patient care, as the key is to send the patient to the individual who can best handle his/her case.

Segment 08
The Dunn Chemistry Research Laboratory
B: Building the Institution
[1:47:52.4]

Story Codes
B: Building/Transforming the Institution
B: Multi-disciplinary Approaches
B: Growth and/or Change

B: Obstacles, Challenges
B: Philanthropy, Fundraising, Donations, Volunteers
C: Donations, Gifts, Contributions
B: MD Anderson History
B: Devices, Drugs, Procedures
D: Technology and R&D

In this segment, Dr. Wallace talks about Interventional Radiology's expansion, in 1968, with the creation of the Dunn Chemistry Research Laboratory. He explains that the expense of radiology equipment and related laboratory devices was an impediment to expansion, but that the political savvy of Dr. Robert Moreton attracted investors that enabled the Department's expansion from 600 to 2400 square feet of space with state of the art equipment. He explains the importance of CTs and MRIs to patient diagnosis and to interventional radiology (as well as to the finances of MD Anderson). He notes some of the research on new drugs and nanoparticles currently underway at the Dunn Chemistry Research Laboratory.

Segment 09

Interventional Radiology at MD Anderson: Contributions to Patient Evaluation

B: Devices, Drugs, Procedures
[1:59:58.3]

Story Codes

A: Overview
A: Definitions, Explanations, Translations
A: The Clinician
B: Institutional Processes
B: Devices, Drugs, Procedures
B: MD Anderson History
C: Patients, Treatment, Survivors
C: Patients
B: Institutional Processes
B: MD Anderson Impact
C: Discovery and Success
D: Technology and R&D
C: Professional Practice
C: The Professional at Work

In this segment, Dr. Wallace reviews contributions that the Laboratory has made to patient evaluation and treatment through studies of heparinization, percutaneous biopsies, arterial infusion, embolization, and chemoembolization. He explains many of the materials and interventional procedures studied and notes why some were never accepted into general practice.

Segment 10

Interventional Radiology Devices

B: Devices, Drugs, Procedures
[2:13:28.3]

Story Codes

B: Education
B: The Educator
A: Overview
A: Definitions, Explanations, Translations
A: The Clinician
B: Institutional Processes
B: Devices, Drugs, Procedures
B: MD Anderson History
C: Patients, Treatment, Survivors
C: Patients
B: Institutional Processes
B: MD Anderson Impact
C: Discovery and Success
D: Technology and R&D
C: Professional Practice
C: The Professional at Work

Dr. Wallace begins this segment by mentioning a “Hands On” course he and others taught for many years to introduce physicians to interventional radiology. He then continues to describe many devices (emboli) used to stop blood flow to tumors or to introduce chemical agents into the body. He offers examples of a few cases to demonstrate the benefits. He notes that interventional radiologists have a very different mind set than radiologists. He then describes innovative work conducted by Dr. Dusan Pavcnik and Dr. Cesare Gianturco.

Interview Session Two: 12 December 2011

Segment 00B
Interview Identifier

Segment 11
The Department of Interventional Radiology Chemistry Lab
B: Devices, Drugs, Procedures
[0:00:01.1]

Story Codes
A: The Researcher
B: MD Anderson History
A: Overview
A: Definitions, Explanations, Translations
A: The Clinician
B: Institutional Processes
B: Devices, Drugs, Procedures
B: MD Anderson History
C: Patients, Treatment, Survivors
C: Patients
B: Institutional Processes
B: MD Anderson Impact
C: Discovery and Success
D: Technology and R&D

C: Professional Practice
C: The Professional at Work
C: Discovery, Creativity and Innovation
B: Industry Partnerships
D: On Research and Researchers

In this segment, Dr. Wallace explains that he created the Department of Interventional Radiology Chemistry Lab in collaboration with Dr. Gerald Dodd and Dr. Cesare Gianturco to experiment with new methods of advancing patient care. His philosophy, he also notes, is that 20% of work in a laboratory should be “non-directed” (exploratory and even drifting into areas related to interventional radiology). Next Dr. Wallace reviews several of the studies undertaken in the lab. One group of studies focused on building drugs that could be delivered to target sites (e.g. radioactive tamoxifen, PG-Taxol, that interacted with a hormone receptor). Dr. Wallace then opens up a PowerPoint presentation that shows funding details and activities in other sections of Interventional Radiology. He then speaks in detail about a great success in the Chemistry Lab: attaching a polymer to a polypeptide (Taxol) to target breast and ovarian cancer tumors in animals, a process that not only increased the therapeutic value of the drug, but of any radiation treatments given simultaneously.

Segment 12

Fullerenes and Drugs and Techniques to Enhance Therapy

B: Devices, Drugs, Procedures
[0:21:22.0]

Story Codes

A: The Researcher
A: Overview
A: Definitions, Explanations, Translations
B: Devices, Drugs, Procedures
B: MD Anderson History
C: Patients, Treatment, Survivors
C: Patients
B: MD Anderson Impact
C: Discovery and Success
D: Technology and R&D
C: Professional Practice
C: The Professional at Work
C: Discovery, Creativity and Innovation
B: Industry Partnerships
D: On Research and Researchers

This segment continues with a focus on drugs. Dr. Wallace then talks about work on the drug Opaxio. He explains that “fullerenes” are nanoparticles that deliver drugs, and he explains that they were used to deliver C225 (Erbix), greatly increasing its effectiveness. He then describes how combining enhanced Erbix with enhanced Taxol (see Segment 11) dramatically increases the therapeutic value to the patient. He describes experiments creating nanoparticles coated with gold, and also mentions work with fluorescent proteins that, when given to nude rats with cancer, show where metastases are located without cutting into the animal.

Segment 13

Talent in the Department of Interventional Radiology

B: An Institutional Unit

[0:34:02.0]

Story Codes

C: Portraits

B: Building/Transforming the Institution

B: Multi-disciplinary Approaches

B: Growth and/or Change

A: The Researcher

A: Overview

A: Definitions, Explanations, Translations

B: Devices, Drugs, Procedures

B: MD Anderson History

C: Patients, Treatment, Survivors

C: Patients

B: MD Anderson Impact

C: Discovery and Success

D: Technology and R&D

C: Professional Practice

C: The Professional at Work

In this segment, Dr. Wallace focuses on individuals who made important contributions to the Department of Interventional Radiology: David Yang, Zuxing Kan, Chun Li, and Dušan Pavčnik (noting that some of these foreign physicians were not licensed to treat patients in the US, and thus focused on research). He describes in detail some of Dr. Kan's in vivo microscopy studies of liver cancer, including his development of a chemical embolis using ethiodol.

Segment 14

[Redacted]

Segment 15

A "Hands-On" Course for Interventional Radiologists; Investigating Artists and Their Diseases

A: The Educator

[1:00:12.3, approx]

Story Codes

B: Education

B: The Educator

B: Building/Transforming the Institution

B: Multi-disciplinary Approaches

A: Character, Values, Beliefs, Talents

A: Personal Background

A: Overview

A: Definitions, Explanations, Translations

C: Professional Practice

C: The Professional at Work

C: Discovery, Creativity and Innovation

In this segment, Dr. Wallace mentions some of his teaching at MD Anderson, noting first the “Hand-On” course he created with Swedish physician Anders Lunderquist, designed to introduce physicians to Interventional Radiology. He mentions that he would give lectures between 7-8 am and 12-1 pm. Then he focuses at length on “Creativity and Disease,” a series of talks he gave that trace the lives of artists, the diseases that afflicted them, and how their diseases influenced their art work. (E.g., Monet’s work deteriorated as his cataracts developed, then improved once they were removed.) Dr. Wallace then talks about his own interest in art. Referring to a PowerPoint presentation, he goes on to talk more about specific artists and celebrities and their diseases. He notes that he used these to inform students and colleagues about therapy and diagnosis.

Segment 16

A Physician as an Artist

A: Personal Background

[1:17:42.5]

Story Codes

A: Personal Background

C: Discovery, Creativity and Innovation

C: Portraits

A: Character, Values, Beliefs, Talents

C: Collaborations

Dr. Wallace begins this section talking about his sons –one a composer in New York and a second son who now works in interventional radiology. He then talks (referring to a presentation of images) about his own artwork, beginning with sculptures he designed and then had cast in bronze, moving on to his oil paintings and pastels. He comments briefly on how welcoming the Jewish Community in Houston has been over the years.

Segment 17

Challenges, Chairs, and Awards

A: View on Career and Accomplishments

[1:34:53.1]

Story Codes

A: Character, Values, Beliefs, Talents

A: Personal Background

A: The Researcher

A: The Clinician

A: The Administrator

A: Activities Outside Institution

A: Career and Accomplishments

B: Philanthropy, Fundraising, Donations, Volunteers

C: Professional Practice

C: The Professional at Work

D: Ethics

D: On Research and Researchers

Dr. Wallace begins by saying that his time at MD Anderson always challenged him in positive ways and that he has found success in simply doing what is needed for patients who are in so much need. He tells an anecdote about pioneering the first-pass effect with alcohol (injecting the chemotherapeutic agent directly into the artery feeding a tumor), then notes an ethical issue: a visitor to the lab from another institution asked to see details of the experiments, then published a paper on the subject. Dr. Wallace then lists the Chairs he has occupied, his awards (he tells an anecdote about the Antoine Bécélère Award), and the Fulbright Scholarships that have taken him to Brazil and to Lubiana.

Sidney Wallace, MD

Interview Session One: 29 November 2011

Chapter 00A

Interview Identifier

Tacey Ann Rosolowski, PhD

[0:00:01.1]

Let me record the identifier here and we are recording. I'm Tacey Ann Rosolowski, interviewing Dr. Sidney Wallace at the University of Texas MD Anderson Cancer in Houston, Texas. This interview is being conducted for the Making Cancer History Voices Oral History Project, run by the Historical Resources Center at MD Anderson. The interview is taking place in Dr. Wallace's office in Pickens Tower, on the Main Campus. Dr. Wallace is a Professor Emeritus in the Division of Diagnostic Imagery, is that correct?

Sidney Wallace, MD

[0:00:33.7]

Yes

Tacey Ann Rosolowski, PhD

[0:00:33.8]

All right, because we had this conversation about division, section and department, and I still don't have them in the right order.

Sidney Wallace, MD

[0:00:39.3]

That's okay.

Tacey Ann Rosolowski, PhD

[0:00:40.0]

And he was serving as Deputy Division Head of Research at the time of his retirement in August of 1996. He was also instrumental in founding the John S. Dunn Research Foundation Center for Radiologic Sciences, in diagnostic imaging, as well as a couple of other research organizations, and we will be talking about those. This is the first of what I hope will be more than one interview session, but we will talk about that later.

Today is November 29, 2011 and the time is 9:05AM. And Dr. Wallace, I really appreciate you taking the time to participate in the oral history project.

Interview Session: 01
Interview Date: November 29, 2011

Chapter 1

A: Overview

Defining Interventional Radiology

Story Codes

A: Overview

A: Definitions, Explanations, Translations

A: The Researcher

A: The Clinician

Tacey Ann Rosolowski, PhD

[0:00:40.0]+

As I mentioned to you, the first thing I had to do when I received your advance materials for this interview, was look up or get a sense of what is interventional radiology, the area to which you have devoted your career. So I was hoping that we could begin by you giving just a kind of snapshot description of what interventional radiology is.

Sidney Wallace, MD

[0:01:47.4]

Interventional radiology is that area of Diagnostic Radiology in which percutaneous diagnostic techniques have been extended and utilized by the Diagnostic Radiologist in a more active role in both the diagnosis and the therapeutic management of the patient. It might be more descriptive to combine two approaches, i.e. intravascular or transvascular therapy with percutaneous biopsy, aspiration and drainage techniques. The word intervention is derived from the Latin *intervenire*, "to come between." The Diagnostic Radiologist 'comes between the surgeon and his pocketbook.' In this sense, the definition is appropriate.

The surgeon has been essential in the evolution of interventional radiology. Many of the techniques have been adapted from previously established surgical procedures. Percutaneous vascular catheterization was devised by surgeons, but later refined, adapted and expanded by Radiologists to the visualization of almost all vascular beds. Occlusion, infusion, constriction, dilatation and embolization are all percutaneous adaptations of operative techniques. Percutaneous biopsies, aspirations and drainage procedures became the province of the Radiologist when radiologic equipment allowed ready localization by image intensification. The procedures are performed more rapidly, with less morbidity and mortality and at a reduced financial burden to the patient, than their surgical counterparts.

Commented [T1]: Dr. Wallace defines Interventional Radiology and describes this specialty's link with surgery.

Interview Session: 01
Interview Date: November 29, 2011

Chapter 2

A: Personal Background

A Butcher Shop and Cartooning: Early Experience with Anatomy and Images

Story Codes

A: Personal Background

A: Character, Values, Beliefs, Talents

A: Professional Path

A: Inspirations to Practice Science/Medicine

A: Influences from People and Life Experiences

Tacey Ann Rosolowski, PhD

Yes, because I am interested in what took you to surgery as a first specialty.

Sidney Wallace, MD

My father was a butcher I thought that was a natural transition.

Tacey Ann Rosolowski, PhD

Did you help your father in the shop?

Sidney Wallace, MD

Yes

Tacey Ann Rosolowski, PhD

You understood all about anatomy from a hands-on-perspective.

Sidney Wallace, MD

[0:08:09.6]

The anatomy was there and the muscles were there, and you do cut.

Tacey Ann Rosolowski, PhD

[0:08:17.7]

What about the whole thing with hand skills, you know and sort of the delicacy of dissection? Is there anything that...?

Sidney Wallace, MD

[0:08:24.2]

There was some of that but it wasn't dissection. You took your cleaver and used it.

Commented [T2]: In this segment describes his family – immigrants from Russia—and sketches the origin of his interest in surgery and radiology. Dr. Wallace helped out in his father's butcher shop, learning about anatomy from an early age. He was also skilled with images as a child (precursor to a career focused on images). He began drawing (cartoons) at the age of five and he jokes that he later thought cartooning would be an alternative career if he couldn't get into medical school.

Interview Session: 01
Interview Date: November 29, 2011

Tacey Ann Rosolowski, PhD

[0:08:30.6]

But it's a funny kind of thing, I mean I know just myself from cooking. You get a sense where cartilage is, you know what it feels like when a knife --

Sidney Wallace, MD

[0:08:37.7]

Oh yes, you would do that.

Tacey Ann Rosolowski, PhD

[0:09:04.4]

And you went to...?

Sidney Wallace, MD

[0:09:05.8]

Temple University, Philadelphia, Pennsylvania

Tacey Ann Rosolowski, PhD

[0:09:07.0]

Temple University, right. And you got your BA in '49.

Sidney Wallace, MD

[0:09:09.8]

Yes. But during that time, even prior to that time, in high school, I cartooned a whole high school journal I did cartoons of all the professors. I didn't paint until I came to Houston.

I've been drawing since I was five, but when I drew a cartoon, my father said, "What are you doing that for, there's no future in that." He said, "They're all airheads and you're just barking up the wrong tree." And I thought that would be my alternative to medicine if I couldn't get into medical school.

Tacey Ann Rosolowski, PhD

[0:10:01.2]

You'd be a cartoonist?

Sidney Wallace, MD

[0:10:02.4]

I'd try in any event. So that was always there, from the very start. I couldn't tell whence it came. My father was -- I'm a first generation American, he was a foreigner, and wrote beautifully. My mother said she could do everything, but I never saw her do anything in reference to art.

Interview Session: 01
Interview Date: November 29, 2011

Tacey Ann Rosolowski, PhD

[0:10:31.1]

Where did your father emigrate from?

[0:10:32.5]

Sidney Wallace, MD

From Russia. And my mother from Russia. They didn't know each other, although they lived in the same little town.

Tacey Ann Rosolowski, PhD

[0:10:42.3]

Do you know the name of the town?

Sidney Wallace, MD

[0:10:44.5]

Skvera. My father came from a reasonably well-to-do family, my mother did not. But his father ran a slaughterhouse, and my mother's parents sold butter and eggs, or anything from a chicken. But I do have three other physicians who are relatives in Russia.

Tacey Ann Rosolowski, PhD

[0:11:23.7]

In your family?

Sidney Wallace, MD

[0:11:24.5]

In my family.

Tacey Ann Rosolowski, PhD

[0:11:25.4]

Wow, that's amazing.

Sidney Wallace, MD

[0:11:26.3]

And I met one in Paris some years later, who was very proud of what he had accomplished doing lymphangiography. Now, lymphangiography was the thing that we really were markedly involved in here, and that was a demonstration of the lymphatics and lymph nodes. But his was 30 years after the time I did lymphangiography. He was an obstetrician/gynecologist.

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Tacey Ann Rosolowski, PhD

[0:12:01.6]

No that's fine. I was interested in you bringing up the artistic dimension, because-- I mean maybe it's a bit early to ask this question, we can certainly come back to it, but I was interested in how you saw your skills in drawing and painting, if there's a commonality between those skills and the skills that you used in your later career in medicine.

Sidney Wallace, MD

[0:12:25.9]

Well, throughout medical school, my books were three quarters drawings, cartoons, and the rest of it, medical information.

Tacey Ann Rosolowski, PhD

[0:12:36.6]

In terms of your note-taking?

Sidney Wallace, MD

[0:12:37.6]

Yes. In medical school I drew cartoons, in the year book at graduation. It was always there, as far back as I can remember, and I was the only one in our family who drew cartoons.

Tacey Ann Rosolowski, PhD

[0:12:55.8]

Interesting.

Sidney Wallace, MD

[0:12:57.0]

And the only one who went to college at that time.

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Chapter 3

A: Educational Path

From Surgery to Radiology to Scandinavia

Story Codes

A: Professional Path

A: Inspirations to Practice Science/Medicine

A: Influences from People and Life Experiences

C: Evolution of Career

C: Professional Practice

C: The Professional at Work

C: Collaborations

D: Understanding Cancer, the History of Science, Cancer Research

D: The History of Health Care, Patient Care

A: Overview

A: Definitions, Explanations, Translations

Tacey Ann Rosolowski, PhD

[0:13:00.1]

When did you first get the idea to go to medical school?

Sidney Wallace, MD

[0:13:05.2]

Always.

Tacey Ann Rosolowski, PhD

[0:13:11.1]

So what about selecting surgery as your specialization? That too was always there, you knew you would be a surgeon?

Sidney Wallace, MD

[0:13:16.6]

I thought I'd be a surgeon.

Tacey Ann Rosolowski, PhD

[0:13:21.3]

So what happened then?

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Sidney Wallace, MD

[0:13:23.0]

I did surgery and enjoyed it very much. My friend told me there was little excitement in surgery at that time, and you would be the corner physician and do whatever came by. He trained in surgery at Philadelphia General Hospital and then went to Cleveland Clinic to finish his training. He came back to Philadelphia. He opened his practice, and was my attending physician at Philadelphia General Hospital.

Tacey Ann Rosolowski, PhD

[0:14:13.4]

What was the name of your friend?

Sidney Wallace, MD

[0:14:18.1]

Dr. Jack McCafferty

Tacey Ann Rosolowski, PhD

[0:14:22.0]

So he was your attending?

Sidney Wallace, MD

[0:14:25.4]

He was my attending physician at Philadelphia General Hospital. Each surgical resident was in charge of a service, I had the full service of 60 patients at Philadelphia General Hospital. We did almost everything as a first year resident. Then I went in to the Army. I had applied to go to Cleveland Clinic. After I came out, my parents were aghast when I said I wanted to quit and go into something else, and especially radiology, which they could hardly pronounce.

Tacey Ann Rosolowski, PhD

[0:15:29.8]

Why did you select radiology?

Sidney Wallace, MD

[0:15:31.5]

Because I enjoyed every aspect, especially the visual aspect.

Tacey Ann Rosolowski, PhD

[0:15:34.3]

The visual aspect.

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Sidney Wallace, MD

[0:15:36.3]

And I went to the Radiology Department. I enjoyed reviewing films of my patients.

Tacey Ann Rosolowski, PhD

[0:15:47.9]

In radiology?

Sidney Wallace, MD

[0:15:48.3]

Yes, in radiology. Dr. Herman Ostrum was attending in radiology at Philadelphia General, he was superb. I decided then, to start as a radiology resident at Jefferson Medical College Hospital, in Philadelphia.

Tacey Ann Rosolowski, PhD

[0:16:12.2]

Yeah. Well it's interesting that you turned away from surgery because you thought that it might be routine, and then you went into something where nothing was happening. So what...?

Sidney Wallace, MD

[0:16:26.7]

I have no idea, I can't say, but I enjoyed the physicians there, who made radiology look interesting. Philadelphia General was a community hospital with mostly indigent patients. Jefferson was getting a new Head of Radiology, and he was Dr. Philip J. Hodes, H-O-D-E-S, who was a master of lectures, storytelling, and was a capable radiologist. So I spent my four years in training. The staff was exceptionally good and gave me a very strong clinical background. There wasn't much in research in radiology at that time. We did primarily clinical work. I finished in 1962.

Tacey Ann Rosolowski, PhD

[0:18:17.1]

Yes, that's what I have.

Sidney Wallace, MD

[0:18:18.9]

I went to Sweden for a year, 1963 to 1964.

Tacey Ann Rosolowski, PhD

[0:18:23.2]

And the institution there was?

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Sidney Wallace, MD

[0:18:25.9]

The University of Lund Hospital.

Sidney Wallace, MD

[0:18:26.5]

Lund is about 20 miles from Malmo. Anybody or everybody that wanted to study vascular radiology went there.

Tacey Ann Rosolowski, PhD

[0:18:41.6]

Why?

Sidney Wallace, MD

[0:18:42.4]

Because they had done a fair amount of vascular radiology. Erik Boijesen was the Head of Vascular Radiology at that time and was the second person to Olle Olsson. Olsson was well known in radiology. Dr. Sten Cronqvist was the neuroradiologist with whom I spent the majority of the year in Sweden.

Tacey Ann Rosolowski, PhD

[0:20:05.1]

Can you describe what some of this work was about?

Sidney Wallace, MD

[0:20:09.1]

You defined the blood vessel supply throughout the body. The approach was known as the Seldinger approach. A needle punctured a blood vessel; through the needle was placed a wire guide; the needle removed over the wire guide, a catheter was threaded. Catheters were fairly large at that time. The catheter was shaped in a way that would facilitate getting into the artery or vein that you chose to enter. You would then inject contrast material and take multiple sequential films which would opacify the vessels of interest and give you some clue as to what was going on in that patient. So I learned to do the vascular diagnostic studies anywhere in the body; in the brain, in the chest, in the abdomen, and the extremities.

Tacey Ann Rosolowski, PhD

[0:22:06.2]

Let me just pause for a second. Oh, just one ring, good.

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Sidney Wallace, MD

[0:22:13.4]

I also went to the local hospital, a large hospital in Malmo. The Radiology Department was well known for double contrast barium studies of the colon.

Tacey Ann Rosolowski, PhD

[0:23:03.9]

It seems like it's sort of a double research activity, because you're not only studying how to do the technique, but you're probably finding out more about the human body at the same time.

Sidney Wallace, MD

[0:23:16.1]

Yes. In Sweden, they had a unique arrangement. Radiology was the center of action and all the other specialties. Each morning the staff would come to Radiology and look at the films that were done the day before.

Tacey Ann Rosolowski, PhD

[0:23:36.6]

Why do you think that was set up that way?

Sidney Wallace, MD

[0:23:38.9]

Dr. Gosta Forsell, a radiologist, put Radiology in a very important position. The clinical physicians came there each day. Clinicians would visit and discuss the case with the radiologist. So there was much more of a give and take and much more of a sharing of knowledge and responsibilities and how to handle certain circumstances. It was unique and I enjoyed that aspect.

Tacey Ann Rosolowski, PhD

[0:24:31.2]

You were there until 1964?

Sidney Wallace, MD

[0:24:35.8]

Yes. 1963 was the time that [John F.] Kennedy was assassinated. Many friends called to give condolences.

Tacey Ann Rosolowski, PhD

[0:24:52.5]

I was sent home from school. Our schools closed.

Sidney Wallace, MD

[0:24:58.4]

Pretty much at that time, I also traveled to Norway, to learn more about the brain and the spinal cord, and the neuroradiologic aspect. [Per] Amudsen who was well known to be a good teacher in neuroradiology, and we used the equipment that was there. In Sweden they had all of the up-to-date equipment, because they were not in the war, and at night, the Nazis used to go through Sweden, to Norway, where they were fighting. The Swedes sold ball bearings to the Nazis and they had the most modern equipment that you would find anywhere. So Sweden was at the top of the rung in Radiology, there were many like me, who came to learn what they were doing and how they were doing these procedures.

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Chapter 4

B: An Institutional Unit

MD Anderson's Nascent Radiology Department

Story Codes

A: The Researcher
A: The Clinician
A: Professional Path
A: Influences from People and Life Experiences
C: Evolution of Career
C: Professional Practice
C: The Professional at Work
C: Collaborations
A: Overview
A: Definitions, Explanations, Translations
D: On Research and Researchers
D: Understanding Cancer, the History of Science, Cancer Research
D: The History of Health Care, Patient Care

Tacey Ann Rosolowski, PhD

[0:26:10.7]

So what happened when you came back?

Sidney Wallace, MD

[0:26:14.7]

When I came back to Jefferson, Dr. Stanley Baum was working at the Graduate Hospital in Philadelphia. He was doing vascular radiology. He delivered drugs into the blood vessels, to control bleeding from the colon and small bowel. He earned a reputation in vascular radiology.

Tacey Ann Rosolowski, PhD

[0:27:09.2]

Now in terms of the whole field of interventional radiology, had it been named at this point?

Sidney Wallace, MD

[0:27:15.5]

No, not really.

Tacey Ann Rosolowski, PhD

[0:27:18.2]

But it's sort of, all the pieces are being set in place.

Commented [T3]: Dr. Wallace next explains how he implemented the knowledge he gathered abroad once he returned to the Department of Radiology at Jefferson Hospital in Philadelphia. He also notes some of the primary radiological researchers and the state of the field in the U.S. at that time (1964). Then he details the types of tumors and diseases he began to treat at Jefferson and the techniques used, and his particular interest in the lymphatic system. He describes meeting Dr. Gerald Dodd, who worked at Jefferson and who would also come to MD Anderson. He tells how he came to MD Anderson in 1966. He underscores the contrast between the position of radiologists in Sweden and the United States and explains that he believed MD Anderson offered greater opportunity for his career growth. He describes the Department of Radiology at that time (at first, the Department of Radiology did not retain patients' films and the faculty "had to go around stealing them back"), lists the faculty, and notes the goals that Dr. Dodd established for the Department, including building up to an "exponential growth."

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Sidney Wallace, MD

[0:27:22.3]

Dr. Charles Dotter, at the University of Oregon in Portland, Oregon established himself in treating arteriosclerosis especially in the lower extremities.

Tacey Ann Rosolowski, PhD

[0:27:40.2]

Well don't worry about that, because I'll send you this list of terms and then if you recall, you can fill it in.

Sidney Wallace, MD

[0:27:46.1]

He was doing exciting work in the blood vessels, but probably more toward the 1970s. He was trying to open up narrowing in the blood vessel. He was on the front page of Time Magazine. He became very important in these special procedures that were eventually known as Interventional Radiology.

Dr. Alexander Margulis, who was at the University of California at San Francisco, named it, Interventional Radiology. So when I came back to Jefferson Medical College Hospital Dr. Roy Greening, who was technically superb, but he would never use enough contrast material that you would really see it well. He always was a little skittish in doing that, he would do the vascular radiology. I did the neuroradiology.

Tacey Ann Rosolowski, PhD

[0:30:12.9]

Now were these studies in the laboratory on animals, or were these clinical?

Sidney Wallace, MD

[0:30:18.8]

It was all clinical and we did what was then called pneumoencephalograms, where we put air into the spinal canal, and it went up into the brain and it accumulated in certain areas, and then radiographs of those areas were done.

Tacey Ann Rosolowski, PhD

[0:30:45.1]

And what were the patients that you were doing work on, what were their afflictions?

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Sidney Wallace, MD

[0:30:48.9]

Brain tumors and vascular disease, anything in the brain or the spinal cord. I brought to Sweden, what I had been doing at Jefferson. I was very much involved in studying the lymphatic system.

Tacey Ann Rosolowski, PhD

[0:31:42.2]

What got you interested in the lymphatic system?

Sidney Wallace, MD

[0:31:45.0]

Actually, part of that residency included radiotherapy, and the man that was the Head of Radiotherapy was Dr. Simon Kramer. Simon was a superb British radiotherapist who came to Jefferson Medical College Hospital. Simon Kramer was a wonderful physician. We worked together for a year in Radiotherapy and he said, "There were a few surgeons in Europe doing lymphangiography". We did many articles on lymphangiography, study of the lymph nodes and lymphatics.

When I went to Sweden, I had that information. I did a lot of lymphangiography, and continued that in Sweden. They were most appreciative and I learned about vascular radiology. The lymphatics are vessels, a part of the blood vascular system; veins, arteries and lymphatics.

There was a man in England that had done a good deal of lymphangiography, he was a surgeon by the name of Kinmonth, K-I-N-M-O-N-T-H. He was using water-based contrast material to opacify these vessels.

Tacey Ann Rosolowski, PhD

[0:34:05.1]

I'm sorry, what was that word, what based contrast?

Sidney Wallace, MD

[0:34:08.0]

Water-based contrast material. We used Ethiodol oil-based contrast material which would stay around for a long time, get into the lymph nodes, and you could see changes in the lymph nodes that would suggest a diagnosis. But a negative study meant nothing, because a microscopic focus could not be seen. It had to be a size large enough for you to see. I spent most of my time in Sweden in Neuroradiology.

When I came back to Jefferson, I did neuroradiology. Gerry Dodd was also on staff at Jefferson. The two of us came together to MDACC because he was the radiologist who they sought after.

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Tacey Ann Rosolowski, PhD

[0:35:15.9]

Just so I'm getting it clear. Gerald Dodd was at Jefferson.

[0:35:21.2]

Sidney Wallace, MD

He had trained at Jefferson and was on staff, went to MDACC for five years because there was a political and financial conflict at Jefferson. The institution wanted to take over the Radiology Department. The radiology department was privately owned. The Radiology staff did not appreciate the institution coming in and taking that over. Gerald Dodd left there, as did most of the staff, and came to MDACC. He had a little office, a small section and everybody else had the films. They took the films and put them in their department.

Tacey Ann Rosolowski, PhD

[0:36:12.3]

So you had a radiology department with no film!

Sidney Wallace, MD

[0:36:14.8]

When we first came, we had to go around trying to steal them back.

Tacey Ann Rosolowski, PhD

[0:36:21.1]

So you came in 1966. And how did that come about?

Sidney Wallace, MD

[0:36:28.1]

They looked for Gerald Dodd because he is a superb radiologist and had been at Jefferson before, but from the first day he left MDACC, there were people coming, looking, asking him to come back to MDACC. For a while he didn't want to do it, because they would not define a Department of Diagnostic Radiology for him. The institution still wanted it as a section. There was no budget. Consequently, you couldn't buy equipment and you were dependent upon Dr. [Gilbert] Fletcher, the Head of the Department of Therapeutic Radiology, to choose what equipment you'd use. That was intolerable, you couldn't do your job.

Tacey Ann Rosolowski, PhD

[0:37:31.3]

So this is really showing the difference in the position of radiologists, from Sweden and the U.S. How would you characterize that?

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Sidney Wallace, MD

[0:37:43.4]

Swedish radiologists were in a better position in the medical community than we were in the USA. We worked in a darkroom with red glasses, so we could accommodate to the darkness, and we would do our studies and write a report and send it to the staff. In Sweden, they would do the study and at times you could refuse. They would then demonstrate the findings to the clinicians as they came in en masse. All the surgeons would be there in the morning and the radiologist in charge of the surgical clinics would present the films. He was more important in making the final decisions. Here, the clinician thought about it and maybe changed his mind about it and did whatever he wanted. The surgeon was not always correct.

So when we came back, after Sweden, I rejoined Jefferson, I occupied an office with Dr. Dodd. When he started getting interested in MDACC When Lee Clark decided, in order to get a good radiologist, he'd have to make a Department of Diagnostic Radiology. Radiotherapy is a treatment modality and Diagnostic Radiology establishes the etiology.

Tacey Ann Rosolowski, PhD

[0:40:29.0]

Sidney Wallace, MD

[0:40:31.5]

Dr. Philip Hodes didn't want me to leave Jefferson. We had a large residency program in Philadelphia and MDACC did not. I wasn't doing what I had learned in Sweden. I was doing the neuroradiology, but not the other vascular work. I thought I would have a greater opportunity to grow at MDACC. MDACC was no more than 15 years old in 1966.

The two of us came to MDACC. In the department were Dr. [David] Paulus and Dr. [Bao Shan] Jing, and there were part-time people. We had to gather the films from everywhere. We started to do the work and there was plenty of work to do, so Dr. Dodd recruited some radiologists from Jefferson to come to MDACC. We had a group of superb radiologists. Dr. [Arnold] Goldman, who was in the US Army, came back from Vietnam, was interested in the chest, he became our expert in chest. He was a genius. Dr. Barney Finkelstein excelled in bone radiology.

I remember we had a polytome, which made slices through the body. The institution had purchased it and it never worked. It was in the room and we hung our coats and our hats on it. The Philips people could not get it to work. Arnold Goldman studied the situation and determined that the filter was backwards. He was very bright and eventually built his own CT scanner.

Commented [T4]: In this segment, Dr. Wallace narrates the progression that led to the creation, in 1968, of the Angiographic Interventional Laboratory. He lists the individuals involved and the studies performed, focusing in particular on Dr. Cesare Gianturco, who made great contributions to the Department of Radiology and invented many interventional devices. Dr. Wallace provides a character portrait, sketches Dr. Gianturco's background, and explains how he came to MD Anderson in 1968. He describes how Dr. Gianturco mechanized the Department of Radiology. Dr. Gianturco was the inventor of many devices that the Department of Radiology tested. His first project was systemic heparinization during vascular catheterization, however, Dr. Gianturco left after a year and a half.

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Chapter 5

B: Building the Institution

The Angiographic Interventional Laboratory: Setting the Pieces in Place

Story Codes

B: MD Anderson History
B: Building/Transforming the Institution
B: Multi-disciplinary Approaches
B: Growth and/or Change
B: Obstacles, Challenges
C: Portraits
A: Influences from People and Life Experiences
A: Overview
A: Definitions, Explanations, Translations
A: The Researcher
A: The Clinician

Tacey Ann Rosolowski, PhD

[0:43:43.5]

What were your specific goals when you came here? Did you have a program for yourself in mind?

Sidney Wallace, MD

[0:43:49.4]

Gerry Dodd set the program because he knew much more than I. I was a neophyte in the radiology world. His strength was in the gastrointestinal tract and most of the material that he wrote about was in the gastrointestinal tract. He was very well versed in almost every aspect of radiology and he wanted to build a department akin to many of the top notch departments in the country.

Tacey Ann Rosolowski, PhD

[0:44:36.6]

So really, was the first push to set it up as a clinically-based service?

Sidney Wallace, MD

[0:44:47.3]

To do the job that we wanted to do for the patients in the hospital, we needed more radiologists. We didn't have room, no eyes to read the films. Now 18,000 people work in this institution and radiology has almost a thousand persons.

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Tacey Ann Rosolowski, PhD

[0:45:19.3]

So it all started from that few guys running around and stealing back the films.

Sidney Wallace, MD

[0:45:26.1]

Barney came just after we did, he was the third man and then Arnold came as the fourth, and we continued to build, some from Philadelphia and from Jefferson, etc. I think there are now, the combined radiology and physics, it's 150. It grew exponentially. We were affectionally known as damn Yankees all "Jefferson on the Bayou" which included G.D. Dodd, S. Wallace, B. Finkelstein, A. Goldman, H. Medellin, M. Lindell, H. Libshitz, J. Edeiken, and I Freundlich.

Tacey Ann Rosolowski, PhD

[0:46:10.2]

Now I have let's see, in 1968, you established the Angiographic Interventional Laboratory. So it took two years to kind of get to the point where you could actually--

Sidney Wallace, MD

[0:46:28.3]

We started slowly. It was a gradual progression of events. There were physicians who came and said. "I'm going to do my work," i.e. surgeons who came from institutions where they were trained to do vascular work, because they didn't have an interventionalist or a vascular radiologist. We said this is our territory we could do a better job. Surgery was their job, let me do our job. Gerry Dodd was even more forceful.

Tacey Ann Rosolowski, PhD

[0:47:31.3]

And as I was reading through the materials, I got this sense that there would be, and undoubtedly was, some kind of tension between surgeons and the radiologists.

Sidney Wallace, MD

[0:47:44.4]

There were tensions with surgeons primarily, because that's the kind of work that required a puncture of a vessel. MDACC couldn't afford to have a full-time neurosurgeon. Dr. Leavens was superb, and he was happy to turn the neuroradiology to us. Little by little the vascular radiology was turned over to the radiologist. Finkelstein and Goldman learned vascular radiology and became pretty proficient.

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Tacey Ann Rosolowski, PhD

[0:48:40.2]

So the main procedures you were doing were...?

Sidney Wallace, MD

[0:48:43.7]

Demonstrating blood vessels was vascular radiology. We controlled the bleeding patient. We found other ways to take care of the bleeding. The research laboratory was a necessity. Gerry and I wanted a laboratory which we created in '68, and James Anderson, Ph.D. was our first person in charge of the laboratory. He was a Veterinary Physiologist.

Tacey Ann Rosolowski, PhD

[0:49:27.1]

Oh I see, okay.

Sidney Wallace, MD

[0:49:28.6]

The Dunn Laboratory wasn't \$\$ SPACE until 1980.

Tacey Ann Rosolowski, PhD

[0:49:31.8]

Okay, so I'm kind of missing something here, because I have in 1968, the Angiographic Interventional Laboratory was established, and that was with Gerald Dodd and Cesare Gianturco.

Sidney Wallace, MD

[0:49:44.5]

Dr. Cesare Gianturco was a retired radiologist who joined us in 1968.

Tacey Ann Rosolowski, PhD

[0:49:50.4]

Well let's get all the pieces here.

Sidney Wallace, MD

[0:49:53.9]

Little by little, I was doing most of the vascular work, and then Finkelstein and Goldman helped me, and we got others to help out. In 1968 we established the research laboratory, and had one room in the Surgical Research Laboratory. They had it in the basement and we would do our research there, we used an old machine; we couldn't get any money.

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Tacey Ann Rosolowski, PhD

[0:50:23.4]

You were really the poor children there.

Sidney Wallace, MD

[0:50:24.4]

We were a different breed who came to MDACC and Gerry said, "Be nice now, don't be your usual self." And after one year he said, "Do anything you want." So we were our abrasive selves. The closer you get to New York, the more abrasive you get, so that's what we were, all four of us. Not Goldman. Goldman never was like that. He was very straightforward. Finkelstein and I and others that came from the Philadelphia area were very abrasive but knowledgeable and productive.

Tacey Ann Rosolowski, PhD

[0:51:04.8]

So what were your research areas in this lab?

Sidney Wallace, MD

[0:51:07.7]

The research area was run by Dr. Jim Anderson ('68- '80) and Dr. Ken Wright ('80- 2011). Initially Dr. Gianturco was a staff member for 1-1/2 years. He then returned to Champaign-Urbana, Illinois () and would join us every 3 months from 1970 to 1995.

Tacey Ann Rosolowski, PhD

[0:51:20.4]

No, no, this is all great stuff.

Sidney Wallace, MD

[0:51:22.3]

Cesare came to the United States around the early 1930s. He came because his brother studied at Mayo, he was a surgeon. And of course his brother wanted him to become a surgeon. Cesare was a brilliant physician and an inventor. He would invent things all the time in his home. He turned everything into a gadget. But he then came to Minnesota, to eventually went to Mayo Clinic. In a few months after he came, his brother died of scarlet fever. Dr. Cesare Gianturco was, in his early thirties, in Depression time and didn't have much money.

He had spent time in Naples before, in preparation for coming he took six months, in radiology, and about six months in pathology in Berlin. He got an appointment at the University of Minnesota, and there was a very well-known gastroenterologist Dr. Alvarez, a researcher and clinician studying the gastrointestinal tract. Cesare did some of his research work. He put little

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beads on the stomach and then watched the beads move as an animal would swallow. He worked on animals. He eventually took his residency at Mayo in Diagnostic Radiology.

He got a call in 1933, from a friend of his who was on staff at the Carle Clinic in Champaign-Urbana, Illinois. He needed some help, if Cesare could come to help him because he wasn't feeling well. He came to Urbana and within about ten hours his friend was dead of leukemia. The Carle Clinic was just starting, and they lost their radiologist. Cesare was then offered the job. He agreed to take that job and met his wife, who was studying English at the University of Illinois in Champaign-Urbana. She came to do the books for him in the Radiology Department. They eventually got married. On his honeymoon, he took his boards for Diagnostic Radiology.

In the Department of Radiology he created many new devices and procedures. He sent the films through the walls to the processor. He mechanized the whole department.

Tacey Ann Rosolowski, PhD

[0:55:10.9]

I can't visualize that, what does that mean?

Sidney Wallace, MD

[0:55:13.2]

These films are anywhere up to 14 x 17 inches.

Tacey Ann Rosolowski, PhD

[0:55:17.2]

Smaller than a laptop?

Sidney Wallace, MD

[0:55:21.6]

The films would go through the wall, to the processor, and then in the processor, to be developed. A complete study was done on a patient in one day. He'd start out and go from one study to another, as long as the contrast material did not interfere with seeing other areas. He would also do a rectal exam. He was very meticulous in whatever he did.

He came to MDACC in 1968, invited by Dr. Robert Moreton an MDACC vice president, who had trained at Mayo, he was a radiologist. He was a great politician as well. He was good for us because he sold radiology to the rest of the staff and was very supportive of us. But in the '60s, the "young turks" at Carle Clinic said Cesare had completed his stay at Carle. He did locum tenens around Illinois and in the communities. He hated it, because he would spend a day here, a day there, never established his roots.

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When he was in the US Army, he created the procedure to look for foreign bodies in the eye. Because they were metallic, it could be seen on the film. He then took multiple stereoscopic views to pinpoint the foreign body. That was just one of the many things he invented. His home was full of his gadgets, and he would use a grass cutter, made it into a pump. He came to look over MDACC. His daughter-in-law and son lived in Houston, and she was a chemist at Methodist Hospital. He would be able to see them.

Gerald Dodd offered him the job. He was 63. I said he would outlive all of us. He just had a motor going all the time. He did die in '95, he was 90 years old. But during that time, he invented many devices. We were the testers, he was the inventor. He brought his first project to MDACC that he was doing in Carle, systemic heparinization during vascular catheterization.

Tacey Ann Rosolowski, PhD

[0:59:06.1]

No.

Sidney Wallace, MD

[0:59:06.7]

Heparin is used to prolong the clotting time, "thin the blood."

Sidney Wallace, MD

[0:59:17.2]

Coumadin or Warfarin are oral medications that "thinned the blood" and prolonged the clotting time. He had a problem with clotting in one of the vessels, when a catheter was in place. At his advanced age, he was doing interventional radiology. He studied heparinization. Once the catheter was in place, he would inject heparin, and that would last throughout the procedure. I had studied how they did it in Sweden. We would inject heparin into the artery catheterized, 50 units per kilogram, add throughout the whole procedure heparinized saline. We hoped to be above the normal levels to protect the body. We had huge catheters which were not very pliable. They were made of Teflon. We started getting catheters from Sweden, KIFA catheters, which were plastic.

After the first year and a half, Cesare's wife decided to return to Champaign, Illinois. They were in their sixties then and she had been born and raised in Champaign, Illinois. They went back, but he had a laboratory in his home where he would do all the inventions, it was phenomenal. He would use things that you would never expect him to use. He was the kind of person who you could see in early springtime, mowing his lawn with a derby on, a coat which had velvet down the front, and gloves, and pushing his lawnmower. He noticed that the ribbon that cuts the grass became one of his inventions, a pulsatile pump.

Making Cancer History®

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Tacey Ann Rosolowski, PhD

[1:02:05.6]

So is that the Gianturco coil?

Sidney Wallace, MD

[1:02:08.2]

The Gianturco coil came later.

Tacey Ann Rosolowski, PhD

[1:02:13.5]

We'll get to that, because there are all these devices.

Sidney Wallace, MD

[1:02:17.0]

That's what I was going to show you.

Tacey Ann Rosolowski, PhD

[1:02:17.7]

Yes. Well I'd like to get it on record too, just verbally.

Sidney Wallace, MD

[1:02:22.6]

He would come in the morning and have a small carton of milk and two donuts, that was his breakfast, but he didn't eat until lunch time. You have a list of some of the patents all in his name. We tried them out in animals in the laboratory.

From 1968, Dr. Jim Anderson, a physiologist from a veterinary school, ran the laboratory. A radiologic technologist and a laboratory technologist, assisted him in doing the work.

At that time, the FDA did not govern devices. The FDA became involved in devices in 1976. But it wasn't until 1978 that the FDA took the responsibility for these. I can show you how to make a coil. If the patient agreed, the referring physician agreed and the hospital agreed we would use it.

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Chapter 6

B: Devices, Drugs, Procedures

Interventional Radiology: Devices, Therapies, and Growth of the Field

Story Codes

A: The Researcher

A: The Clinician

C: Patients

C: Patients, Treatment, Survivors

C: Professional Practice

C: The Professional at Work

A: Overview

A: Definitions, Explanations, Translations

D: The History of Health Care, Patient Care

Tacey Ann Rosolowski, PhD

[1:04:43.2]

Let me just kind of stop, since we're talking about the devices, because I had two questions. First of all, I wanted to get a sense of how the work that you were doing was dovetailing with cancer treatment, because we haven't really talked about that.

Sidney Wallace, MD

[1:05:00.0]

Vascular radiology could make a diagnosis of cancer, because the blood vessels were abnormal.

Tacey Ann Rosolowski, PhD

[1:05:08.8]

How so?

Sidney Wallace, MD

[1:05:09.3]

They may be irregular in outline, communications between arteries and veins with shunting through the tumor, and frequently they would demarcate the tumor with contrast material. Water-based contrast material, would opacify the abnormal vessels. We didn't have CT, ultrasound nor MRI. Vascular radiology was a part of our diagnostic capabilities. Once the pathway was visualized, we would block the pathway with particles, embolization; infuse chemotherapy with embolization, chemoembolization; or use the study merely to define or diagnose the neoplasm and the extent of the disease.

Commented [T5]: In this segment, Dr. Wallace talks about the link between his research and cancer treatment. He describes how interventional radiological techniques can diagnose cancer and also treat cancer with the insertion of particles, emboli, and through chemotherapy. He then talks about where the idea of blocking the blood supply to a tumor originated and gives a detailed explanation of the physical form and use of the Gianturco Coil. To illustrate the use of a coil, he tells a story about an emergency when a surgeon called on him and Dr. Gianturco to treat a patient with a communication site between an artery and vein in his neck. Dr. Wallace believes that embolization stimulated his T-cell formation and improved immunological reaction. Dr. Wallace then continues with a detailed discussion of interventional devices (referring to a PowerPoint presentation he shows to the Interviewer). He also talks about challenges of naming the field of interventional radiology as it was evolving.

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Tacey Ann Rosolowski, PhD

[1:06:17.2]

And that's to starve the tumor of blood.

Sidney Wallace, MD

[1:06:19.6]

That was effective in certain tumors. Then we delivered chemotherapy. Dr. Sullivan from Sloan-Kettering popularized the approach. The number of effective chemotherapeutic agents is relatively small, so that results were not fantastic. At present oral drugs are becoming more available.

Tacey Ann Rosolowski, PhD

[1:07:22.1]

Now the blocking of the blood supply, that's where a lot of these early devices came in, right?

Sidney Wallace, MD

[1:07:28.9]

Yes.

Tacey Ann Rosolowski, PhD

[1:07:29.5]

So maybe you could describe some of those that you developed at that time. Are you going to show me how to make one?

Sidney Wallace, MD

[1:07:36.4]

Cesare was our inventor.

Tacey Ann Rosolowski, PhD

[1:07:49.2]

But you tested all this. So when was the idea of blocking the blood supply to the tumor, when did that become... ?

Sidney Wallace, MD

[1:08:02.8]

There were scattered articles in the literature by physicians who inadvertently would block a blood vessel or dissect the vessel, and it would stop the blood supply and that would be a positive effect. Others would purposely occlude the blood supply. [Redacted]

Tacey Ann Rosolowski, PhD

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[1:09:19.6]
So what we're looking at is... ?

Sidney Wallace, MD

[1:09:24.0]
This is a guide wire and it became the Gianturco coil.

Tacey Ann Rosolowski, PhD

[1:09:24.9]
A guide wire. And then inside is a much thinner wire.

Sidney Wallace, MD

[1:09:26.8]
Now inside is a mandrill, which is stiff. There is a fine wire attached to the mandrill.

Tacey Ann Rosolowski, PhD

[1:09:44.5]
I mean this is actually one of the challenges of this interview, because-- oh my goodness.
So we have three kinds of wire here.

Sidney Wallace, MD

[1:09:54.2]
That's a safety wire, this is a mandrill.

Tacey Ann Rosolowski, PhD

[1:09:57.2]
How thick is this wire in millimeters?

Sidney Wallace, MD

[1:09:59.0]
Not very.

Tacey Ann Rosolowski, PhD

[1:10:01.9]
It's very fine, it's like a thread.

Sidney Wallace, MD

[1:10:03.4]
Less than a millimeter

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Tacey Ann Rosolowski, PhD

[1:10:06.4]

It's very fine.

Sidney Wallace, MD

[1:10:07.5]

I could get the dimensions if you wish. And this is a ribbon.

Tacey Ann Rosolowski, PhD

Well I just want to make sure that anyone who listens to the interview or reads the transcript, has the sense of what we're looking at and handling here.

Sidney Wallace, MD

[1:10:17.9]

This is the ribbon which surrounds the mandrill and safety wire

Tacey Ann Rosolowski, PhD

[1:10:18.8]

I see. So then there's a hollow wire.

Sidney Wallace, MD

[1:10:22.6]

The ribbon is hollow, and the mandrill is a stiffer wire.

Tacey Ann Rosolowski, PhD

[1:10:31.1]

And that's the one that actually goes into the system.

Sidney Wallace, MD

[1:10:34.7]

No, the whole thing goes into the system. All three of them, and they're soldered together at the ends

Tacey Ann Rosolowski, PhD

[1:10:42.3]

Oh I see.

Sidney Wallace, MD

[1:10:44.3]

At both ends, and that keeps them fixed

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Tacey Ann Rosolowski, PhD

[1:10:51.5]

Then there's this coil, it's like a coil in a coil.

Sidney Wallace, MD

[1:10:56.3]

Well, I made the coil. Let me show you what it is.

Tacey Ann Rosolowski, PhD

[1:11:05.1]

Well I'm very interested. I don't feel like I'm wasting my time at all. [I: II :08.6]

Tacey Ann Rosolowski, PhD

[1:11:12.5]

Trust me. What do they say, never trust a person who says trust me.

Sidney Wallace, MD

[1:11:19.8]

Here's what a guide wire looks like. You have the central mandrill, and a thin safety wire.

Tacey Ann Rosolowski, PhD

[1: 11 :36.8]

Oh I see, so that goes around. It coils around both of them.

Sidney Wallace, MD

[1: 11 :39.0]

Both ends are fixed with solder to maintain the unit.

Tacey Ann Rosolowski, PhD

[1:11:45.9]

It's a stable unit, I see.

Sidney Wallace, MD

[1:11:47.4]

Now, all you have to do is cut off the ends, and pull out the safety wire. And you're left with the mandrill and the ribbon.

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Tacey Ann Rosolowski, PhD

[1:12:05.3]

So this is basically the delivery system, and then you remove the ribbon.

Sidney Wallace, MD

[1:12:10.5]

Wait a minute, wait a minute.

Tacey Ann Rosolowski, PhD

[1:12:11.3]

Sorry, sorry, just my brain is just going along too fast.

Sidney Wallace, MD

[1:12:14.4]

Push the mandrill out and then bend it into an acute angle. And then you push the ribbon over that bend and it scratches the ribbon and forms a helix.

Tacey Ann Rosolowski, PhD

[1:12:40.0]

I see. So the whole unit actually makes the coil, how neat.

Sidney Wallace, MD

[1:12:50.9]

Here, you hold that. Just hold it away from the bend, because the bend is what we're going to use to formulate the coil as the helix is pushed over the bend.

Tacey Ann Rosolowski, PhD

[1:13:02.4]

Yes. Am I holding it right?

Sidney Wallace, MD

[1:13:03.6]

You're doing fine.

Tacey Ann Rosolowski, PhD

[1:13:05.1]

Oh yeah, there we go. Yeah, I do see it. You know what it's like?

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Sidney Wallace, MD

[1:13:09.9]

Now the tighter the bend, the tighter the coil.

Tacey Ann Rosolowski, PhD

[1:13:15.3]

You know what it reminds me of, is you know that ribbon you buy for Christmas, and then you run your fingernail?

Sidney Wallace, MD

[1:13:18.7]

That's right, exactly.

Tacey Ann Rosolowski, PhD

[1:13:20.6]

And it makes a coil. That's exactly the way this works, how neat.

Sidney Wallace, MD

[1:13:25.3]

That is then cut into pieces, depending on how long you need. If you then take the ribbon and stretch it out, over a pencil, put Dacron threads around like this, between the bends and the ribbon, and cut this end, and you end up with a centipede. That's the coil. And all you need to do if you want to straighten it out, it comes with a piece of mandrill through the coil. Straighten it out and put it through there, so you have some force, and that goes into the catheter. And then you remove this.

Tacey Ann Rosolowski, PhD

[1:14:36.4]

And then it resumes its coil form.

Sidney Wallace, MD

[1:14:38.9]

Yes.

Tacey Ann Rosolowski, PhD

[1:14:39.7]

I see, interesting.

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Sidney Wallace, MD

[1:14:43.1]

There's a very interesting story. I was called about a patient. I went with Cesare across the street, because they had an oilman who got drunk and fell through his window in his home. He cut the skin of his neck. He went to a local doctor, who sutured the skin. Three weeks later he heard chhhhh chhhhh chhhhh chhhhh, a communication between his artery and his vein. The area was finn, swollen and indurated. The surgeon said it was like a rock, because it was swollen and indurated. The surgeon said he couldn't go after that area, he wouldn't be able to separate the vessels and tie the communication.

Cesare and I went across the street with a Teflon catheter, because that's what we were using at the time. We had the long (7Fr) Teflon catheter and 6.5 French plastic KIFA catheter.

I first tried to place a small coil in the artery but the catheter was not long enough, so I tried it in a vein. I got into the fistula, the communication. I began perspiring as I was watching it bounce back through the heart, out to the very periphery of the lung. Cesare disappeared. He couldn't stand adversity. I told the patient what had happened.

He said, you go back to MDACC, get me a longer catheter and a bigger coil and block this. I'll give you the world. Two days later, we came back, it took five minutes. I had a longer catheter, bigger coil, it was easy. Cesare was standing right next to me.

Tacey Ann Rosolowski, PhD

[1:18:02.5]

So when you blocked it, you actually got the coil into the little piece of communication.

Sidney Wallace, MD

[1:18:05.6]

Into the communication. It's an artery to vein, fistula like an H. The artery was smaller than the vein. The coil occluded the artery.

Tacey Ann Rosolowski, PhD

[1:18:19.3]

And then into the little cross piece of the H.

Sidney Wallace, MD

[1:18:21.6]

I don't remember adding anything to it. It stopped. He said, where's my oil well? But I would never try that again, never. The FDA laws have changed and are more rigid.

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Tacey Ann Rosolowski, PhD

[1:18:37.7]

So what happens over the long-term, as a device like that stays in the body?

Sidney Wallace, MD

[1:18:43.5]

Nothing. It's like a tie occluding the vessel. Tied with a metal suture, and it stays there.

Tacey Ann Rosolowski, PhD

[1:18:55.5]

And the body doesn't respond, it doesn't fill it in with any tissue?

[Redacted]

Tacey Ann Rosolowski, PhD

[1:22:19.4]

Sure.

Sidney Wallace, MD

[1:22:19.8]

If you want to see some of the things in the lab, we'll do that now.

Tacey Ann Rosolowski, PhD

[1:22:26.6]

Yeah, and here you were mentioning earlier, before we turned on the recorder, that there's the patient care story and then there's the research story, and they kind of come together, then they come apart and then come together and come apart. So how would you like -- how do you think is the best way to tell those two stories, because we had the lab, we should discuss the work of Cesare Gianturco, and the development of these devices, which I know continued and then went into other areas. So what makes the best sense in terms of telling how this all came about?

Sidney Wallace, MD

[1:23:02.7]

Let us decide that at the end of the story, because it weaves in and out.

For the period from '68 through '95, Cesare contributed to the research laboratory. We worked on inventions in the animals.

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Tacey Ann Rosolowski, PhD

[1:23:57.3]

And we're still talking about the first laboratory there, the angiographic interventional?

Sidney Wallace, MD

[1:24:02.3]

Yes, it grew over time. Now it is shared with the veterinarians.

Tacey Ann Rosolowski, PhD

[1:24:22.4]

I'm going to pause the recorder just for a moment.

Tacey Ann Rosolowski, PhD

[1:24:57.3]

I just turned the recorder back on at quarter of 11:00. Dr. Wallace had to take a phone

call for about 15 minutes.

Sidney Wallace, MD

[1:25:07.6]

Where were we?

Tacey Ann Rosolowski, PhD

[1:25:08.8]

Well, we were talking about the creation of these different devices, and how the story of patient care comes together with research.

Sidney Wallace, MD

[1:25:21.4]

There wasn't, at that time, an exclusive demand that we work on cancer. If someone had an idea that could be fruitful, then we pursued it. I am in favor of the additional pursuit of research, nondirected research in addition to directed research. As far as I'm concerned, if you have a brilliant idea, pursue it!!

Tacey Ann Rosolowski, PhD

[1:26:32.1]

Was that the ethos when you and Dr. Dodd and Dr. Gianturco were working together?

Sidney Wallace, MD

[1:26:37.5]

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Yes. Because he devised things that could be used not only in cancer, the interventional approach to cancer was relatively small and to a large part done here. Cesare came up with a stent for the coronary arteries, and it was the first to be formed and worked \$Son.in small animals at MDACC.

Tacey Ann Rosolowski, PhD

[1:27:33.1]

Now can you describe that for me?

Sidney Wallace, MD

[1:27:35.2]

I would have to do this here.

Tacey Ann Rosolowski, PhD

[1:27:39.6]

Oh, you want to open it up. Okay, I'm not sure if the-- I mean I'd like to get it on record.

Sidney Wallace, MD

[1:27:46.9]

Some people call it the clamshell the coronary stent to open arteriosclerotic vessels..

Tacey Ann Rosolowski, PhD

[1:27:53.1]

So are they \$\$ WORD MISSING [are] like little clamshells in a sequence?

Sidney Wallace, MD

[1:27:55.5]

In a sequence, in a series.

Tacey Ann Rosolowski, PhD

[1:27:56.7]

And what were they made of?

Sidney Wallace, MD

[1:27:57.2]

Steel.

Tacey Ann Rosolowski, PhD

[1:27:59.4]

Steel. Wow, okay.

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Sidney Wallace, MD

[1:28:01.4]

In contrast to [Julio] Palmaz, a radiologist at University of Texas, San Antonio who was the first to get the stent approved in Europe, after Cesare's which were the first to get a stent approved in the United States. Palmaz, now lives in California, owns a winery, and he in essence has gotten all of the kudos for stent that he was not the first to invent. But it had more radial force than ours, and the doctors thought that radial force limited the use of the Gianturco coronary stent.

Tacey Ann Rosolowski, PhD

[1:28:43.4]

So how does the stent actually work, I mean where does it go in the body?

Sidney Wallace, MD

[1:28:48.0]

The stent is squeezed on top of a balloon on the catheter and when you put it in the blood vessel, you blow up the balloon, it expands and it forms a metal superstructure, holding the vessel open. Dr. Gianturco went to St. Luke's and saw the changes in the artery at surgery during regular cycles, and it would bend and wave.

Tacey Ann Rosolowski, PhD

[1:29:15.0]

Oh I see.

Sidney Wallace, MD

[1:29:15.6]

It wasn't so rigid. Now Palmaz stent is a more rigid tube with slits cut in it. It was placed on a balloon and when it is opened it was like our Z stent. Cesare previously had invented the Z stent. When we heard [Andreas] Gruentzig, who probably was the first to do selective coronary arteriograms; we discussed using small Z stents.

Tacey Ann Rosolowski, PhD

[1:30:08.9]

So originally, Dr. Gianturco devised these devices and then tested them in your laboratory on animals.

Sidney Wallace, MD

Right. Not in the coronaries, but in small vessels.

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Tacey Ann Rosolowski, PhD

[1:30:42.8]
Right.

Sidney Wallace, MD

[1:30:45.1]
The Dunn Foundation, Cook and others supported many research projects in our laboratory.

Tacey Ann Rosolowski, PhD

[1:30:49.7]
So you were basically feeding them the devices.

Sidney Wallace, MD

[1:30:55.4]
Cesare controlled his patents. We had little knowledge that Cesare would ever invent devices.

Tacey Ann Rosolowski, PhD

[1:31:01.5]
And I wasn't meaning to dismiss the references to the Dunns, because I know we want to talk about the creation of that institute.

Sidney Wallace, MD

[1:31:08.5]
The Dunn Foundation has been tremendous.

Tacey Ann Rosolowski, PhD

[1:31:10.0]
But I didn't feel like we were quite at that part of the story, but maybe we are.

Sidney Wallace, MD

[1:31:19.5]
The story is long.

Tacey Ann Rosolowski, PhD

[1:31:22.1]
Well it's really fascinating. What's your most memorable experience from the laboratory?

Sidney Wallace, MD

[1:31:34.1]
They were all memorable. When you get something that works, no matter what it is, that's a

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memorable experience.

Tacey Ann Rosolowski, PhD

[1:34:31.2]

So to interventional radiology.

Sidney Wallace, MD

[1:34:33.3]

Many names were suggested for this discipline.

Tacey Ann Rosolowski, PhD

[1:34:33.2]

So surgical radiology, invasive radiology, remedial radiology, minimally invasive radiology, therapeutic diagnostic radiology, aggressive radiology, operative radiology, diagnostic therapeutic radiology. Wow, that's quite the collection.

Sidney Wallace, MD

[1:34:52.3]

The name was given by Dr. Alex Margulis, Professor and Head of the Department of Radiology, University of California, San Francisco. .

Tacey Ann Rosolowski, PhD

[1:35:05.9]

I'm sorry, so just so I understand, Margulis gave it the name.

Sidney Wallace, MD

[1:35:16.2]

Each new piece of equipment was very expensive. Each time it was a struggle to get equipment, Dr. Dodd fought many battles. This was just what we had to go through to get things approved. In the research lab our philosophy was, "Make products, that will do it for you." If you can sell products then you have a better chance of getting more support for more equipment.

Tacey Ann Rosolowski, PhD

[1:36:55.9]

It strikes me, because what we're looking at is a slide that's titled, "Medical Device Problem Solving." And the first thing on your list is recognize clinical problem.

Sidney Wallace, MD

[1:37:04.5]

You bet.

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Tacey Ann Rosolowski, PhD

[1:37:05.2]

And this was one of the themes that's coming up in the interviews that I've been conducting, is the nature of basic research, the nature of clinical research, what happens in between them. When I was starting to put together the questions for you, I was sort of thinking hmm you know, is it clinically driven or is it idea driven at a certain level? I mean how would you describe where your work sits in that?

Sidney Wallace, MD

[1:37:36.9]

First of all, MD Anderson is a clinical institution. We take care of patients. The research is all based on clinical problems. The basic thing is to be able to be aware of what's going on, and then you can do anything you want. You can demonstrate them, you can visualize them, and then you have to know what to do to handle that clinical problem. But this is a clinical institution, the money is made primarily by the clinicians, and support a lot of the research.

Now over the years, more and more has been gathered, so the research has increased definitely, in the presence of Dr. [Ronald] DePinho, really suggests that he's the first person who has really been very research oriented. Dr. Mendelsohn was somewhat research oriented. Dr. DePinho is going to bring people from Dana Farber and wherever he can find them, to come. The advantages of the institution, what it has also attracts them. It attracted us, because of the ability to work with patients who have difficult problems. As long as MDACC is a challenge it is a great place to work, but if it ever becomes a burden, quit.

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Chapter 7

B: An Institutional Unit

Interventional Radiologists in Collaboration

Story Codes

B: Institutional Processes
B: Devices, Drugs, Procedures
B: Institutional Mission and Values
B: MD Anderson Culture
B: Multi-disciplinary Approaches
C: Portraits
C: Patients
C: Patients, Treatment, Survivors
C: Collaborations

Tacey Ann Rosolowski, PhD

[1:39:42.8]

I wanted to ask you about when you joined the institution in 1966, you served under the first three presidents of the institution. What were your impressions of Lee Clark and also of the institution under his directorship, his presidency?

Sidney Wallace, MD

[1:40:02.2]

Well I have some bias there. I think Lee Clark was very special. I mean who would go to the legislature and try to sell his product? There were other cancer institutions but none perhaps, that gained the dominance that this has. Memorial Sloan-Kettering also has an excellent reputation. So I think Dr. Lee Clark was a tremendous visionary.

I think [John] Mendelsohn really knew more medicine and was research oriented, and was helpful, but I think he still made the clinical aspects the primary aspect, gave it the primary attention and pursued that. And I hope that DePinho will do much the same, because without that clinical strength and the maintenance of the staff and the staff personnel, would this place be where it is today? Not because of the research, but he's going to build up that aspect of it, which is reasonable as long as he makes clinical contribution as the primary contribution. The economy will wax and wane, but if you get good people here, who are adequately compensated in an academic environment, then they'll come up with good care.

Tacey Ann Rosolowski, PhD

[1:41:55.3]

Let me ask you quickly about Dr. LeMaistre. I know you said it's your perspective and you have

Commented [T6]: Dr. Wallace begins this segment with brief observations about the MD Anderson presidents. Then he talks about the collaborations that the Department of Interventional Radiology has built over the years with other Departments and specialties, notably surgery. He explains that good communication and collaboration contribute to excellent patient care, as the key is to send the patient to the individual who can best handle his/her case.

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a bias, but one of the good things about an oral history project is you get a lot of different perspectives. What was your perspective on what needed to be done but wasn't?

Sidney Wallace, MD

[1:42:11.5]

I prefer not to discuss it.

Tacey Ann Rosolowski, PhD

[1:42:45.9]

The department had grown enormously. How did that-- how was the relationship with other services in the department, how did that grow, like relationships with surgeons, relationships with others?

Sidney Wallace, MD

[1:43:11.3]

As long as you have somebody knowledgeable and can transmit that to the surgeon, they're happy. As long as you can help them and do what you're supposed to be doing, and as long as you get good people to help them and interact with them, then you remain strong. You have to be able to sit down and demonstrate what you can offer. That makes a better situation.

One of my colleagues was operated on for a liver tumor this past week. The surgeons were involved, the radiologists were involved, the interventional radiologists were involved, working together, doing their part, and doing the best job they can. The ability to communicate on an individual basis is the key to a good working arrangement.

I always describe Dr. Nylene Eckles, who did diagnosis and therapy in breast cancer, and she would run around here with sneakers and she had most of her teeth gone. She was phenomenal. She would bring down all the information about a patient and the radiologist learned, and he would give his information, and that interaction is important, and I don't know how to minimize that. As the place grows, you lose some of that. They don't have the time, they're dealing with too many people, too many patients to take care of. And I think that's a shortcoming. Not that you should shut it down but wherever you can, you've got to continue that interplay. It was superb. I was young and could do almost anything, but now it's not that way. I think the interaction is essential.

Tacey Ann Rosolowski, PhD

[1:45:09.5]

What comes out of it? What comes out of that interaction?

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Sidney Wallace, MD

[1:45:12.6]

You then realize your position in the whole series of things. You come to a conclusion that is agreed upon by most. They learn what you're doing, you learn what they're doing, and you appreciate what each one is contributing. The place has grown. In lymphoma alone, maybe 15-20 physicians. In plastic surgery, in the past, we had a half-time person. Now there must be 10-15 physicians. Now, they can tackle most things with cancer. The patient depends on all of us to assume the management and if you can't do it, send them somewhere to someone who can.

Tacey Ann Rosolowski, PhD

[1:46:17.7]

I can hear from what you're describing, it's also that focus on the clinical and delivery of care to the patient.

Sidney Wallace, MD

[1:46:24.1]

Clinical care must continue to be the major approach. That's got to be primary, no matter what we do. In the lab, we must focus on clinical care. Even the discovery of a new drug, must focus on clinical care, how that drug is used in management becomes a very important part of that drug's success, and I think the interplay is really important. That's good clinical care. Careful research enhances clinical care.

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Chapter 8

B: Building the Institution

The Dunn Chemistry Research Laboratory

Story Codes

B: Building/Transforming the Institution
B: Multi-disciplinary Approaches
B: Growth and/or Change
B: Obstacles, Challenges
B: Philanthropy, Fundraising, Donations, Volunteers
C: Donations, Gifts, Contributions
B: MD Anderson History
B: Devices, Drugs, Procedures
D: Technology and R&D

Tacey Ann Rosolowski, PhD

[1:47:52.4]

Dr. Wallace just shared a quotation from Dr. Gianturco, "We are trying to solve complex medical problems in the simplest possible manner." Do you agree with that?

Sidney Wallace, MD

[1:48:19.2]

Of course. The research laboratory is now 4,000 sq. feet, intermingled with the veterinary medicine space who are essential to our success.

Tacey Ann Rosolowski, PhD

[1:48:36.8]

Just for the recording, we're looking at a map of the-- or a plan of the Dunn Research Foundation, Center for Radiologic Sciences. The research laboratory was started in 1968 with 600 sq. feet and now is 4,000 sq. feet.

Sidney Wallace, MD

[1:48:50.7]

In 1980, Dr. [Robert D.] Moreton, who was a vice president here, was a radiologist and very politically oriented. He was a friend of John Dunn, who owned a mortgage company, a large company and wanted to invest in MD Anderson Cancer Center. Dr. Moreton suggested our laboratory. Mr. Dunn liked what he saw and decided to invest in us. At that time, Jim Anderson went to Baltimore and Johns Hopkins, to run their research laboratory, and Ken Wright, came to MDACC, was also a physiologist, a veterinarian physiologist. He came to run the laboratory. He organized it well, and we increased our capabilities to 2,400 square feet and then to 4,000 square

Commented [T7]: In this segment, Dr. Wallace talks about Interventional Radiology's expansion, in 1968, with the creation of the Dunn Chemistry Research Laboratory. He explains that the expense of radiology equipment and related laboratory devices was an impediment to expansion, but that the political savvy of Dr. Robert Moreton attracted investors that enabled the Department's expansion from 600 to 2400 square feet of space with state of the art equipment. He explains the importance of CTs and MRIs to patient diagnosis and to interventional radiology (as well as to the finances of MD Anderson). He notes some of the research on new drugs and nanoparticles currently underway at the Dunn Chemistry Research Laboratory.

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feet.

Tacey Ann Rosolowski, PhD

[1:50:16.6]

From 600 in 1970.

Sidney Wallace, MD

[1:50:18.7]

Yes. CT scans came in about '75. We had to send a patient across the street to Methodist, to get a CT, and she complained. That stimulated the MDACC to purchase CT. Now we have about 15 CT and do 600 studies a day, and 15 MRI scanners. We added CT and \$\$ MRJ [MRI] to our laboratory..

Tacey Ann Rosolowski, PhD

[1:51:13.0]

Was MD Anderson particularly slow at embracing the imaging? I mean it just seems so funny, I guess partly because we take it so for granted now.

Sidney Wallace, MD

[1:51:23.7]

Well that's a very important point, but each costs a lot of money, and we were not flush with funds at that time. They cost \$2 million apiece. But it is the cash cow now, the group that earns the most for the institution. You can make a gradual increase, do the job. CT is a great addition to the diagnosis and eventually to management of the patient, in that biopsies are now done by interventional radiologists utilizing CT. It's essential when embolizing a tumor or chemoembolization. The amount of radiation is substantial.

Tacey Ann Rosolowski, PhD

[1:53:08.6]

So which process are you talking about? You're not talking about the chemo embolization?

Tacey Ann Rosolowski, PhD

I see.

Sidney Wallace, MD

[1:53:30.3]

On the other hand, our patients have cancer. If we don't tackle it aggressively, we may not be doing our job. Gerry Dodd discussed this high dose radiation years ago. There was little reason to get a CT study every six weeks. Sometimes the exposure is tremendous. We're trying also to reduce the amount of contrast material that's used.

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Tacey Ann Rosolowski, PhD

[1:55:10.3]

You had mentioned, earlier in the interview, that there was a former colleague who had not been very aggressive about using high doses of contrast materials.

Sidney Wallace, MD

[1:55:25.2]

That was at the other hospital, that's Jefferson.

Tacey Ann Rosolowski, PhD

[1:55:26.6]

Right. And I was wondering, what was the issue, I mean is there a problem with... (phone rings)

Sidney Wallace, MD

[1:55:31.6]

There are problems relative to the toxicity of the contrast material. They may not occur so often but they're significant from CT or MR contrast material because of iodine and gadolinium. Serious problems may occur.

Tacey Ann Rosolowski, PhD

[1:56:12.4]

Right. With just sort of hovering near that limit of toxicity.

Sidney Wallace, MD

[1:56:16.1]

And that's not so easy.

Tacey Ann Rosolowski, PhD

[1:56:33.4]

Diagnostic radiology, physics and nuclear medicine.

Sidney Wallace, MD

[1:56:36.2]

Right.

Tacey Ann Rosolowski, PhD

[1:56:37.0]

So what are the relationships between those three areas?

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Sidney Wallace, MD

[1:56:40.3]

The Physics of diagnostic imaging includes the irradiation from standard imaging units from nuclear medicine and from PET/CT. The same problems of excessive exposure to radiation must be considered.

Now in the Dunn Chemistry Research Laboratory in the animal area, we have chemists that work with Dr. Chun Li on a combination of a polymer and a chemotherapeutic agent in the formulation of new drugs, nanoparticles, etc.

Tacey Ann Rosolowski, PhD

[1:57:37.7]

This is the Taxol and poly L-glutamic acid.

Sidney Wallace, MD

[1:57:42.7]

Right. He's working on small particles, nanoparticles with gold coating, carrying that as a chemotherapeutic agent.

Tacey Ann Rosolowski, PhD

[1:58:00.4]

So these three areas, when did these three areas all become part of-- I mean here at MD Anderson. When did they become linked at MD Anderson?

Sidney Wallace, MD

[1:58:10.1]

In the 1990's

Tacey Ann Rosolowski, PhD

[1:58:20.1]

And so, I mean that's one of those interesting instances that I was referring to before we started the interview, where there are developments, either technologically or in the understanding of cancer, that kind of creates new departments. So what was going on?

Sidney Wallace, MD

[1:58:39.2]

In 1996, I retired basically, and I became an emeritus position. Significantly before that, Dr. Dodd and Dr. John G. Batsakis, who was the head pathologist and I thought that we could take over the job of AFIP at MDACC because AFIP is in Washington, D.C.

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Tacey Ann Rosolowski, PhD

[1:59:01.7]

What's AFIP, what is that?

Sidney Wallace, MD

[1:59:03.0]

Armed Forces Institute of Pathology. We thought that could be done at MDACC probably better than any other place in the country, and this never got off the ground, even though money was available. It never got off the ground

Tacey Ann Rosolowski, PhD

[1:59:26.7]

So this was a big dream and it didn't quite --

Sidney Wallace, MD

[1:59:30.2]

Some of it was done. We had chemistry laboratories here and instrument development was being done in larger animals.

Tacey Ann Rosolowski, PhD

[1:59:39.9]

And that's all part of the Dunn Labs.

Sidney Wallace, MD

[1:59:41.4]

That's all part of the Dunn Labs.

Tacey Ann Rosolowski, PhD

[1:59:42.9]

I see, okay.

Sidney Wallace, MD

[1:59:45.6]

And to the Dunn Laboratories, a chemistry lab was added. It was for interventional radiology primarily, or anyone else who wanted to do research in the Division of Diagnostic Imaging.

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Chapter 9

B: Devices, Drugs, Procedures

Interventional Radiology at MD Anderson: Contributions to Patient Evaluation

Story Codes

A: Overview

A: Definitions, Explanations, Translations

A: The Clinician

B: Institutional Processes

B: Devices, Drugs, Procedures

B: MD Anderson History

C: Patients, Treatment, Survivors

C: Patients

B: Institutional Processes

B: MD Anderson Impact

C: Discovery and Success

D: Technology and R&D

Tacey Ann Rosolowski, PhD

[1:59:58.3]

So what were some of the first projects or challenges that you took on at the Dunn Labs?

Sidney Wallace, MD

[2:00:03.3]

We'll go through it rapidly.

Tacey Ann Rosolowski, PhD

[2:00:05.3]

Okay, cool.

Sidney Wallace, MD

[2:00:05.7]

These are some of the things we did.

Tacey Ann Rosolowski, PhD

[2:00:07.5]

Okay, systemic heparinization.

Commented [T8]: In this segment, Dr. Wallace reviews contributions that the Laboratory has made to patient evaluation and treatment through studies of heparinization, percutaneous biopsies, arterial infusion, embolization, and chemoembolization. He explains many of the materials and interventional procedures studied and notes why some were never accepted into general practice.

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Sidney Wallace, MD

[2:00:10.4]

Each technique was studied to facilitate the patient's evaluation. Systemic heparinization was the first that was explored. Next, percutaneous biopsies. We put needles in the abdomen and chest of animals and nothing happened when we used a small needle. We would operate on the animals and couldn't even find the needle puncture sites. We biopsy everything now with needles, and the pathologist became most proficient in making diagnosis by cytology.

Tacey Ann Rosolowski, PhD

[2:00:34.7]

Now on just the significances, because you were saying that a number of years earlier, you just had the great big needles.

Sidney Wallace, MD

[2:00:42.4]

These were smaller needles from 18 to 21 gauges. We used a 21-gauge. For puncturing an artery, we employ 18 to 21-gauge. The smaller the number, the bigger the needle.

Tacey Ann Rosolowski, PhD

[2:00:54.7]

Oh I see, okay.

[2:00:57.5]

Sidney Wallace, MD

With these needles, enough tissue is obtained to make a diagnosis. Initially, nobody could diagnose the cytology. The pathologist was interested, we were interested, and finally Dr. John Lukeman came to MDACC. He did sputum analysis in the US Army. He could diagnose tumor cells in the abdomen, the chest and in the mediastinum. Biopsy are now done better by the interventionalist working with the cytologist.

Tacey Ann Rosolowski, PhD

[2:01:58.7]

So this was one of the big contributions that the laboratory made to MD Anderson, is developing these biopsy techniques.

Sidney Wallace, MD

[2:02:09.2]

Yes. Others would go into the liver but they would do it blindly. Now with CT scan, biopsies could be done directly.

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Here we did arterial infusion. Now this started in the fifties and it was, in many places, done by surgeons. Radiologist did arterial infusion in the sixties.

Tacey Ann Rosolowski, PhD

[2:02:41.1]

Now is this what's-- I came across this phrase transcatheter arterial embolization.

Sidney Wallace, MD

[2:02:47.3]

Embolization and chemoembolization followed. Embolization particles were injected into arteries. The material which was used was Gelfoam, and that was used to produce clots. The Gelfoam was cut and injected it into a catheter within an artery.

Then we used coils. Initially they had wool attached, which was bulky. Dacron, was used around a smaller coil.

Tacey Ann Rosolowski, PhD

[2:04:02.9]

Now I wanted to ask you, because I had come across those references to wool and cotton. What happens to natural fibers like that in the body? Are they absorbed?

Sidney Wallace, MD

[2:04:11.2]

They are incorporated with blood and fibrous tissue which occluded the vessel.

Tacey Ann Rosolowski, PhD

[2:04:17.4]

Okay, so that's where I was starting to get confused about the actual function of these emboli. So they're put in the body.

Sidney Wallace, MD

[2:04:29.9]

Single is embolus, plural are emboli.

Tacey Ann Rosolowski, PhD

[2:04:33.7]

So you put the embolus in the vessel and if it had the wool, so there is some sort of--

Sidney Wallace, MD

[2:04:40.0]

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That forms the clot. The metal alone may not be enough. We supplement it with wool, dacron, silk, blood clot, Gelfoam, Ivalon (polyvinyl alcohol foam) and now Y90 particles among others.

Tacey Ann Rosolowski, PhD

[2:04:50.0]

I see. So what was the process of innovating?

[2:04:56.6]

Sidney Wallace, MD

It's not only mine, but more universal.

Tacey Ann Rosolowski, PhD

[2:04:57.2]

Oh sure. No, I understand, but the process of innovating the kind of little different details of these.

Tacey Ann Rosolowski, PhD

[2:05:56.5]

So when you conducted trials to test these materials, you began first with animals, and then you began to introduce them to humans?

Sidney Wallace, MD

[2:06:04.5]

Someone else had embolized kidneys. We did it on a larger scale. After a hundred patients, we thought we had enough experience to say, this looks like it works.

Tacey Ann Rosolowski, PhD

[2:06:40.8]

It's okay, I can ask her later.

Sidney Wallace, MD

[2:06:46.7]

Erlinda, do we have a copy of the article that Dr. Gianturco and I put together with others, on embolization of the first hundred kidney tumors.

Tacey Ann Rosolowski, PhD

[2:07:21.2]

Now I wanted to ask you, when did the work on chemo embolization start?

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Sidney Wallace, MD

[2:07:30.6]

We mix the chemotherapy with small particles to slow the flow. This allows greater contact time between the chemotherapeutic agent and the tumor cell. When chemotherapy is injected directly into the artery, it produces a first-pass effect. The first-pass effect was done on many patients. The chemotherapy is infused slowly. Emboli slow down flow. At times we mixed the two, producing a better first-pass effect.

Tacey Ann Rosolowski, PhD

[2:08:17.9]

What was the medication contained in?

Sidney Wallace, MD

[2:08:23.0]

It was in a syringe. The chemotherapy and the emboli were in the syringe, and were injected. Sometimes we first put emboli and then chemotherapy.

Tacey Ann Rosolowski, PhD

[2:08:36.1]

What were the different cancers that you used those on?

Sidney Wallace, MD

[2:08:40.1]

That combination was especially used in liver metastases. A pulsatile pump allowed the chemotherapy to be inserted slowly and would disrupt a streaming effect down the initial vessel immediately next to the catheter but when you pulse it, the distribution improved.

Tacey Ann Rosolowski, PhD

[2:09:42.2]

Sure.

Sidney Wallace, MD

[2:09:44.3]

This is a pulsatile device for intra-arterial delivery, The Pulser. This was not accepted when produced commercially.

Tacey Ann Rosolowski, PhD

[2:09:52.0]

Why didn't it make it?

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Sidney Wallace, MD

[2:09:54.5]

Interventional radiologists didn't believe it happened.

Tacey Ann Rosolowski, PhD

[2:09:55.9]

Oh really? So it wasn't that it didn't work, it's that nobody accepted that it did work and it was an additional step that took time.

Sidney Wallace, MD

[2:09:58.9]

Almost every chemotherapeutic agent available was injected intra-arterially. Intra-arterial injection was superior to intravenous injection producing a first pass effect.

Tacey Ann Rosolowski, PhD

[2:10:12.0]

Bleomycin.

Sidney Wallace, MD

[2:10:14.1]

Bleomycin was one of the many different agents used.

Tacey Ann Rosolowski, PhD

[2:10:16.5]

And which ones did?

Sidney Wallace, MD

[2:10:16.9]

Different agents were effective against different neoplasms. Ivalon, Polyvinyl alcohol foam were the particles most frequently used by our group for chemoembolization.

Tacey Ann Rosolowski, PhD

[2:10:26.4]

No.

Sidney Wallace, MD

[2:10:25.9]

In North Carolina, most of the furniture that came from Europe was packed in Ivalon. Initially, we used skin as emboli, then subcutaneous tissue, fibrous tissue, which were minced and mixed

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them in a syringe. Then we used Gelfoam. Then we tried Ivalon. It's relatively inert, and put it in the Cuisinart which cut it into small particles not consistently the same size.

Ivalon is Polyvinyl alcohol foam. Oil-based contrast material was later included.

Tacey Ann Rosolowski, PhD

[2:11:48.9]

The lipiodol/ethiodol.

Sidney Wallace, MD

[2:11:50.6]

That's been around since maybe the 1920's. It has iodine in ethyl ester of poppy seed oil.

Tacey Ann Rosolowski, PhD

[2:12:03.7]

Now do these all have specific uses?

Sidney Wallace, MD

[2:12:08.3]

Most of them have an effect on certain neoplasm when injected intravascularly. None of these are specific for any special tumor. Now they use radioactive particles, Y90.

Tacey Ann Rosolowski, PhD

[2:12:13.0]

I see.

[2:12:08.8]

Sidney Wallace, MD

So now they are using more of radioactive particles.

[2:12:20.5]

Tacey Ann Rosolowski, PhD

You do have silk thread on there. I was wondering if silk would ever be used.

Sidney Wallace, MD

[2:12:24.8]

We did use silk but without an obvious benefit in any cancer.

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Tacey Ann Rosolowski, PhD

[2:12:40.0]

So what is that? We're looking at the aortic valve prosthesis. How does that function and what does it do?

Sidney Wallace, MD

[2:12:46.2]

The first percutaneously placed aortic valve was a ball in a cage. It was placed in through an artery, to the aortic valve, and then it opened.

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Chapter 10

B: Devices, Drugs, Procedures Interventional Radiology Devices

Story Codes

B: Education

B: The Educator

A: Overview

A: Definitions, Explanations, Translations

A: The Clinician

B: Institutional Processes

B: Devices, Drugs, Procedures

B: MD Anderson History

C: Patients, Treatment, Survivors

C: Patients

B: Institutional Processes

B: MD Anderson Impact

C: Discovery and Success

D: Technology and R&D

C: Professional Practice

C: The Professional at Work

Tacey Ann Rosolowski, PhD

[2:13:28.3]

So what was the course, the hands-on course you called it.

Sidney Wallace, MD

[2:13:32.3]

We had a Hands-On-Course in Interventional Radiology for a week. We would have lectures, practical work in 5-day series. Anders Lunderquist did the course twice a year in Sweden, and he would run that course. I would run this course at MDACC and we would both travel both ways. Then, interventional radiology was not well taught and they had to learn somewhere. We taught 400 students, mostly radiologists, in 60 courses, usually 8 to 10 students at a course.

Tacey Ann Rosolowski, PhD

[2:14:13.5]

And when did that course begin?

Commented [T9]:

Dr. Wallace begins this segment by mentioning a "Hands On" course he and others taught for many years to introduce physicians to interventional radiology. He then continues to describe many devices (emboli) used to stop blood flow to tumors or to introduce chemical agents into the body. He offers examples of a few cases to demonstrate the benefits. He notes that interventional radiologists have a very different mind set than radiologists. He then describes innovative work conducted by Dr. Dusan Pavcnik and Dr. Cesare Gianturco.

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Sidney Wallace, MD

[2:14:16.5]

It began in 1990, and we went to 2002.

Tacey Ann Rosolowski, PhD

[2:14:22.0]

So still in 1990, interventional radiology was not completely accepted.

Sidney Wallace, MD

[2:14:28.3]

My son is an interventional radiologist with ten years of experience, and he went to St. Louis for a training fellowship, so in some of the department fellowships in interventional radiology were created for 1 to 2 years in training.

Tacey Ann Rosolowski, PhD

[2:14:39.0]

What were the impediments to the acceptance of interventional radiology?

Sidney Wallace, MD

[2:14:42.6]

A radiologist usually sits in a dark room to adapt to the darkness, wears goggles and doesn't do a wide range of procedures. Most radiologists are not interested in doing interventional radiology and the increased insurance coverage.

Tacey Ann Rosolowski, PhD

[2:14:59.2]

So it was actually a difficulty in attracting people to the field?

Sidney Wallace, MD

[2:15:03.9]

We had residents and fellows spend a short rotation in interventional radiology.

Tacey Ann Rosolowski, PhD

[2:15:27.9]

So the coronary artery thrombus.

Sidney Wallace, MD

[2:15:30.5]

This was done over at the Veterans Hospital Administration (VHA), and they did a coronary

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angiogram. Shortly after the coronary angiogram, the patient had an acute infarction. The surgeon was a physician, Dr. Gene Guinn who was a urologist, and he got into trouble doing a node dissection. The inferior vena cava was injured and the patient had a difficult time. Dr. Guinn quit his practice and went back to Methodist and St. Luke's, and took a full fellowship in vascular surgery, and was technically superb. He went to the VHA. He teased a clot out of the left coronary artery. A clot formed on the surface of the catheter and on a wire and catheter in ten minutes, twenty and thirty minutes, if you don't give heparin.

Tacey Ann Rosolowski, PhD

[2:16:24.7]

Okay, so we're looking at the wire guide that's been introduced into the body of a pig for 10 to 30 minutes.

Sidney Wallace, MD

[2:16:30.0]

And this is a scanning electron microscope of the clot formation on the surface of the catheter. If you don't give heparin, most of the time there is no problem, but it saves you the occasional problem.

Tacey Ann Rosolowski, PhD

[2:16:48.8]

Yeah, this is that last one.

Sidney Wallace, MD

[2:16:50.3]

This is what was done in Sweden. We would give heparin and a saline solution, catheter was withdrawn, didn't reach its peak. So we turned it around and we gave 50 units/kg of heparin on entering the artery and 1000 units in 500 cc saline every 3 to 5 minutes until the end of the procedure.

Tacey Ann Rosolowski, PhD

[2:17:09.0]

I see.

Sidney Wallace, MD

[2:17:09.5]

1.5 times normal clotting time throughout the whole procedure.

Tacey Ann Rosolowski, PhD

[2:17:13.5]

Right, because that last—

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Tacey Ann Rosolowski, PhD

[2:17:17.9]

That last picture of the wire, it looked like a horribly rusty pipe, just with all the clot on the outside of the guide wire, the catheter, etc.

Sidney Wallace, MD

[2:17:23.9]

At times, the catheter was left in place for as long as a week, but heparin would be given every day depending upon the clotting time.

Tacey Ann Rosolowski, PhD

[2:17:39.5]

So this was all the work that was being done after establishing the lab.

Sidney Wallace, MD

[2:17:46.9]

When the wire guides are introduced into an artery or vein the endothelium maybe denuded.

Tacey Ann Rosolowski, PhD

[2:17:59.6]

So now we're looking at some images of what happens, with catheterization or guide wire trauma.

Sidney Wallace, MD

[2:18:04.9]

The first-pass effect is illustrated in this patient who had a squamous cell carcinoma at the wrist, and a similar cancer at the knee. It was by intra-arterial Cisplatin and Bleomycin to the wrist and systemic to the knee. When the catheter was removed, there was no residual tumor at the wrist, but the knee had residual tumor.

Tacey Ann Rosolowski, PhD

[2:19:09.8]

The different devices.

Sidney Wallace, MD

[2:19:11.4]

The coil initially had wool attached to supplement clot formation. Later we interspersed Dacron along the coil. The micro-coil was made by a neuroradiologist at another institution. This was not patented because it was described in a published article.

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Tacey Ann Rosolowski, PhD

[2:19:28.3]

Now at the time when these were being patented, who did the patenting --

Sidney Wallace, MD

[2:19:38.1]

That was Cesare Gianturco.

Tacey Ann Rosolowski, PhD

[2:19:39.1]

And he owned the patent, it wasn't the kind of thing that MD Anderson owned the patent?

Sidney Wallace, MD

[2:19:42.9]

Cesare Gianturco invented this in his laboratory at home. He would bring it to MDACC as a test device. Then he would go back home to Champagne-Urbana.

Tacey Ann Rosolowski, PhD

[2:20:08.5]

Now, was he formally employed by MD Anderson?

Sidney Wallace, MD

[2:20:10.8]

He was employed for the first year and a half. And then he was an adjunct professorship and no money came from the institution. It was his device which was tested in the laboratory.

Tacey Ann Rosolowski, PhD

[2:21:20.2]

I was given a list of the devices with all of the photographs, this is cool.

Sidney Wallace, MD

[2:21:29.5]

But most of them were invented by Cesare alone.

Tacey Ann Rosolowski, PhD

[2:21:38.6]

Yes, and there's a list of patents too.

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Sidney Wallace, MD

[2:21:41.2]

This patient came from Puerto Rico and had a carcinoma of the rectum, and had bilateral nephrostomies, these are tubes in each kidney. A catheter was placed in each ureter and he came to MDACC because it eroded into the right iliac artery.

Tacey Ann Rosolowski, PhD

[2:22:18.9]

What is a bilateral nephrostomy?

Sidney Wallace, MD

[2:22:25.0]

A catheter in the pelvis of the kidney. At that time we didn't have covered stents. A covered stent would block the aneurysms and maintain flow in the ureters. A femoral artery to femoral artery bypass was done. Coils occluded the segment of the right iliac artery with the aneurysm.

Tacey Ann Rosolowski, PhD

[2:23:03.9]

I see.

Sidney Wallace, MD

[2:23:05.0]

The catheters were pulled back into the pelvis of the kidneys, not in the ureters, which solved this patient's problem.

Tacey Ann Rosolowski, PhD

[2:23:14.6]

So there's really a big shift in mindset between radiology and interventional radiology.

Sidney Wallace, MD

[2:23:22.9]

Yes, you're doing a different thing, you're trying to manage a problem and not only diagnose a problem. For example, my son just embolized the liver on one of my colleagues at MDACC. The tumor occupied most of the left side of the liver and extended to the left portal vein. The portal vein is the draining vein from the small and large bowel, that comes up to the liver, goes through the liver and the vein goes into the heart. The left portal vein was filled with tumor. He embolized the left side of the liver. The thrombus was smaller in size. Dr. Jean-Nicolas Vauthey, the liver surgeon had enough room to clamp and tie in the left portal vein and then the surgeon resected the left lobe of the liver and left portal vein.

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Tacey Ann Rosolowski, PhD

[2:25:05.6]

Yes, but I'm just -- because the interventional radiologist seems to really go outside the box of what you think of as a radiologist.

Tacey Ann Rosolowski, PhD

[2:25:43.1]

Okay, this is the self-expanding Z-stent.

Sidney Wallace, MD

[2:25:45.9]

Z-stent, a picket fence Z wire in a cylinder configuration. This was created before the coronary stent. A series of small Z stents were formulated as an early coronary stent.

Tacey Ann Rosolowski, PhD

[2:26:11.1]

And what kind of situation?

Sidney Wallace, MD

[2:26:14.4]

The Z stent was used to relieve obstruction of a cylinder shape structure as a vessel, bronchus, ureter, etc. The patient had obstructed the bronchi which was opened by the Z stent.

Tacey Ann Rosolowski, PhD

[2:26:40.8]

Now what does a covered stent, what does that mean?

Sidney Wallace, MD

[2:26:43.4]

A Z stent covered with Dacron on the outside of the stent. See the aneurysms are blocked by the covering on the stent, maintaining blood flow in the artery.

Tacey Ann Rosolowski, PhD

[2:27:05.8]

What does that mean, self-expanded?

Sidney Wallace, MD

[2:27:07.9]

The Z-stent will assume its preformed size and cylindrical configuration. The stent was compressed, put through a catheter, and when it exits the catheter it opens. This is in contrast to the balloon assisted stent. The stent is placed on a balloon, you blow up the balloon, and it then

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forms its preformed configuration. The balloon is deflated and the catheter removed.

Tacey Ann Rosolowski, PhD

[2:27:46.3]

This is the aortic valve prosthesis.

Sidney Wallace, MD

[2:27:46.8]

In 1990, Dr. Dusan Pavcnik was here as the Gianturco Fellow. He came from Ljubljana, Slovenia.

[2:28:07.5]

Video:

"Trauma, disease or congenital abnormalities. The valves of the heart may become incompetent, and blood can either regurgitate or leak back against the normal direction of circulation. Prosthetic valves are now manufactured, which can be used to replace the natural valves of the heart."

Sidney Wallace, MD

[2:28:22.8]

[2:28:23.5]

Video:

"Heart valve replacement was performed when Hufnagel surgically implanted the first ball in a cage prosthesis in the ascending aorta.

Sidney Wallace, MD

[2:28:35.4]

Dusan Pavcnik invented the ball in a cage for percutaneous placement in 1990 as an aortic valve prosthesis.

Video:

[2:17:59.6]

"Our objective in this project is to construct and experimentally evaluate, in a canine model, an alternative valve to be placed percutaneously."

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Tacey Ann Rosolowski, PhD

[2:28:49.7]

What's his first name?

Sidney Wallace, MD

[2:28:51.5]

Dusan. D-U-S-A-N.

Video:

[2:28:55.2]

"At present, our prosthetic valve is a ball in cage design, which functions as a simple one- way ball valve. The cage consists of a self-expanding, stainless steel stent, with bars and four to six lengths of flat, flexible, stainless steel wire, attached at one end to form the top of the cage. The ring is constructed of two stainless steel wires, held together in a spring- like configuration."

Sidney Wallace, MD

[2:29:22.8]

Now they have a new one that's being used mostly in Europe, but is starting to be used here. But this was 1990 when Pavcnik created the prosthesis..

Video:

[2:29:35.7]

"The ball is a detachable latex balloon. It's filled with liquid silicon rubber after placement and the cage assembly. The valve could be collapsed and pushed through an 11 or 12 French Teflon sheath."

Tacey Ann Rosolowski, PhD

[2:29:55.6]

There it goes.

Sidney Wallace, MD

[2:29:57.5]

Could you ever \$\$ tum [TURN] down that possibility? No.

Video:

[2:30:01.2]

"Since the assembly is self-expanding, it opens as it exits."

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Tacey Ann Rosolowski, PhD

[2:30:04.6]

There it goes. When it comes out this little tube and then it opens up.

Sidney Wallace, MD

[2:30:15.2]

This was a failure. He should have persisted in his research for an aortic valve prosthesis but he didn't.

Tacey Ann Rosolowski, PhD

[2:30:25.1]

Yeah.

[2:30:26.6]

Video:

"The final step is deployment of the ball. Once the balloon is... "

Sidney Wallace, MD

[2:30:33.2]

And we put silicon in it.

Video:

"It's filled with silicon and detached from the delivery catheter. Initially, these were tested in dogs. The valve was made in different sizes. The cage was either 2.8 or 3.0 centimeters in diameter, and the inside diameter varied in two regular increments, the 2.4 centimeters to 3.4 centimeters. After induction of general anesthesia, an 11 to 12 French Teflon sheath was introduced in the right common carotid artery. This sheath was advanced into the ascending aorta, under fluoroscopic monitoring."

Tacey Ann Rosolowski, PhD

[2:31:21.7]

Can we go to the next or shut that off, because I wanted to ask you some questions actually.

Sidney Wallace, MD

[2:31:27.6]

I think you ought to finish it, and I'll stay until you finish your questions.

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Video:

[2:31:33.1]

"This is necessary in order to select the proper size of the prosthetic valve. Following the aortogram, the tip of the delivery sheath was positioned in the posterior, non-coronary cusp. The small amount of contrast material was hand injected, to check the position of the sheath, and the tube was marked by placement of a needle..."

Sidney Wallace, MD

[2:31:55.8]

That's an animal, that's a dog.

[2:32:00.0]

Video:

"The prosthetic valve was then delivered through the sheath using the pusher catheter."

[2:32:10.0]

Video:

"As the ring exited the sheath, it opened."

Tacey Ann Rosolowski, PhD

[2:32:32.5]

Well I can see how you'd need a very unique set of skills to be able to do this.

Sidney Wallace, MD

[2:32:40.5]

That's a maybe.

Tacey Ann Rosolowski, PhD

[2:32:45.2]

Well, a unique combination of skills.

Video:

[2:33:09.2]

"This creates regurgitation and an appropriate animal model for evaluating the new device."

Tacey Ann Rosolowski, PhD

[2:33:15.5]

I'm going to pause the recorder.

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Sidney Wallace, MD

[2:33:21.3]

In three hours, the ball went right through the cage, so it didn't last. Dr. Pavcnik left because it was too hot in Houston, and went to Portland, Oregon, well-known in interventional radiology. He runs their lab, the weather was cooler in Portland and he liked that better. But he should have made a cage that was heavier.

Tacey Ann Rosolowski, PhD

[2:33:57.5]

Yeah, with a little chuckle. I thought that had to be there.

Sidney Wallace, MD

[2:34:03.5]

Go ahead.

Tacey Ann Rosolowski, PhD

[2:34:04.4]

All right, interesting. I was just struck that in order to do this kind of work, you have to have a unique group of skills. There have to be the fine motor skills, there has to be the ability to image, there has to be in your brain, you know all of that. So I can see where it might be, as interventional radiology was evolving as a field, shifting from the kind of person who would have been attracted to conventional radiology, it simply required a different kind of temperament and different kind of skill base.

Sidney Wallace, MD

[2:34:43.5]

It requires a surgical personality. Cesare worked this out across the street in Texas Children's Hospital. It was how to close a communication between the right and left atrium, a septal defect. He made one, with two disks, and then Pavcnik made one with one disk and three pieces of wire.

Tacey Ann Rosolowski, PhD

[2:35:27.1]

Interesting.

Sidney Wallace, MD

[2:35:33.7]

If you have somebody who has a good idea that requires a medical device, should you pursue

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it. There's no question that we'll work on cancer, because that's what we treat at MDACC. These are good examples of non-directed research.

Tacey Ann Rosolowski, PhD

[2:35:58.9]

Why not?

Sidney Wallace, MD

[2:36:02.0]

I'm a strong believer, even if it's 10 to 20 percent, in non-directed research. Sometimes the undirected research pays off. It did in our lab.

Tacey Ann Rosolowski, PhD

[2:36:29.9]

I wanted to ask you about the kind of next development.

Sidney Wallace, MD

[2:36:43.2]

There is just too much more. A patent ductus arteriosus, is a communication between the pulmonary artery and the aorta. The Cardiac surgeon can block that communication. The interventional radiologist can go up the aorta and get into this communication and occlude this. We simulated that and did that here, at MDACC.

Now this is the coronary artery. This was considered a clamshell, see it? And that was put on a balloon on a catheter.

Tacey Ann Rosolowski, PhD

[2:37:28.4]

And then introduced. Now how many of these devices because very, very generally used, once you innovated them?

[2:37:37.2]

Sidney Wallace, MD

I don't know. You only need one for the satisfaction, but there are others. This is a Z- stent and this is a covered Z-stent. A similar thing is used in AAA, abdominal aortic aneurysm.

Tacey Ann Rosolowski, PhD

[2:38:30.3]

It reminds me of the coating that they put on high pressure hoses, to keep them from exploding.

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Sidney Wallace, MD

[2:38:38.3]

And this is within an aneurysm in the artery.

Tacey Ann Rosolowski, PhD

[2:38:46.9]

Interesting.

Sidney Wallace, MD

[2:38:49.3]

An inferior vena cava filter which captures clots.

[2:38:55.9]

Tacey Ann Rosolowski, PhD

Right, I remember that I saw filters on a list.

Sidney Wallace, MD

[2:38:58.2]

Pulmonary embolism. Now, this was one of the filters that could be used in almost any size inferior vena cava. The main vein draining the legs into the abdomen is the inferior vena cava. The inferior vena cava then goes into the right atrium and ventricle of the heart, and then to the lungs. And it doesn't capture the tiny emboli, but does capture the larger clot, that maybe responsible for the patient's death. Now the interventional radiologist can remove clot from the pulmonary vein percutaneously.

Tacey Ann Rosolowski, PhD

[2:39:32.7]

So this is a ring, or is it a tube?

Sidney Wallace, MD

[2:39:35.6]

You have two prongs at each end of the filter.

Tacey Ann Rosolowski, PhD

[2:39:41.8]

Oh I see.

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Sidney Wallace, MD

[2:39:43.1]

You put the first two prongs in and then you bundle all the wiring and then the back two prongs in.

Tacey Ann Rosolowski, PhD

[2:39:48.6]

Right. And then the bundle of wires catches the --

Sidney Wallace, MD

[2:39:51.9]

So this was used on a regular basis, especially at Methodist. It is helpful in cancer and non-cancer patients.

Tacey Ann Rosolowski, PhD

[2:39:55.9]

And it's called a bird's nest filter.

Sidney Wallace, MD

[2:39:58.1]

Bird's nest, yes.

Tacey Ann Rosolowski, PhD

[2:39:59.4]

And this was wire, metal wire?

Sidney Wallace, MD

[2:40:02.6]

Yes, metal wire, fine steel wire.

Tacey Ann Rosolowski, PhD

[2:40:19.2]

Okay, and so what we're seeing is there's --

Sidney Wallace, MD

[2:40:21.8]

During chemotherapy infusion into the liver, half of the liver wasn't being infused without the pulser. There is better distribution of the chemotherapy throughout the liver by intermittent pulsation.

Making Cancer History®

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Tacey Ann Rosolowski, PhD

[2:40:31.1]

Not even here?

Sidney Wallace, MD

[2:40:32.5]

Not even here.

Tacey Ann Rosolowski, PhD

[2:40:33.9]

Wow, that's something.

Sidney Wallace, MD

[2:40:36.0]

We had a half dozen of them, that's the only ones that were sold to MDACC

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Sidney Wallace, MD

Interview Session Two: 12 December 2011

Chapter 00B Interview Identifier

Tacey Ann Rosolowski, PhD

[0:00:01.1]

All right, so let me just record the identifier. This is Tacey Ann Rosolowski, and I am in Dr. Sidney Wallace's office in Pickens Tower, where I've gotten together for our second interview session. It is December 12th, at just a few minutes before 9:00 a.m.

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Interview Date: December 12, 2011

Chapter 11

B: Devices, Drugs, Procedures

Studies in the Department of Interventional Radiology Chemistry Lab

Story Codes

A: The Researcher
B: MD Anderson History
A: Overview
A: Definitions, Explanations, Translations
A: The Clinician
B: Institutional Processes
B: Devices, Drugs, Procedures
B: MD Anderson History
C: Patients, Treatment, Survivors
C: Patients
B: Institutional Processes
B: MD Anderson Impact
C: Discovery and Success
D: Technology and R&D
C: Professional Practice
C: The Professional at Work
C: Discovery, Creativity and Innovation
B: Industry Partnerships
D: On Research and Researchers

Commented [T10]: In this segment, Dr. Wallace explains that he created the Department of Interventional Radiology Chemistry Lab in collaboration with Dr. Gerald Dodd and Dr. Cesare Gianturco to experiment with new methods of advancing patient care. His philosophy, he also notes, is that 20% of work in a laboratory should be "non-directed" (exploratory and even drifting into areas related to interventional radiology). Next Dr. Wallace reviews several of the studies undertaken in the lab. One group of studies focused on building drugs that could be delivered to target sites (e.g. radioactive tamoxifen, PG-Taxol, that interacted with a hormone receptor). Dr. Wallace then opens up a PowerPoint presentation that shows funding details and activities in other sections of Interventional Radiology. He then speaks in detail about a great success in the Chemistry Lab: attaching a polymer to a polypeptide (Taxol) to target breast and ovarian cancer tumors in animals, a process that not only increased the therapeutic value of the drug, but of any radiation treatments given simultaneously.

Tacey Ann Rosolowski, PhD

[0:00:01.1]+

We strategized a little bit on the phone, about question areas that you wanted to talk about, and one of them was the chemistry lab, because we talked at length about the interventional laboratory last time and you had mentioned that the chemistry lab was just as important.

Sidney Wallace, MD

[0:00:43.2]

Maybe not just but it was important.

Tacey Ann Rosolowski, PhD

[0:00:46.9]

Why was it important?

Sidney Wallace, MD

[0:00:49.8]

That goes back a bit, I start talking about the lab. Really, the lab was initiated in '68 and Dr. [Cesare] Gianturco came here that year. The lab was basically formed by Dr. [Gerald] Dodd, Dr. Gianturco and me.

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Tacey Ann Rosolowski, PhD

[0:01:17.7]

Why did you feel it was necessary at that time?

Sidney Wallace, MD

[0:01:21.4]

Well, we felt that in order to do an optimal job in interventional radiology -- I'm not sure when that time came for that specific title. Special procedures we called it then. Was to have somewhere where we could experiment on perhaps new methods of doing our job, which would benefit the patient in the handling of cancer. In essence, the interventional radiology was integrated with the research lab as almost "one entity", and of the interventional lab, we had a large animal research area and we had -- chemistry didn't come until later, because we had a number of chemists who joined us later on, and they worked out some of the experimental. Some of it wasn't successful while a few were successful. And of course we talked about, at that time, direct research and non-direct research, and I felt that 20 percent of the labor should be with non-directed research.

Tacey Ann Rosolowski, PhD

[0:02:48.3]

Why was that?

Sidney Wallace, MD

[0:02:49.9]

Because there are ideas that people come up with, not necessarily in interventional radiology, but somewhat akin to it, that may be just as important as the material that we were trying to develop. But in any event, whatever was the result of the activity in both the large animal research area, as well as the chemistry, would be attempted to be converted to solve patient problems. The bottom line was to do a better job for the patient by interventional radiology.

Tacey Ann Rosolowski, PhD

[0:03:33.1]

What were some of the studies that you did in the chemistry lab?

Sidney Wallace, MD

[0:03:37.0]

Well, we did a number of studies, and that's where this would help, where first we tried to combine a specific drug to a specific factor or pattern. We looked for the potential targeting sites and then we would try to build a drug which would interact with those targeting sites. For example, here is some of the stuff that we did. We used a radioactive tamoxifen, which would interact with a hormone receptor, and we used something that would interact with the hypoxic cell. Dr. Yang then went off on a tangent and he put together a technetium diethylene cystine, and used some of the agents that we were talking about, which could be then defined by a cheaper scan. You wouldn't have to use the extensive work that we had to do on the more advanced type of radiation therapy. And this was done with a number of different ones that are shown here. Do you want to see those?

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Tacey Ann Rosolowski, PhD

[0:05:47.1]

Sure, why not? And just for the record, we're opening up a PowerPoint presentation Dr. Wallace is going to use to add some information.

Sidney Wallace, MD

[0:06:00.3]

Let's go back this way. Charlie Dodder. The name that I was looking for, his name is Charlie Dodder, from the University of Oregon. I don't know if he won a Nobel Prize but he was nominated for one. His major attack was on the narrowed vessels, the arterial closes. So he would put in a balloon or something that would dilate that narrowed area, and then that would be treated.

(knock on door) Come in...

Let's go rapidly through these. This is the labs. I don't want to bore you with a lot of this. This is large animal research. This is the general funding, so a lot of the funding came from many people.

Tacey Ann Rosolowski, PhD

[0:07:57.5]

So there was about \$9.5 million from private individuals and about \$4.5 million from companies? Oh, interesting. Acoustic applicator.

Sidney Wallace, MD

[0:08:08.0]

That was with working with the physicists on this one. We'll get to profusion, this is profusion. This was all done in the lab. See the funding, total funding?

Tacey Ann Rosolowski, PhD

[0:08:23.9]

Total funding, \$20 million, since 1990.

Sidney Wallace, MD

[0:08:28.0]

And we had patents.

Tacey Ann Rosolowski, PhD

[0:08:29.5]

Forty-two patents filed.

Sidney Wallace, MD

[0:08:32.3]

And this is where the instrument development, this was in a different lab, which we had really nothing to do with. And this is a picture of Cesare and the many circumstances that he was involved in. These were brain tumors that were done. Here's again, a group of us, and this is

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where the interventional lab fit into the general scheme of things. Now in vivo microscopy was another component of it, but the chemistry lab consisted of David Yang with some basic hormone receptors, hepoxic cells, EC, which was another. And the chemistry lab, due to the use of another agent, this one was a successful circumstance, where we combined a polymer to a polypeptide, that's poly L-glutamic acid; paclitaxel or the name Taxol. Its original name was paclitaxel, P-A-C-L-I-T-A-X-E-L, and we called it PG-TXL, because Taxol was the name, I think, used by one of the drug companies that was using and selling it, but that was really discovered by the United States laboratories, so we could have use of it without paying any additional funding. It was used in a variety of different animals with tumors, like Fischer rats for breast cancer, syngeneic ovarian cancer. All these were done pretty much in rats.

Tacey Ann Rosolowski, PhD

[0:10:34.1]

Now what was the logic of combining Taxol with the poly L-glutamic acid?

Sidney Wallace, MD

[0:10:41.3]

Because there were many side effects that Taxol would produce, but that's not how we got started. I asked Dr. Chun Li, who's a chemist, he's a PhD Chemist, Chun Li, to form nanoparticles, and that's not 15, 20 years ago, before it really got popular. We had made particles as small as 80 nanometers, but I wanted it between 30 and 15 nanometers, because the holes in the veins of the liver were from 50 to 200 nanometers. I wanted to get below that so we would get better distribution. That had to wait then, until we could produce that size particle. So Dr. Chun Li came to me and after we talked about it, I think he had been using poly L-glutamic acid in his doctorate training, PhD training, and I said okay, you can use that, but I want you to eventually form me a particle. And he came to me and said, "Look, I can't form a particle but I have a liquid that looks like water." I said, "That's fantastic, that's even better than a particle."

We then used that in these animal experiments that I described. We also added radiation to that, and that even enhanced the radiation, the poly L-glutamic acid, enhanced the radiation effect. This would be a natural winner, if you could give a certain amount of radiation and expect anywhere from 4.4 to 8 times the effect of the radiation, by mixing it with poly L-glutamic acid, Taxol, and then radiating that animal and continuing both during that period. So we did get an increase, anywhere from 4.4 times to 8 times.

Tacey Ann Rosolowski, PhD

[0:13:02.2]

Can I ask you just a quick question. Now was the idea of coating the Taxol with a polymer, that it delayed the release of the drug until it could get to the site?

Sidney Wallace, MD

[0:13:14.0]

Well, I saw how you phrased that.

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Tacey Ann Rosolowski, PhD

[0:13:16.4]

I was trying to visualize.

Sidney Wallace, MD

[0:13:17.6]

I'm not sure it coats, but it is within the molecule of that together. It's because it's added to it, and you can see where they are attached, the different subjects are attached together. So you have this poly L-glutamic acid, paclitaxel, and you inject it in patients with a regular regime, and it did not attack, to the same extent, the normal tissues. It sort of, for some reason which I do not know why, because it's a bigger molecule than you would ordinarily inject with Taxol. So it found its way to the tumor. The tumor has in it, abnormal vessels, and this accumulated in the abnormal vessels. The certain substance within the tumor would split this molecule where the Taxol is broken away from the polypeptide, from the poly L-glutamic acid, and then the Taxol would do its thing in the tumor. So it was sort of an ideal kind of circumstance. There was less problems with the normal tissue, so you had smaller side effects than with Taxol alone.

Tacey Ann Rosolowski, PhD

[0:14:53.1]

What was the advantage, because you said when Dr. Chun Li came to you and said, "I don't have a particle, I have a liquid." Why did you immediately know that that would be a better solution?

Sidney Wallace, MD

[0:15:06.5]

That's much smaller. The particle I wanted was 30 to 50 nanometers. What he gave me was negligible in size, it's like water. And Taxol itself has certain side effects. Taxol is not water soluble, it has to be delivered in a castor oil type thing. Taxol has a longer injection time of hours, this took 10 to 15 minutes. This then could be combined with other drugs, and you could have a series of different drugs from this new thing. So we didn't have a nanoparticle but we had this water-like material, and that proved to be more effective than I would have thought. Now I think more -- and now this is 20 years later or 30 years later, let's see we licensed it in '98 and the work was done from about '94 on. But after that, the nanoparticle at the 30 to 50 came into being. So we had a liquid, which in essence had a small molecular size, and we could inject it rapidly instead of slowly. We can inject it with in fact water, rather than castor oil. The peripheral side effects for normal tissue was much lower. It still had some but was much lower than Taxol alone and it would serve its purpose as a good agent, especially when used with radiation, because it would enhance the radiation effect.

Now for example, the radiation enhancement is about 1.5 times with Taxol alone, but with this it's 4.4 up to 8 times. So we have subsequently attached other agents to this and we licensed it to a company called Cell Therapeutics, and they've been working with it, sometimes not directly, so it didn't really come to what we were looking for until recently. The people at Brown University used it in cancer of the esophagus, which is treated by chemotherapy, by radiation therapy, and then it's operated upon. So we have, in that group of patients, a group that went to surgery, we could then have the specimen to see the effect, and it had complete responses of about 37 percent. The esophagus is a very bad actor. Then they tried it in brain tumors and in

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glioblastoma multiforme, and they had an overall response rate of 45 percent, which is very fine. Now they're playing with this now, they're working with this at Brown University, but it is let's say 12, 13 years from the time we gave it to them. They used it in other circumstances.

Tacey Ann Rosolowski, PhD

[0:18:55.5]

Why did you license it out?

Sidney Wallace, MD

[0:18:57.7]

Because we couldn't do any more with it. See at that time, MD Anderson was not in the practice of developing drugs. When the new head of the institution has come, [Ronald] DePinho, wants to develop drugs and then get them to market. That's a better situation if you can find a system by which you can develop it in-house, so you come to the drug company with a fait accompli, so they don't have to do much work and they're not spending extra money to do a lot of research work now. They farm it out to small outfits that do the research work, and then they pay for that and you license the drug to them. So we licensed that drug. First, they gave me back the patent and then they said you can do it but you have to give us back 25 percent, which is fine. We then licensed it to the startup company, because most of the big companies were not interested.

Tacey Ann Rosolowski, PhD

[0:20:14.6]

And that's the Cell Therapeutics.

Sidney Wallace, MD

[0:20:16.7]

This is Cell Therapeutics, and they're plodding along with this. And I think now, with the radiation effect which we did here, they're using that and showing that it does have an increased radiation effect.

Tacey Ann Rosolowski, PhD

[0:20:29.7]

That's pretty astonishing.

Sidney Wallace, MD

[0:20:31.0]

No, it's not astonishing. It's a procedure that you go through and try to formulate a drug, and it's a tough job and it takes a long time to have a drug go through clinical trials. Of course there are some that are marvelous the first time you use it, so far ahead of where we are that the FDA gladly approves it. This so far is still in clinical trials and the FDA has not quite approved of it. And that's when we get the financial reward for this and the institution gets 25 percent of that.

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Chapter 12

B: Devices, Drugs, Procedures

Fullerenes and Drugs and Techniques to Enhance Therapy

Story Codes

A: The Researcher

A: Overview

A: Definitions, Explanations, Translations

B: Devices, Drugs, Procedures

B: MD Anderson History

C: Patients, Treatment, Survivors

C: Patients

B: MD Anderson Impact

C: Discovery and Success

D: Technology and R&D

C: Professional Practice

C: The Professional at Work

C: Discovery, Creativity and Innovation

B: Industry Partnerships

D: On Research and Researchers

[0:20:31.0]+

Sidney Wallace, MD

We did work on microcapsules. We even did one experiment on fullerenes. Do you know what fullerenes are?

Tacey Ann Rosolowski, PhD

[0:21:22.0]

No.

Sidney Wallace, MD

[0:21:23.0]

There is a guy at Rice.

Tacey Ann Rosolowski, PhD

[0:21:26.9]

What is that word, the full...?

Sidney Wallace, MD

[0:21:30.3]

Fullerenes. Did you ever hear of Buckminster Fuller?

Tacey Ann Rosolowski, PhD

[0:21:32.4]

Oh yes, Bucky Fuller.

Commented [T11]: This segment continues with a focus on drugs. Dr. Wallace then talks about work on the drug Opaxio. He explains that "fullerenes" are nanoparticles that deliver drugs, and he explains that they were used to deliver C225 (Erbix), greatly increasing its effectiveness. He then describes how combining enhanced Erbix with enhanced Taxol (see

Page Break

Chapter 11) dramatically increases the therapeutic value to the patient. He describes experiments creating nanoparticles coated with gold, and also mentions work with fluorescent proteins that, when given to nude rats with cancer, show where metastases are located without cutting into the animal.

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Sidney Wallace, MD

[0:21:34.0]

The buckyballs, and these were buckyballs.

Tacey Ann Rosolowski, PhD

[0:21:37.3]

Fullerenes.

Sidney Wallace, MD

[0:21:38.8]

These are carbon particles and the fullerenes, and it looks like a buckyball, because there was carbon at each site along the molecule in the atom. Here, let me get to where we -- I should have something on fullerenes here. This is Opaxio, that drug became known, PG Taxol and then it went through another name and now it's Opaxio. We have nothing to do with naming it. In fact I offered, when I didn't like what they were doing, I offered some comments and they said, we've already spent \$20 million and we can't change it because you want something that we're not doing. So in essence, keep your mouth shut.

These are other fundings that we had.

Tacey Ann Rosolowski, PhD

[0:22:44.2]

So what's the significance of the fullerenes?

Sidney Wallace, MD

[0:22:49.1]

The fullerenes are one of the new potential products on the market. Not only do you get a buckyball, but you get rods, and rods are now being put into metals or lesser coverings, say of a plane, and they are stronger than the metals themselves. If they can get buckyballs to carry, or be part of that drug, then they could use them because they're virtually so small and can get into everything.

Tacey Ann Rosolowski, PhD

[0:23:25.1]

So this is another nanotechnology development.

Sidney Wallace, MD

[0:23:28.8]

It's less than nano. Yeah it is, in the --

Tacey Ann Rosolowski, PhD

[0:23:31.6]

The micro nano.

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Sidney Wallace, MD

[0:23:33.0]

Let me see if I have some in buckyballs. I used to have a menu here. These are some Opaxio. Your instrument then is getting by way of progress.

Tacey Ann Rosolowski, PhD

[0:23:55.9]

Oh, is it not?

Sidney Wallace, MD

[0:23:57.5]

No, it's not advancing. I think I have pictures of buckyballs.

Tacey Ann Rosolowski, PhD

[0:24:06.8]

Are we at the end of the --

Sidney Wallace, MD

[0:24:08.0]

No. I don't think so. See that's the end of that talk, but I want to get this out of there. I'll show you what a buckyball looked like, if I can get there. I don't think so.

Tacey Ann Rosolowski, PhD

[0:24:41.6]

Well, you can show me afterwards too, that's fine. Or I can even search them online. I bet there will be tons of cool pictures online.

Sidney Wallace, MD

[0:24:51.6]

Oh yeah, there's plenty of that there. The guy who came up with buckyballs was a professor at Rice, who eventually had Hodgkin's disease and died here. He had Hodgkin's disease. Should I go look for buckyballs or are you going to?

Tacey Ann Rosolowski, PhD

[0:25:14.1]

No, I can do it later.

Sidney Wallace, MD

[0:25:15.5]

Okay. So buckyballs is like a geodesic globe and of course Buckminster Fuller never got a degree, and he was still considered a very important professor at the University of Pennsylvania.

Tacey Ann Rosolowski, PhD

[0:25:34.3]

I wanted to ask you. You mentioned David Yang, and I know that you also wanted to talk to me about -- and I don't know if I'm pronouncing his name correctly, Zuxing Kan.

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Sidney Wallace, MD

[0:25:44.7]

Zuxing Kan. That's another laboratory we had, part of this, and I have that here as well.

Tacey Ann Rosolowski, PhD

[0:25:50.2]

What about David Yang? Now he was part of the chemistry lab.

Sidney Wallace, MD

[0:25:52.7]

David Yang was part of the chemistry, there were two different labs. He had a lab and Chun Li had a lab, and he worked primarily with the cyclotron, David Yang did, and so his are a different type of chemistry, where Chun Li is a polymer chemist. That's why the first thing he went to was what he had done during his training period, and that was a polymer, and that polymer then in essence protected the normal cells from the Taxol, so you would get less side effects. And then what actually happens, in some of them you need female hormones to produce (inaudible), and then that splits the polymer from the Taxol.

Tacey Ann Rosolowski, PhD

[0:26:50.6]

I see.

Sidney Wallace, MD

[0:26:51.1]

See? And that was fortuitous. We didn't know anything about that. It just so happened that this product worked on that, and then we tried to combine it with Erbitux. Do you know that drug? Well, that's C225 and [John] Mendelsohn was involved with C225. So when he came, that was about 15 years ago, we combined it, -- actually even before he came -- and that showed a significant increase in activity. See that attacks a factor called EGF, epidermal growth factor. The drug with our drug, with poly L-glutamic acid, when combined with Erbitux, gave us a five times enhancement of the Erbitux, but they didn't want to combine them unless they took the lead. CTI didn't want to do it because they wanted to take the lead, so it never got to combine, and that's what you face with commercial companies.

Tacey Ann Rosolowski, PhD

[0:28:06.2]

CTI, what is that?

Sidney Wallace, MD

[0:28:07.6]

Cell Therapeutics Inc. That's a company in Seattle, Washington. So Erbitux, the enhancement is five times, radiation is 4.4 times, so if you put them together you've got a pretty good hefty boost with our drug, and that's still in clinical trials. There are other drugs that when combined with PG, not Taxol but docetaxel, which is another drug, and camptothecin, another drug, or cisplatin, another drug, all these would work well, but they're still working primarily with PG-Taxol. They

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didn't find as much effect in humans with PG-camptothecin. They hadn't done much with docetaxel, the company, but recently they just came out with a combination, taking our drug and going one step further, so they can bypass anything that comes to us. They still owe us \$1 million. The lawyer that we hired said you can't trust them one step. So that's what it was.

Tacey Ann Rosolowski, PhD

[0:29:34.4]

So it sounds like there's kind of, with these creations of these drugs, there's like money and it's like a race.

Sidney Wallace, MD

[0:29:40.6]

Of course, sure, and everyone wants to be first on the market, and they want to have a better drug than what you have. See, this is with hypoxic tumor cells. Now, say in lung tumors, we have a significant number of lung tumors that are hypoxic; they have low oxygen, but the drug works effectively on some of them. See, this is what I have, "The Art of Interventional Radiology." That's my cartoon.

Tacey Ann Rosolowski, PhD

[0:30:20.7]

That's great, wow.

Sidney Wallace, MD

[0:30:26.4]

Now we also -- I don't know if we'll get to this. So that's the chemistry lab, and they're working now on tiny particles with a gold coat on them and again, nanoparticles. So although we tried that and were successful, but they could get them small enough 20-plus years ago, maybe 30 years ago. Now they can do that on a regular basis, and Rice has been doing a lot of that.

Tacey Ann Rosolowski, PhD

[0:30:56.6]

What does cold coat mean?

Sidney Wallace, MD

[0:31:03.4]

No, I said a gold coat.

Tacey Ann Rosolowski, PhD

[0:31:07.5]

A gold coat. I'm glad I asked you. Got it. Okay, that makes more sense.

Sidney Wallace, MD

[0:31:13.8]

And that's like you fill the particle with whatever drug you have and you put gold over it.

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Tacey Ann Rosolowski, PhD

[0:31:22.0]

Got it.

Sidney Wallace, MD

[0:31:30.4]

This is what we -- this is radiation with -- these are some of the other experiments. This was really good, let's go back. Do you see those yellow things there? It's a greenish color really. That's green fluorescent protein gene. It comes from a fish. You can see each one of those are metastases.

Tacey Ann Rosolowski, PhD

[0:32:11.0]

And they've been marked?

Sidney Wallace, MD

[0:32:11.8]

And that's worked with -- they're marked with green fluorescent protein. I don't know that you need all this garbage, but that's one of the ones I wanted to show you. And you can see the rat moving around. See?

Tacey Ann Rosolowski, PhD

[0:32:32.6]

Yeah.

Sidney Wallace, MD

[0:32:32.4]

All of those are metastases?

Tacey Ann Rosolowski, PhD

[0:32:35.1]

That's amazing.

Sidney Wallace, MD

[0:32:36.2]

Under the skin. This is a nude rat. See, so you can see right through the skin, and this is done by this company in San Diego. I went out there and watched them.

Tacey Ann Rosolowski, PhD

[0:32:48.9]

AntiCancer, Inc. Now how was the green fluorescent protein...?

Sidney Wallace, MD

[0:32:55.8]

They have to incubate it with a protein that is then given to the animal and then accumulates.

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Tacey Ann Rosolowski, PhD

[0:33:03.7]

But how did that product become useful to you?

Sidney Wallace, MD

[0:33:06.5]

Because that would show where the metastases were without cutting open the animal. As you treat the animal, these things go away. See, and that's on there too. This is our class. We might as well go next, to -- come on. Well, if we by mistake, get to the --

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Chapter 13

B: An Institutional Unit Talent in the Department of Interventional Radiology

Story Codes

C: Portraits

B: Building/Transforming the Institution

B: Multi-disciplinary Approaches

B: Growth and/or Change

A: The Researcher

A: Overview

A: Definitions, Explanations, Translations

B: Devices, Drugs, Procedures

B: MD Anderson History

C: Patients, Treatment, Survivors

C: Patients

B: MD Anderson Impact

C: Discovery and Success

D: Technology and R&D

C: Professional Practice

C: The Professional at Work

Tacey Ann Rosolowski, PhD

[0:34:02.0]

Okay. How did David Yang come to MD Anderson? Did you recruit him?

Sidney Wallace, MD

[0:34:10.4]

I recruited him. I recruited him and then through David Yang, we recruited Chun Li. Then Zuxing Kan was in what's known -- he's a radiologist from China and through Anders Lunderquist, he was in Sweden before and I had him come here to do in vivo microscopy. In vivo microscopy is -- let's see, we have some pictures of it. Let's go back to the very beginning. Is this taking too much of your time?

Tacey Ann Rosolowski, PhD

[0:34:53.4]

No, no, not at all. This is great. Now you said he worked on -- when we were talking on the phone, you said Zuxing Kan worked on liver cancer.

Sidney Wallace, MD

[0:35:03.5]

He worked on anything to do with the liver, because he took a rat and cannulated the hepatic artery, and that's some doing. It's very tiny. This is one of the experiments. He gave, in the hepatic artery, there was a tumor on the right side. This is the left lobe of the liver, the tumor is on the right side, and he then, with a combination of alcohol, ethanol, and ethiodol, which is an oil-based contrast media containing iodine. So he would deliver to the portion of the liver that

Commented [T12]: In this segment, Dr. Wallace focuses on individuals who made important contributions to the Department of Interventional Radiology: David Yang, Zuxing Kan, Chun Li, and Dušan Pavčnik (noting that some of these foreign physicians were not licensed to treat patients in the US, and thus focused on research). He describes in detail some of Dr. Kan's in vivo microscopy studies of liver cancer, including his development of a chemical embolus using ethiodol.

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had the tumor, this combination, and that would infarct, kill that portion of the liver. So what happens, this is the part of the right lobe of the liver, this narrow there, that was infarcted. This was infarcted, the whole right lobe of the liver, and this is the left lobe, which hypertrophies. So the liver grows back, just like it was said in Greek mythology.

Tacey Ann Rosolowski, PhD

[0:36:25.9]

Right, in Prometheus.

Sidney Wallace, MD

[0:36:27.6]

An eagle or a vulture comes down and eats the liver, the next day it's grown back. That's Prometheus, right. So he catheterized the liver in a rat, in a nude rat, and then put a catheter in the artery to the liver, and then deliver this material. Now I should have, back here, --

Tacey Ann Rosolowski, PhD

[0:36:59.2]

How did you get connected with Zuxing Kan?

Sidney Wallace, MD

[0:37:02.5]

Through Anders Lunderquist.

Tacey Ann Rosolowski, PhD

[0:37:04.3]

Through Anders Lunderquist, okay. Yeah, I think you did mention that, yes. Didn't you also mention that these liver cancers are much more common in the Far East?

Sidney Wallace, MD

[0:37:17.4]

Correct.

Tacey Ann Rosolowski, PhD

[0:37:18.2]

Do you know why that's the case?

Sidney Wallace, MD

[0:37:19.6]

No. There is more Hepatitis B in the Far East, and there is some relationship between Hepatitis B and cancer of the liver. In fact, one of my colleagues has just that situation. Let's see what we can gain here. A picture is worth more than any of this stuff.

Here's one of his big studies. This is with Zuxing Kan, again a radiologist that couldn't practice radiology, because he didn't have the American credits to practice it. But see here, he delivers the drug and he takes these two combination drugs, infarcts the liver, and he studied them again in four weeks and got those changes.

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Tacey Ann Rosolowski, PhD

[0:38:25.7]

Now you said with Zuxing Kan, there was again an example of a person with radiology credits who couldn't practice in the U.S. Were there other examples of that, other situations?

Sidney Wallace, MD

[0:38:38.3]

We had some people come to our lab. A fellow by the name of Dušan Pavčnik. He was mostly a cardiac radiologist, and he wanted to make a pulse, a device that you could put in percutaneously, that would substitute for our valves in say the aorta, you know we have valves in the aorta? In the different parts, the mitral valve is in there. They tried cuspid valves on the right side, mitral valve on the left side, pulmonary valve, and aortic valve, all have valves, and this device was a ball. I think I showed you that didn't I, a ball in a cage.

Tacey Ann Rosolowski, PhD

[0:39:41.1]

Oh right, yes.

Sidney Wallace, MD

[0:39:43.5]

And after three hours it blew through the cage. But more recently, they have put on animal valves on another structure, steel structure, and these are working. He should have pursued that but he didn't. So we would have people come in, work with us as a Gianturco Fellow. They would work with us for a year or more, and they could pursue certain devices that they would have.

I'm having trouble with moving this to where I want to see. Now let me show you green fluorescent protein.

Tacey Ann Rosolowski, PhD

[0:40:21.9]

Now, was Dr. Pavčnik another example of someone who could have practiced with patients but wasn't able to?

Sidney Wallace, MD

[0:40:28.8]

No, he would not be able to. He was a foreign graduate and he would have to start all over again. Some of them, if they need them in general circumstances, the institution can be very supportive and they would get that. But this is the molecule, the green fluorescent protein, and this just won the Nobel Prize. Let's see if we can get there though.

Tacey Ann Rosolowski, PhD

[0:40:59.1]

It's a very pretty molecule, all tangled in that cluster of --

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Sidney Wallace, MD

[0:41:04.8]

See the green fluorescent protein gene, consists of 238 amino acids, linked together in a long chain. This chain folds up into the shape of a beer can. Inside the beer can, the structure, the amino acid 65, 66, and 67, form a chemical group that absorbs ultraviolet light and blue lights and fluorescents green. And these are the guys. That one, 2008 Nobel Prize in chemistry.

Tacey Ann Rosolowski, PhD

[0:41:47.4]

So that's Osamu...

Sidney Wallace, MD

[0:41:49.6]

Shimomura. He was from Japan and he first isolated green fluorescent protein from the jellyfish, *Aquaria Victoria*, in 1962. He discovered the protein glowed bright green under ultraviolet light. Then, Martin Chalfie demonstrated the value of green fluorescent protein as a luminous genetic tag for various biological phenomenon. He colored six individual cells in the transparent round worm, with the aid of GFP.

Now this is the guy that really went into it. Roger Tsien contributed to our general understanding of how green fluorescent protein fluoresces. He extended the color palate beyond green, allowing researchers to give various proteins and cells different colors. This enabled scientists to follow several different processes at the same time.

Tacey Ann Rosolowski, PhD

[0:42:56.7]

So this is -- I remember when newspapers were carrying stories about how there had been new colors added to the rainbow. Right around this -- that would have been right around this time. Interesting.

Sidney Wallace, MD

[0:43:06.2]

Now, these are the holes in the liver. Do you see tiny little holes here?

Tacey Ann Rosolowski, PhD

[0:43:12.4]

Mm-hmm, I do, yeah, yeah.

Sidney Wallace, MD

[0:43:13.0]

All of those, if you make them smaller than that, they'll go right through them. If you make them bigger than that they may not. That's some more that Zuxing did and I hope I have some... you'll see.

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Tacey Ann Rosolowski, PhD

[0:43:35.6]

So these two were -- these were all drug studies that were being done in the chem lab.

Sidney Wallace, MD

[0:43:46.9]

This was done -- no it wasn't. This was the in vivo microscopy.

Tacey Ann Rosolowski, PhD

[0:43:50.4]

Oh, the in vivo microscopy lab.

Sidney Wallace, MD

[0:43:51.9]

That's separate.

Tacey Ann Rosolowski, PhD

[0:43:52.5]

Okay, got it.

Sidney Wallace, MD

[0:43:53.6]

The chemistry lab, there were two different labs, but in vivo microscopy, they did this on living livers. Let me show you this. This is the liver. When you look at it, you can get reflected light and transmitted light. That's the liver with the veins, portal vein and hepatic vein, these are the portal veins. Do you know what the portal vein is? It collects the blood, the venous blood, from the gastrointestinal tract, and brings it up through the liver first. Then it goes through the liver and comes out of the lower lobes of the heart.

Now if we can, maybe you can get this to go. See, it wouldn't let me show you the whole thing. Do you see this shimmering?

Tacey Ann Rosolowski, PhD

[0:44:52.4]

I do.

Sidney Wallace, MD

[0:44:53.4]

That's the blood in the -- and this is one of the portal veins. See them? That's a higher magnification. This are Kupffer cells, these are the protective cells.

Tacey Ann Rosolowski, PhD

[0:45:06.1]

So this is the blood flowing through the catheters?

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Sidney Wallace, MD

[0:45:08.4]

This is the ethiodol, the oil-based material. It gets stuck in there and they act like a blockage.

Tacey Ann Rosolowski, PhD

[0:45:13.5]

Okay, so it's like a chemical embolus.

Sidney Wallace, MD

[0:45:16.3]

It is a chemical embolus. And now here you see, this is another vein, and you'll see the oil drop into the portal vein. See it?

Tacey Ann Rosolowski, PhD

[0:45:26.7]

I do. Wow, that's amazing.

Sidney Wallace, MD

[0:45:29.6]

So he did this for a long time. I think he was here at least ten years, and he had a whole series of stuff that he did, and we learned a lot about the dynamics of embolization, and that we could use this with alcohol to do a good job.

Tacey Ann Rosolowski, PhD

[0:45:47.3]

I'm really glad you're going over this, because when I first did some background research on your work, it was easy for me to understand the coils and the birds nests and all that, the kind of physical things that you insert into the body.

Sidney Wallace, MD

[0:46:03.9]

Those were the devices. And that was one whole area for large animals. We could use dogs and pigs and occasionally a rabbit but not frequently, and we then constructed different devices. Dr. Gianturco was the inventor, we were the tester, and then I would put them into -- some of them -- a lot of patients that we could treat that way. Others he took across the street, to Methodist, or to Texas Children's, and they did some of the work on that.

Tacey Ann Rosolowski, PhD

[0:46:42.4]

Well I'm glad that we're doing this, because I hadn't really been able to visualize the work that was being done in the chemistry, also had an analogous application.

Sidney Wallace, MD

[0:46:53.1]

Everything we did was done with the sole purpose of using it on patients that would enhance their treatment. Some of them failed, most research fails, and some of them succeeded, but the

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ones that succeeded, if you read that article I gave you, really were significant improvements of what was done.

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Chapter 14

[Redacted]

Commented [T13]: [Redacted]

Chapter 15

A: The Educator

A “Hands-On” Course for Interventional Radiologists; Investigating Artists and Their Diseases

Story Codes

B: Education

B: The Educator

B: Building/Transforming the Institution

B: Multi-disciplinary Approaches

A: Character, Values, Beliefs, Talents

A: Personal Background

A: Overview

A: Definitions, Explanations, Translations

C: Professional Practice

C: The Professional at Work

C: Discovery, Creativity and Innovation

[0:57:44.2]+

Sidney Wallace, MD

The other thing that we participated in was a hands-on course, and that was with Anders Lunderquist, and he had two. From about 1990 to 2002, he would do two courses in Sweden and I would do two courses here. So we had about 60 courses and 400 physicians go through. These were in the early years of interventional radiology, and we were teaching them the basics for that. Dr. Gianturco would sometimes visit with us. Remember, he died in '95. And Ken Wright, who headed the lab here, would do the same, he would participate.

Now you asked about teaching. I gave numerous lectures every day, between 7:00 and 8:00, and sometimes between 12:00 and 1:00, and I would have everybody sitting around, and we'd go through some films and discuss the films. I taught in small groups and did give some lectures at grand rounds. I was doing something which I called "Creativity and Disease." I took the lives of some well-known celebrities in many fields, and would go through their lives and talk about their diseases, and how one influenced the next. I can show you just one, want to see one of those?

Tacey Ann Rosolowski, PhD

[1:00:12.3]

Sure. So what kinds of aspects of their lives did you focus on?

Commented [T14]: In this segment, Dr. Wallace mentions some of his teaching at MD Anderson, noting first the "Hand-On" course he created with Swedish physician Anders Lunderquist, designed to introduce physicians to Interventional Radiology. He mentions that he would give lectures between 7-8 am and 12-1 pm. Then he focuses at length on "Creativity and Disease," a series of talks he gave that trace the lives of artists, the diseases that afflicted them, and how their diseases influenced their art work. (E.g., Monet's work deteriorated as his cataracts developed, then improved once they were removed.) Dr. Wallace then talks about his own interest in art. Referring to a PowerPoint presentation, he goes on to talk more about specific artists and celebrities and their diseases. He notes that he used these to inform students and colleagues about therapy and diagnosis.

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Sidney Wallace, MD

[1:00:19.2]

Those that had to do with their -- I'd give them their history, and then the disease would be sort of superimposed, and then we'd talk about the disease that they suffered from. For example, [Claude] Monet had cataracts and his paintings from the last, I guess ten years before he died, were lousy. I mean if you look, after the first cataract, he got an infection in the eye and he refused to have the second eye done. Now, if you remember the name [Georges] Clemenceau, he was a buddy of Monet, and he finally convinced him to get the other eye done and when he did, the paintings improved.

Tacey Ann Rosolowski, PhD

[1:01:06.2]

Oh, interesting.

Sidney Wallace, MD

[1:01:06.6]

[Edgar] Degas, thought to have, because some of these you go back a hundred years, you're out of the same ballpark, but let's see if we can get some of them on here.

Tacey Ann Rosolowski, PhD

[1:01:20.1]

What inspired you to connect up these creative figures with various diseases?

Sidney Wallace, MD

[1:01:26.2]

I thought it would be interesting. I knew a lot about artists, but I didn't know much about this disease that they may have had. Do you know much about [Rene-Auguste] Renoir?

Tacey Ann Rosolowski, PhD

[1:01:38.3]

No I don't know.

Sidney Wallace, MD

[1:01:39.3]

For 20 years, during the last 20 years of his life, he had some horrible rheumatoid arthritis, horrible, and his hand was like this, so he would tie his brush in his hands and then use his whole arm to paint, not his fingers and hands.

Tacey Ann Rosolowski, PhD

[1:01:58.0]

He had no fine motor coordination.

Sidney Wallace, MD

[1:01:59.4]

But he painted just as well. Let's see, I'll show you that.

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Tacey Ann Rosolowski, PhD

[1:02:03.7]

Wow, it's amazing.

Sidney Wallace, MD

[1:02:05.4]

It was amazing.

Tacey Ann Rosolowski, PhD

[1:02:06.4]

So how did you learn so much about art so early? Where did you have this wealth of knowledge?

Sidney Wallace, MD

[1:02:10.5]

Well I just was a cartoonist most of my life, until I came here. When I came here, Gerry Dodd, who was the department, said, I saw a painting, I saw a drawing at a little art gallery. He says, it cost \$250. No, it cost -- yeah, I think \$250. And he says, "Why don't you go look at it?" He thought it was a rabbi, and so I said to my wife, "Hell, I can do that." She said, "Big shot, show me." So I drew a rabbi and it was better than the one... And so I've drawn rabbis.

Now let's see where we are. Let's get rid of this.

Tacey Ann Rosolowski, PhD

[1:03:04.4]

So I am going to want to ask you about your artwork, but you said you started drawing when you were five?

Sidney Wallace, MD

[1:03:09.2]

Five.

Tacey Ann Rosolowski, PhD

[1:03:10.5]

Five? How did that happen?

Sidney Wallace, MD

[1:03:11.9]

We needed a poster at my father's shop, so we did that.

Tacey Ann Rosolowski, PhD

[1:03:16.2]

And you just stepped up to the plate at the age of five, to be a publicity person?

Sidney Wallace, MD

[1:03:20.1]

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As long as I could remember how to do it. Here, these are those that are already done. See, I have three talks as part of "Creativity and Disease." You can see with I think -- let me get this one that I have with autoimmune diseases. That will have Renoir. But this is Scott Joplin, he had syphilis, and he also wrote two operas, and Treemonisha was repeated again in '72 and '76. Now this came up at least a little before that.

Okay, this is Oprah Winfrey. She has a problem, which she complains about she's getting too fat. This is not too bad a problem, because she can take care of it.

[plays video]

So I have a lot of people that I have on here. It's not Monet but I have Michael Jackson. He had again, an autoimmune disease. She has an autoimmune disease. Do you know anything about an autoimmune disease? One of the autoimmune diseases is Hashimoto's thyroiditis.

Tacey Ann Rosolowski, PhD

[1:05:41.5]

Why don't we hang on just a second, because I know it's going to be hard for record.

[1:05:46.1]

Oprah:

"I've now reconciled with all my doctors, I've got my thyroid numbers back to normal, but it wasn't easy for a while, and I would have to say I was like most people, using the thyroid as an excuse, because you know, for years we've heard oh my god, people with thyroid, you're just doomed to have weight issues, because the thyroid automatically slows down your metabolism. It was Bob who encouraged me to see that I was making an excuse of it. Just because you have the issue, doesn't mean -- what it means is you have to work twice as hard."

Tacey Ann Rosolowski, PhD

[1:06:20.2]

Interesting.

Sidney Wallace, MD

[1:06:22.4]

This is the story of her life.

Tacey Ann Rosolowski, PhD

[1:06:23.8]

So you were going to talk about the autoimmune disease.

Sidney Wallace, MD

[1:06:27.8]

This is an autoimmune disease.

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Tacey Ann Rosolowski, PhD

[1:06:29.9]

And what is the type that she has?

Sidney Wallace, MD

[1:06:31.8]

It's called Hashimoto's thyroiditis. Then we go into Hashimoto's thyroiditis. Here, Hashimoto's thyroiditis, and that's perhaps the most frequent cause of hypothyroidism, because many of them will biopsy, others won't even biopsy, they'll just assume that that's what's causing it.

Tacey Ann Rosolowski, PhD

[1:06:59.1]

So I bet the students and faculty really love these presentations.

Sidney Wallace, MD

[1:07:03.5]

They like them, they like them a lot.

Tacey Ann Rosolowski, PhD

[1:07:05.0]

Yeah. I mean it's an interesting way of seducing people into --

Sidney Wallace, MD

[1:07:08.0]

You see lymphatic cells, lymphocytes are inflammatory cells. These are other people in showbiz.

Tacey Ann Rosolowski, PhD

[1:07:20.9]

Kim Cattrall.

Sidney Wallace, MD

[1:07:21.6]

Yeah. This is from the picture she was in, The Color Purple.

[plays video]

So she looks something like that. But I think here, I also have... An autoimmune disease, again the actual mechanism is still not solid as far as the reasons and histories, but they are a disease that's frequently superimposed on an infection in the past, that's one method, and the immunologic cells.

Tacey Ann Rosolowski, PhD

[1:08:14.8]

Can we turn that off?

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Sidney Wallace, MD

[1:08:23.3]

Let's see where would I...

Tacey Ann Rosolowski, PhD

[1:08:30.9]

I was just thinking we should pause it, because I don't want it to -- there we go. So you were talking about the autoimmune.

Sidney Wallace, MD

[1:08:42.6]

You might have an infection like a sore throat, and it's due to a streptococcus, and after the infection is treated, the cells continue to be produced. They attack the heart, especially the valves, and you got it from the past, valves that failed after a number of years. It could be many years or a few, and that produced the valvulitis, which eventually needed to be operated on. So it's the prolongation of the effect of the initial infection.

Tacey Ann Rosolowski, PhD

[1:09:36.7]

I was interested that you selected that particular scene from *The Color Purple*, because it shows the incredible racism in the south. Why was it that you included that?

Sidney Wallace, MD

[1:09:48.5]

Why not?

Tacey Ann Rosolowski, PhD

[1:09:48.8]

Well, I was just curious you know.

Sidney Wallace, MD

[1:09:52.0]

I worked with a fellow in California who was a writer, a comedy writer, but he's a genius when it comes to Macintosh. I got all the histories and then I said look, Richard, I want you to put a good film -- and I would tell him sometimes the film that I wanted on that, and he would try to figure out something that was humorous or that really told a point, and I would either approve of it or disapprove of it.

This is another guy who had scleroderma.

Tacey Ann Rosolowski, PhD

[1:10:40.3]

Paul Klee, yeah.

Sidney Wallace, MD

[1:10:43.6]

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Now this is a tight skin on top of the face. That's what happens in scleroderma. That's one of his paintings.

Tacey Ann Rosolowski, PhD

[1:10:51.5]

Interesting. "Head of a Man."

Sidney Wallace, MD

[1:10:53.9]

The woman and peasant, and "The Kettledrum." That was Paul Klee.

Tacey Ann Rosolowski, PhD

[1:11:00.3]

So what was the effect? I just wanted to go back to a moment, to The Color Purple. What happened in the classroom situation when you showed that particular clip?

Sidney Wallace, MD

[1:11:08.5]

I showed many of them and they liked it, that's all.

Tacey Ann Rosolowski, PhD

[1:11:11.3]

But did they talk about the -- I mean I'm just curious because there's an issue --

Sidney Wallace, MD

[1:11:16.6]

I don't know that. I mean they enjoyed it. I gave four such talks.

Tacey Ann Rosolowski, PhD

[1:11:21.0]

I see.

Sidney Wallace, MD

[1:11:21.2]

This was Sjogren's Disease. Here's the rheumatoid, I wanted to show you this. This is Renoir. So I had some of his paintings, but this is what I wanted to -- okay? See, multiple sclerosis is now considered as an autoimmune disease. Rheumatoid arthritis is considered -- it used to be a collagen disease.

Tacey Ann Rosolowski, PhD

[1:12:00.6]

Oh yeah, there he is with the brush.

Sidney Wallace, MD

[1:12:02.0]

There he is with his pen, see?

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Tacey Ann Rosolowski, PhD

[1:12:03.9]

Yeah, a brush tied into his hand. So were you interested in attuning people to the diagnostic dimensions of this?

Sidney Wallace, MD

[1:12:15.5]

Both. Sometimes therapy, sometimes -- mostly diagnosis. He was a hell of a smoker. He should have died smoking, should have died of lung cancer, but I think he died of heart failure. This is a nice clip. This was 1906, where they catch a scene.

Tacey Ann Rosolowski, PhD

[1:12:46.9]

Was he still selling paintings at the time?

Sidney Wallace, MD

[1:12:49.5]

Oh, you bet, just as long as the paintings were pretty. He didn't care what it was, it was just pretty paintings. They didn't have to have any great meaning but pretty. He did fairly well, because he was very productive. See how his hands are sort of --

Tacey Ann Rosolowski, PhD

[1:13:06.6]

Yeah, very claw-like almost. Wow.

Sidney Wallace, MD

[1:13:12.2]

Smoked heavily. And his son, you'll see, or the person who played his son in a movie, at a movie event. This is real time. They all smoked back then.

Tacey Ann Rosolowski, PhD

[1:13:36.1]

Well that was the era.

Sidney Wallace, MD

[1:13:36.4]

And many of them still smoke. France, still smoke, the Far East. I think the United States have curbed it a lot.

Tacey Ann Rosolowski, PhD

[1:13:48.7]

Did you ever smoke?

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Sidney Wallace, MD

[1:13:50.8]

No.

Tacey Ann Rosolowski, PhD

[1:13:50.1]

You never smoked?

Sidney Wallace, MD

[1:13:51.2]

No.

Tacey Ann Rosolowski, PhD

[1:13:51.7]

That's unusual.

Sidney Wallace, MD

[1:13:53.3]

I never smoked. I did once and I just didn't like it. One puff and I said this is crazy. So it's this kind of thing throughout, many, many different subjects.

Tacey Ann Rosolowski, PhD

[1:14:16.0]

Did you find that footage or did your friend in California?

Sidney Wallace, MD

[1:14:21.1]

My friend found it. I knew about it. I couldn't get it, so I asked him if he would try to get that specific strip, and then he did get it for me. I don't know why he can go into somebody else's computer? These are not necessarily his hands, but this is what the hands look like.

Tacey Ann Rosolowski, PhD

[1:14:44.3]

Very, very distorted.

Sidney Wallace, MD

[1:14:45.9]

Here he was as a young man and here are some of the paintings that he did. These just really look pretty, that was his thing.

Tacey Ann Rosolowski, PhD

[1:14:58.0]

Tell me a bit about -- oh, okay.

[plays video]

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Sidney Wallace, MD

[1:15:03.9]

This is good too. Those are interesting pieces.

Tacey Ann Rosolowski, PhD

[1:15:10.7]

Oh this is from the film.

Sidney Wallace, MD

[1:15:13.2]

Yes.

Tacey Ann Rosolowski, PhD

[1:15:13.4]

"Renoir, My Father."

Sidney Wallace, MD

[1:15:18.4]

His son is played by some other younger actor. That's the fellow who plays his son. I've given the lectures over a hundred times, all around the world, just these.

[1:15:43.3]

Video:

"How will you paint?" "With my prick."

Tacey Ann Rosolowski, PhD

[1:15:48.7]

I bet they love that.

Sidney Wallace, MD

[1:15:54.0]

Oh, of course. He was something else. He had one of his best models at this time in his life. See he found me this, I found the other one, so we would work together.

Tacey Ann Rosolowski, PhD

[1:16:35.6]

And what's the name of the man?

Sidney Wallace, MD

[1:16:38.0]

Richard Stern. He controls my computer from there, but he's very late.

Tacey Ann Rosolowski, PhD

[1:16:52.5]

He's very late?

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Sidney Wallace, MD

[1:16:53.6]

Yeah. I have some I can't finish because he's not done doing it. This takes years. See, this is from a TV movie.

Tacey Ann Rosolowski, PhD

[1:17:30.2]

BBC Play of the Week, from 1978.

Sidney Wallace, MD

[1:17:31.9]

Crotchety old guy.

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Chapter 16

A: Personal Background A Physician as an Artist

Story Codes

A: Personal Background

C: Discovery, Creativity and Innovation

C: Portraits

A: Character, Values, Beliefs, Talents

C: Collaborations

Tacey Ann Rosolowski, PhD

[1:17:42.5]

Could we change subjects a little bit?

Sidney Wallace, MD

[1:17:46.1]

Sure, whatever you like.

Tacey Ann Rosolowski, PhD

[1:17:47.4]

There we go. I wanted to ask you about your own son, because he works here in interventional radiology.

Sidney Wallace, MD

[1:18:06.1]

He's my second son. My first son is in New York, who's a composer. This fellow is -- Michael is here, and he's doing a hell of a great job. He went to medical school here in town. I think he never finished at the UT and go early admission to medical school and I guess did okay. And then he worked in Dallas, at Park Lane? What's that hospital [John F.] Kennedy was brought to [Parkland Memorial Hospital]?

Tacey Ann Rosolowski, PhD

[1:18:52.8]

I don't know.

Sidney Wallace, MD

[1:18:53.4]

One of the large hospitals, I think it's a community hospital, a big hospital. And then he came to Houston. He went to medical school here first, at the UT, and then he came to Houston and first he worked at Hermann. He took a job that lasted three days and he says, I don't want to go there, at one of the private hospitals here in town. And then they hired him here and he's done a great job, really great.

Commented [T15]: Dr. Wallace begins this section talking about his sons—one a composer in New York and a second son who now works in interventional radiology. He then talks (referring to a presentation of images) about his own artwork, beginning with sculptures he designed and then had cast in bronze, moving on to his oil paintings and pastels. He comments briefly on how welcoming the Jewish Community in Houston has been over the years.

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Tacey Ann Rosolowski, PhD

[1:19:31.8]

Have you and he collaborated on anything?

Sidney Wallace, MD

[1:19:34.7]

One piece of sculpture. No, one article that he wrote, I wrote with him, and he had about 150 on the bibliography and he says he would never write another paper with me again. He says I'm too compulsive. I read all the articles. He went to the computer and looked at a few things and said okay, I've got enough. But he's a wonderful sculptor and he makes furniture, has two daughters, his wife. He's doing well, really very well.

Tacey Ann Rosolowski, PhD

[1:20:21.3]

Tell me about your own artwork. It sounds like the art bug runs in the family.

Sidney Wallace, MD

[1:20:28.5]

Well, I was also a singer and a (inaudible).

Tacey Ann Rosolowski, PhD

[1:20:35.5]

How did you start doing sculpture, which seems to be one of the things you're really focusing on now.

Sidney Wallace, MD

[1:20:39.8]

I had made bronze sculptures without much preliminary education. I went to the Jewish Community Center and my oldest son was about 13, and he did a nude woman, and I did a construction piece and I said to him, I don't want to waste my time doing this. I showed him a man blowing a shofar. And I said, I want to do this and he says okay, you do it and then you come and I'll correct it. The first piece I did looked like the picture that I took it from, but she says it's not a good sculpture and I said why not? She said well, you have to make a point of interest and your lines have to go to the point of interest, and you have to make it a real sculpture. So I did that and she says okay, now you're finished. And I did another old man and she said, "Well, it's not finished yet." She made a little ditzel here and she says okay, now it's done." Then I went on my own.

Tacey Ann Rosolowski, PhD

[1:21:56.8]

Too much tinkering from the teacher.

Sidney Wallace, MD

[1:21:59.7]

Well it's okay, they do their thing and you do your thing.

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Tacey Ann Rosolowski, PhD

[1:22:04.2]

What's a ditzel?

Sidney Wallace, MD

[1:22:05.7]

Just a little mark, a little impression. Here is the -- tell me which ones you want to see.

Tacey Ann Rosolowski, PhD

[1:22:16.2]

Just show me the ones you'd like to show me. Which ones are your favorites?

Sidney Wallace, MD

[1:22:19.7]

These are all bronzes here. That was a hard piece, because you had to balance it.

Tacey Ann Rosolowski, PhD

[1:22:31.1]

Now did you -- you cast them in wax or you modeled them in wax?

Sidney Wallace, MD

[1:22:36.2]

I cast them in wax.

Tacey Ann Rosolowski, PhD

[1:22:36.0]

And did you do the casting yourself?

Sidney Wallace, MD

[1:22:38.6]

No, no. I don't believe in doing that, that's hard work. I don't do the hard work. That's another one, that's the same one.

Tacey Ann Rosolowski, PhD

[1:22:49.7]

So you were working on these at the same time you were working here?

Sidney Wallace, MD

[1:22:53.3]

Oh yeah, sure. You can't make a living out of this.

Tacey Ann Rosolowski, PhD

[1:22:56.3]

Right, sure. Did you want to be an artist?

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Sidney Wallace, MD

[1:22:58.7]

I wanted to be a cartoonist when I first started. This is another one, this is very abstract.

Tacey Ann Rosolowski, PhD

[1:23:07.7]

That's wonderful, I love the colors.

Sidney Wallace, MD

[1:23:10.1]

Realistically, in person, it really looks much better.

Tacey Ann Rosolowski, PhD

[1:23:15.4]

Did you title these?

Sidney Wallace, MD

[1:23:17.1]

No. This is my son's sculpture. He has one now that's 5-foot tall, it's marvelous, just marvelous.

Tacey Ann Rosolowski, PhD

[1:23:30.3]

And this is out of wood or is that --

Sidney Wallace, MD

[1:23:31.1]

Wood. He hung it from the ceiling and it's really marvelous, but that's his.

Tacey Ann Rosolowski, PhD

[1:23:38.4]

Do you think that your skills in art and with making 3D things and working with color, do you think that is an ability that has helped you over the years in your own work in radiology?

Sidney Wallace, MD

[1:23:52.2]

Probably. Here, this is a pen and ink.

Tacey Ann Rosolowski, PhD

[1:23:57.7]

Oh my goodness.

Sidney Wallace, MD

[1:23:58.7]

That's Augustus John's, and I cleaned him up a little bit because he's a scrawny, just a pocked looking guy. I used to do a lot out of a dot; a dot and then the picture of the person in the dot. My yearbook is filled with that kind of stuff.

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Tacey Ann Rosolowski, PhD

[1:24:18.0]

Why did you choose to do it that way, with a dot?

Sidney Wallace, MD

[1:24:21.0]

I have no idea.

Tacey Ann Rosolowski, PhD

[1:24:22.9]

It just is very intuitive.

Sidney Wallace, MD

[1:24:24.3]

It just comes, it just comes. This is an encaustic and that's done with oil mixed with wax, and then you put it on a canvas, you get a woman's heating iron for her hair, and you just chhhhh, and it goes tuuum, and you have your painting. And then if you need to add something, you add some other color, and it's really interesting.

Tacey Ann Rosolowski, PhD

[1:24:50.6]

So, do you find it relaxing to do it? Why do you do it?

Sidney Wallace, MD

[1:24:55.2]

Only when it's good.

Tacey Ann Rosolowski, PhD

[1:24:59.0]

Do you get annoyed with yourself if it isn't?

Sidney Wallace, MD

[1:25:02.0]

Yes. When it's lousy it's lousy. I don't like to do them over and over again. Let's see, my granddaughters I've done. I've done all of my grandchildren.

Tacey Ann Rosolowski, PhD

[1:25:17.6]

So now we've shifted into the oil painting right?

Sidney Wallace, MD

[1:25:20.4]

Yeah. I use mostly oil, rarely do it in acrylic.

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Tacey Ann Rosolowski, PhD

[1:25:25.2]

Why is that?

Sidney Wallace, MD

[1:25:27.5]

Because the oil is forgiving.

Tacey Ann Rosolowski, PhD

[1:25:30.5]

It takes a long time to dry.

Sidney Wallace, MD

[1:25:33.0]

Acrylic gets dry and it can look lousy, and then you want to change it.

Tacey Ann Rosolowski, PhD

[1:25:45.4]

So is it a challenge to get your grandchildren to sit still for you?

Sidney Wallace, MD

[1:25:50.0]

Oh they don't. I have to get a picture.

Tacey Ann Rosolowski, PhD

[1:25:50.7]

Oh you do it from a photograph.

Sidney Wallace, MD

[1:25:53.4]

I have two dancers in bronze, my Jewish Dancers and my Gentile Dancers.

Tacey Ann Rosolowski, PhD

[1:26:03.9]

So let's see them.

Sidney Wallace, MD

[1:26:05.3]

That's my Gentile dancers. That's my Jewish Dancers.

Tacey Ann Rosolowski, PhD

[1:26:08.6]

So tell me about the differences. Why did you choose to make them different?

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Sidney Wallace, MD

[1:26:16.3]

Because I know anything I make that reflects Jewish life, I could sell it in a minute. I'm not really that expert -- this is not bad, I've sold some of these.

Tacey Ann Rosolowski, PhD

[1:26:31.8]

So you've sold your work?

Sidney Wallace, MD

[1:26:33.6]

Some of it initially. This is my daughter's work. She's a good, strong painter. This is my granddaughter and this is my other granddaughter.

Tacey Ann Rosolowski, PhD

[1:26:50.1]

Did it take you a long time to learn how to mix colors? How did that work?

Sidney Wallace, MD

[1:26:55.1]

No, I don't think so. The first part, I took them straight out of the tube and now I mix them somewhat.

Tacey Ann Rosolowski, PhD

[1:27:06.6]

Because I know so many people go through a long muddy phase, where just no matter what they mix together.

Sidney Wallace, MD

[1:27:12.9]

Sometimes they are muddy.

Tacey Ann Rosolowski, PhD

[1:27:14.4]

No matter what they put together, they get brown.

Sidney Wallace, MD

[1:27:18.5]

This is a Moses. Somebody brought me a piece of soapstone from Brazil and this is the 10 Commandments, and this is Moses.

Tacey Ann Rosolowski, PhD

[1:27:32.8]

Is your Jewish faith very important in your life and practice, and even your work?

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Sidney Wallace, MD

[1:27:40.3]

I'd say it's important but it has to mix with everything else. I did a lot of them, I'll show you some. There you go. This is probably one of my better paintings. My wife calls it "The Door" and I call it "The Boudoir" and "The Brothel." See, it was a photograph in a magazine that was black and white, and I put the colors in, and it really looks good. I just had it made into a gicle. Is that how you'd -- gicle. This is a copy that's put on canvas.

Tacey Ann Rosolowski, PhD

[1:28:33.3]

I don't know the technical term for that. I'll check it.

Sidney Wallace, MD

[1:28:37.4]

And this is one that I had done. This is in pastel.

Tacey Ann Rosolowski, PhD

[1:28:42.1]

And that's a rabbi or a person with a prayer shawl.

Sidney Wallace, MD

[1:28:49.9]

This was a good one, really a good one.

\$\$

Tacey Ann Rosolowski, PhD

[1:28:53.1]

Were there issues that came up when you first came to Texas, with being Jewish in a state that's very not Jewish?

Sidney Wallace, MD

[1:29:01.9]

Actually, the children get a better education here than they did in Philadelphia.

Tacey Ann Rosolowski, PhD

[1:29:06.8]

Really?

Sidney Wallace, MD

[1:29:08.8]

Jewish education. No, but my former professor said they kill Jews on the front lawn. And Gerry Dodd, who had been here for five years, and the Catholics were really under scrutiny then and he says that's boloney. So we both came and it was never a problem.

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Tacey Ann Rosolowski, PhD

[1:29:32.0]

So you found that the MD Anderson community at least, was very --

Sidney Wallace, MD

[1:29:36.1]

Well, there weren't many Jewish doctors here, there were three or four when I came, but now there are many. So they probably finally found out it wasn't bad. It was nice for us.

Tacey Ann Rosolowski, PhD

[1:29:50.7]

Nice for you in the sense that your life worked out here?

Sidney Wallace, MD

[1:29:55.1]

Yeah. The Jewish community is a strong community and very supportive and very charitable. It's a nice community but it's small.

This is one of my more recent paintings. I wanted to experiment with color. That's my nephew.

Tacey Ann Rosolowski, PhD

[1:30:21.9]

And what was the experimental dimension of that?

Sidney Wallace, MD

[1:30:26.7]

Other colors, bright colors to his face.

Tacey Ann Rosolowski, PhD

[1:30:30.8]

Using blue and unexpected colors.

Sidney Wallace, MD

[1:30:33.3]

I used green and purple, and the first comment he made, "I don't have green hair." He's a pistol. This is my granddaughter. This is again, with that same technique. That's my daughter's home in California.

Tacey Ann Rosolowski, PhD

[1:31:02.6]

I'm just really struck with how many -- how accomplished you are in so many areas.

Sidney Wallace, MD

[1:31:08.9]

Not really. I like to play around more than anything else.

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Tacey Ann Rosolowski, PhD

[1:31:14.3]

Well, the end games are pretty good.

Sidney Wallace, MD

[1:31:16.7]

And these are the pastels. You saw some of those. No, the plywood.

Tacey Ann Rosolowski, PhD

[1:31:22.5]

Oh the plywood, yes, right, that you had made into the stainless steel sculpture.

Sidney Wallace, MD

[1:31:29.0]

I took a class on portraiture, with a woman who was, I thought very good. She was Ruth Munson and she's a good portraitist, and I did two of these. I have a whole flock of portraits that I did with her. This, that's actually an interesting painting.

Tacey Ann Rosolowski, PhD

[1:31:55.9]

A transparency study.

Sidney Wallace, MD

[1:31:57.3]

Yeah, and that came out so well.

Tacey Ann Rosolowski, PhD

[1:32:02.9]

Do you have that? Do you hang your work in your home?

Sidney Wallace, MD

[1:32:06.4]

In my home. It's flooding my home. I have it all over the place. This is the plywood stuff. That was a pure accident, the plywood.

Tacey Ann Rosolowski, PhD

[1:32:16.0]

How so?

Sidney Wallace, MD

[1:32:17.5]

I went to Clark's Hardwood and looked around for something I might make a sculpture out of. It was a wood -- they were going to teach us how to make a piece of sculpture out of wood and I had never did that before. I had made it out of bronze. So he says make it. So I went up there with my wife and they sold big sheets, 4-by-4 feet, thin plywood. I think it was birch. I took it home, made 2-inch strips, and if you cut it right, you'll be able to fold it any way you want,

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because it's .8 millimeters thick. I had never worked in that at all and I made a piece of sculpture. I actually made four or five of them, and then I wood, glue, wood, glue, until you've got about half to three quarters of an inch thick, so it was fairly sturdy. After you put the second layer on, you can't change your figure. Then I sprayed it black and it looks pretty damn good. So then I had trouble here. I have arthritis in my hand, so I thought maybe I would stop doing it for the time being, maybe get back to it.

Tacey Ann Rosolowski, PhD

[1:34:11.1]

Give your hand a rest a bit.

Sidney Wallace, MD

[1:34:12.6]

Well, I may never be able to do that, because I have to hold the sculpture in my hand. I don't know if they're going to let me do it or if I can do it.

Tacey Ann Rosolowski, PhD

[1:34:26.0]

Yeah, I know an artist who was told she had to rest her hands for six months, and she ended up figuring out a way to do some artwork where she didn't have to do a lot of finger movements.

Sidney Wallace, MD

[1:34:37.1]

I saw a guy who did a hell of a lot of artwork.

Tacey Ann Rosolowski, PhD

[1:34:40.3]

Oh yeah, Renoir.

Sidney Wallace, MD

[1:34:42.8]

I can show you, if you want to see Monet, how his work really was lousy in between.

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Chapter 17

A: View on Career and Accomplishments Challenges, Chairs, and Awards

Story Codes

A: Character, Values, Beliefs, Talents
A: Personal Background
A: The Researcher
A: The Clinician
A: The Administrator
A: Activities Outside Institution
A: Career and Accomplishments
B: Philanthropy, Fundraising, Donations, Volunteers
C: Professional Practice
C: The Professional at Work
D: Ethics
D: On Research and Researchers

Tacey Ann Rosolowski, PhD

[1:34:53.1]

Let's do that maybe afterwards. I just have a couple of other questions I wanted to ask you. You had mentioned that in a conversation with someone else, you talked about how MD Anderson presented both a challenge and a burden over your career, and you felt you had things to say about that.

Sidney Wallace, MD

[1:35:12.7]

Not to me, it challenged me. I said if it becomes a burden then I should leave, and it's really never been a burden. It was always a challenge, because you see people from all over the world and you see people who initially came in from many different places around the world, they didn't even know they had cancer and they had many surgeries before. So it's always been a challenge and consequently, I've always found an interest in anything that was done. I notice some people, that it is a burden. My son is doing much the same, I mean he does a great job and I think he thinks it's a challenge most of the time.

Tacey Ann Rosolowski, PhD

[1:36:15.5]

As you look back over all the things you've done at the institution, what are the high points for you? What are you most pleased with?

Sidney Wallace, MD

[1:36:23.9]

Anything I have success in, I mean anything. It doesn't make any difference, because any of your patients are so much in need, that if you can give them a little bit of relief then it's worth it. Each phase along the way was another challenge and you try to work it out, if you're fortunate you worked it out. For example, when I was in Sweden, I was helping do a lymphangiography,

Commented [T16]: Dr. Wallace begins by saying that his time at MD Anderson always challenged him in positive ways and that he has found success in simply doing what is needed for patients who are in so much need. He tells an anecdote about pioneering the first-pass effect with alcohol (injecting the chemotherapeutic agent directly into the artery feeding a tumor), then notes an ethical issue: a visitor to the lab from another institution asked to see details of the experiments, then published a paper on the subject. Dr. Wallace then lists the Chairs he has occupied, his awards (he tells an anecdote about the Antoine Bécélère Award), and the Fulbright Scholarships that have taken him to Brazil and to Lubiana.

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and they wanted a biopsy of some of the nodes. So I had figured out how to go up with a little biopsy forceps of a sort, where we cut pieces out, but that was sort of dangerous. So I said well the heck with that, I'm going to go straight with a needle. I put in animals downstairs, many needle sticks, with anywhere from a 21-gauge, no maybe a 23-gauge, up to an 18 or larger needle. When I opened the animal's belly, I couldn't find them, so I said hey, this might be a good idea, and we then pursued needle biopsies, and it saved the patient from having a surgical procedure. But you have to understand that a negative biopsy means nothing, a positive biopsy means something. So again, another challenge, and it was successful and managing it. I don't know if we were the first or not, it didn't make any difference, but we were not doing it here.

So all along, most of them I considered a challenge. Nothing was really a burden. Dr. Dodd ran a very tight department, a very good department, and he was very capable, and some of the people he got were pretty capable.

Tacey Ann Rosolowski, PhD

[1:38:49.1]

Is there anything that you wish you had done or had accomplished, that for some reason you were not able to, when you were here?

Sidney Wallace, MD

[1:38:57.9]

Sure. I wanted to find a cure for cancer but never got close. You figure out little things to do. When I graduated medical school, I wrote a paper that I thought viruses are definitely causes of cancer, but something smaller than that would probably be where it is, and they were finally getting to it now, so they're getting to the factors. They didn't have the genome and they didn't know much about chromosomes and that sort of thing, or telomeres, but all that's come along in time, so the failure of getting to that point is partially my fault and partially the general scheme of medical knowledge. I've never been dissatisfied. I've been relatively content, my family was content, that was good enough for me.

Tacey Ann Rosolowski, PhD

[1:40:14.0]

Is there anything else that you'd like to add at this point?

Sidney Wallace, MD

[1:40:18.4]

No. Let's see, we went through much of this. Maybe you should look at it and see. One thing, where it says the funding, you can get that in these if you need it. People were most generous in many respects.

Tacey Ann Rosolowski, PhD

[1:40:51.7]

And you're talking about funding from private sources?

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Sidney Wallace, MD

[1:40:56.6]

From both, from grants and private sources and corporation funding. Each one was really important in the general scheme of things. And the John S. Dunn Foundation has been phenomenal, I mean they've carried us since 1981, until the present, no questions asked. They want to have a decent -- you had a copy of that, and they wanted a decent report as to what was going on, and they tolerated us and we tried to do a good job. The first-pass effect, I don't know if I talked about that.

Tacey Ann Rosolowski, PhD

[1:41:40.8]

Refresh my memory.

Sidney Wallace, MD

[1:41:40.5]

The first-pass effect was the scheme that we tried to incorporate in doing many things. In essence, if you would give it, you'd give a chemotherapeutic agent directly into an artery that feeds the tumor, and that would be far better than giving it to a vein, where it gets to that same tumor after it goes around throughout the whole body. So the first-pass effect will give you the maximum concentration of the chemotherapeutic agent, and if you slow the flow with embolization, it will stay there longer. And I have again, some pictures. Would you want to go through that?

Tacey Ann Rosolowski, PhD

[1:42:25.3]

Why don't we do it after?

Sidney Wallace, MD

[1:42:27.9]

And the first-pass effect was just, I have one picture here of a woman that had a cancer of the wrist and a cancer of the knee. The bigger of the two was in the wrist, so we delivered the chemotherapeutic agent as specific as we could get. Chemotherapy is not the same. There are many different kinds. Some will be effective against one tumor and some will against another. So we delivered the drug in the arm and this got the first-pass effect. The one at the knee got after it circulates in the body. When this was removed, there was no residuals in there. When this was removed, there was still considerable residual tumor.

Tacey Ann Rosolowski, PhD

[1:43:15.5]

So the first-pass effect on the wrist was definitely very effective.

Sidney Wallace, MD

[1:43:19.3]

Yeah. In essence, you're delivering it more directly to the area of interest. Now our lab did do the first work in alcohol, and then a young man was visiting from -- I think I may have mentioned this, was visiting from Dallas. Six months later he wrote a paper on it.

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Tacey Ann Rosolowski, PhD

[1:43:46.1]

Oh no, I don't think you did mention this.

Sidney Wallace, MD

[1:43:48.0]

Well, that was sort of disconcerted.

Tacey Ann Rosolowski, PhD

[1:43:50.1]

Well, tell me about that.

Sidney Wallace, MD

[1:43:53.2]

He just wanted to come see what we were doing, so I took him down to the lab.

Tacey Ann Rosolowski, PhD

[1:43:56.3]

And what was the work you were doing?

Sidney Wallace, MD

[1:43:57.9]

We were doing -- to see how effective alcohol would be as an embolic agent.

Tacey Ann Rosolowski, PhD

[1:44:02.4]

Oh, okay.

Sidney Wallace, MD

[1:44:05.3]

We were using it in many different places, and Dr. Gianturco was working that either with Jim Anderson, who was running that lab, and rather than -- it may have been with Ken Wright, who followed Anderson, but it was effective in doing what we were doing. He followed me around like a puppy dog and then six months later he may have done an animal or not, but he came out with an article. I said gees, he didn't -- I was looking around; did he even mention that he found it somewhere? No. So that was a difficult circumstance.

Tacey Ann Rosolowski, PhD

[1:44:59.5]

How did you respond?

Sidney Wallace, MD

[1:45:00.5]

Nothing. That's of no value to respond. Like again, with Dr. Gianturco, he probably made the first coronary stent, and [Julio] Palmaz came out a number of months later, with a different stent,

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but has always said that he did the first one. I doubt it very much and again, that's what happens. You do the best you can.

Tacey Ann Rosolowski, PhD

[1:45:38.5]

Is there anything else that you'd like to add at this point?

Sidney Wallace, MD

[1:45:41.3]

No I don't think so. I think we covered as much as this that I have down here.

Tacey Ann Rosolowski, PhD

[1:45:53.0]

Well I want to thank you for giving me this extra time today, I appreciate it.

Sidney Wallace, MD

[1:46:00.9]

Oh, my pleasure.

Tacey Ann Rosolowski, PhD

[1:46:01.4]

I appreciate it.

Sidney Wallace, MD

[1:46:02.5]

There's the chairs that I've been in.

Tacey Ann Rosolowski, PhD

[1:46:05.6]

Oh, tell me about those.

Sidney Wallace, MD

[1:46:06.9]

The first one, I think I told you about. The initial one, they didn't give us any money or a chair, and that was Ashbel Smith. John S. Dunn, who really supported this department and the laboratory especially, theirs was a laboratory, a gift, and they have consistently done that since 1981 I believe, and very, very generously. Then when Dr. [Robert D.] Moreton died, he wanted me to have his chair, so I was switched to the Moreton chair, and then the Levits came by and that was a chair in my name, but it was given to somebody else recently. I think that's enough for that group.

Tacey Ann Rosolowski, PhD

[1:47:06.6]

Are there particular awards that you've received over the years, that mean the most to you?

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Sidney Wallace, MD

[1:47:13.4]

I think they're all listed here, I got plenty of awards.

Tacey Ann Rosolowski, PhD

[1:47:18.3]

Are there some that mean more to you than others?

Sidney Wallace, MD

[1:47:21.1]

They all mean -- they're all important.

Tacey Ann Rosolowski, PhD

[1:47:27.0]

I have the Leaders in Innovation Award from the Society of Interventional Radiology, that was in 2009.

Sidney Wallace, MD

[1:47:36.5]

So that's long after I turned in the gauntlet there. There's been a lot of awards and exhibits, and the exhibits are usually made by a group of us, and they're all listed here. Lectureships.

Tacey Ann Rosolowski, PhD

[1:48:01.7]

Yeah, there's the Sidney Wallace Lectureship, the Third Asian-Pacific Congressional.

Sidney Wallace, MD

[1:48:05.8]

In Australia.

Tacey Ann Rosolowski, PhD

[1:48:07.9]

Yeah.

Sidney Wallace, MD

[1:48:06.1]

And the Bécélère Award, that was funny.

Tacey Ann Rosolowski, PhD

[1:48:09.8]

Yeah, tell me about the Bécélère Award, the Antoine Bécélère Award.

Sidney Wallace, MD

[1:48:13.1]

It was in France. I guess I was doing a lot of interventional in comparison to most, and mostly on cancer patients. Antoine Bécélère was a very well-known radiologist in France, and each year,

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he'd give out the award and my wife, she said, "What are you getting that for?" I said I don't know and she said well I'll go. I think we were moving somewhere. So she said I'll go next time. So the next year we went to Hawaii and a guy was on stage and was receiving the Antoine Bécclère Award and she says, "You mean that's what you got?" I said yes and she says, "That's a big thing." I said okay.

Tacey Ann Rosolowski, PhD

[1:49:05.3]

So it was a big trophy kind of, or what was it?

Sidney Wallace, MD

[1:49:07.6]

No. It was a little plastic thing, a little metal thing I think, but it meant something to the people there who got it and she didn't know about it, and she passed it over as nothing. So it was nothing, that's okay.

Tacey Ann Rosolowski, PhD

[1:49:25.5]

What's your philosophy about receiving awards?

Sidney Wallace, MD

[1:49:29.0]

I think they're very nice and I think it's a level of accomplishment. It means you've done a decent job basically. These are listed here, named lectureships. I don't remember most of them now. I did have two Fulbright Scholarships; one to Brazil and one to Lubiana.

Tacey Ann Rosolowski, PhD

[1:50:18.4]

What were those like?

[Redacted]

Tacey Ann Rosolowski, PhD

[1:51:46.2]

That's a lectureship?

Sidney Wallace, MD

[1:51:48.0]

Yeah. I gave a lecture on it some years later.

Tacey Ann Rosolowski, PhD

[1:51:57.2]

Are there others here that are particularly memorable for you?

Sidney Wallace, MD

[1:52:02.5]

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They're all memorable, many of them. Lubiana, I gave some talks there, and Lubiana was still, at that time, was run by a dictator. Dictator of Yugoslavia [Marshall Josip Broz Tito] Lubiana was a state, a country in Yugoslavia. I'll remember it shortly, maybe never, but that's okay.

Tacey Ann Rosolowski, PhD

[1:52:38.1]

I'm ashamed I don't remember. It's okay, I can check it.

Sidney Wallace, MD

[1:52:45.6]

At the time of [Joseph] Stalin, he ran Yugoslavia. First of all, the Slovenians disliked the Serbs and the Serbs disliked the Slovenians, and the Slovenians were somewhat supportive of the Nazis. The Serbs were very antagonistic to the Nazis. He had a dinner one night there and the man that was giving the talk said, "How many of you are now communists?" One guy raised his hand. That was in Slovenia. Marshal... I'll ask my wife, she usually remembers those kind of things. It's almost 11:00, my god. That's what happens when I talk too much.

No, they were all memorable. I think they just say keep doing what you're doing because you're doing something right.

Tacey Ann Rosolowski, PhD

[1:54:12.5]

So whether it's from peers or whether it's from...

Sidney Wallace, MD

[1:54:17.0]

When you screw up, you screw up. I don't remember purposely doing any of that. These are all the grant support, there's been a lot of that. These are all numerated here. We had a lot of grant support, and the patents. I think the one that may pay off is the PG-Taxol. We did a lot of things in a lot of different areas, but I think that was probably the best.

Do you have that?

Tacey Ann Rosolowski, PhD

[1:55:18.7]

Yes I do.

Sidney Wallace, MD

[1:55:19.6]

Anything you want.

Tacey Ann Rosolowski, PhD

[1:55:21.3]

All right, well thank you, thank you very much.

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Sidney Wallace, MD

[1:55:23.6]

Okay. The one thing in that article, if you still have it, was -- it made some remarks about interventional radiology, the term interventional means to intervene. That means to come between the doctor and his pocketbook, the surgeon and his pocketbook. This was my pitch.

Tacey Ann Rosolowski, PhD

[1:55:43.0]

Is that still the way you characterize interventional radiology?

Sidney Wallace, MD

[1:55:48.3]

Probably. It was fun for a while doing it. Oh, you wanted this thing.

Tacey Ann Rosolowski, PhD

[1:55:53.6]

It's about five minutes of 11:00, and I'm turning off the recorder now. Thank you very much Dr. Wallace.

Sidney Wallace, MD

[1:56:00.4]

My pleasure.

[End of Interview]