THE UNIVERSITY OF TEXAS M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

NEWS LETTER

For the Physicians of Texas

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INTERNATIONAL CANCER CONGRESS HELD IN LONDON

The Seventh International Cancer Congress, under the auspices of the International Union against Cancer, was held in London, July 6 to 12, 1958.

The aim of the Congress was to promote the diffusion of international scientific thought to aid progress in the study of cancer. The professional men of medicine and of allied sciences had an opportunity to pool their knowledge by the conferences, informal meetings, discussions, and social gatherings provided by the Congress.

The program for each day dealt with one selected topic, which was approached from every clinical and experimental aspect. The principal topics were: Cancer Control, Hormones and Cancer, Carcinogenesis, and Chemotherapy. The organization of cancer services, geographical pathology, and difficulties of diagnosis were other subjects considered.

Sir Stanford Cade of England, president of the Cancer Congress, presided over the meeting. Officers of the International Union against Cancer include: Professor J. Maisin, Belgium, president; Professor V. R. Khanolkar, India, president-elect; Professor A. Prudente, Brazil, vice-president; and Dr. Pierre F. Denoix, assistant general secretary. These officers, in addition to the seven staff members of MDAH who attended the Congress, have either contributed to or assisted with THE YEAR BOOK OF CANCER, which is compiled under the direction of the staff of MDAH and is published annually by the Year Book Publishers, of Chicago.

The previous meetings of the International Cancer Congress were held in Madrid, 1933; Brussels, 1936; Atlantic City, 1939; St. Louis, 1947; Paris, 1950, and Sao Paulo, 1954.

INTERNATIONAL CONGRESS TO BE REPORTED

The editorial staff of *The Cancer Bulletin* covered the Seventh International Cancer Congress held in London, July 6 to 12. Reports of the meeting will comprise the November-December issue of *The Cancer Bulletin,* a bi-monthly periodical published for the physician in general practice. Covering the meeting were R. Lee Clark, Jr., M.D., directing medical editor, Russell W. Cumley, Ph. D., executive editor, Margaret R. Harrington, managing editor, and Mary C. Smith, assistant editor. They were assisted in reporting the meeting by the six staff members of MDAH who attended the conference for the presentation of papers. The trip for those who presented scientific papers was made possible by special gifts of Foundations and private philanthropy.

The *Bulletin* staff covered the Congress to report in *The Cancer Bulletin* findings of the meeting as early as is possible, since proceedings of such meetings usually are not available in print until at least a year or 18 months later. Further, proceeding publications often are limited in number and are found only in well-stocked libraries, and are not easily accessible to physicians in general practice.

From over 500 scientific papers read, an effort will be made to present the contributions which are regarded as of most interest to the practicing physician, and to note papers which appear to offer significant promise in the continuing fight against cancer.

The Cancer Bulletin has reported other International Cancer Congresses: the Paris Congress in 1950 (*Cancer Bulletin,* July-August, 1950) and the Sao Paulo, Brazil, Congress in 1954 (*Cancer Bulletin,* November-December, 1954).

MULTIPLE PRIMARY CANCERS

"Occurrence of Multiple Primary Cancer in a Population of 200,000 in a Twelve Year Period" was presented at the International Cancer Congress by Eleanor J. Macdonald, epidemiologist.

Abstracts of all known cancer cases diagnosed and treated in a 20,000 square mile area from 1944 through 1955 have been tabulated, follow-up of patients has been established, and the actual incidence of primary cancer has been determined. This study is concerned with multiple primary cancer in the same individual, as it occurs in the skin and in different organs. The county under study enjoys 80 per cent of possible sunshine each year, with an altitude from 3500-5000 feet in the valley to 7100 feet on the plateau, and a mean annual temperature of 62 degrees. At such an altitude range, with such intense sunshine, the incidence of skin cancer of exposed areas is very high. Of the total individuals with cancer, 4.8 per cent have multiple primary cancer of exposed areas, and 5.6 per cent have multiple primary cancer of other sites.

Of the 1010 individuals with multiple primary cancer, 431 had tumors of exposed areas of the face and hands, 61 multiple in the same organ, 83 in paired organs, 135 in skin other than exposed areas, and 300 in separate organs.

This series has particular interest in that the diagnosis and treatment is performed by the same physicians in a recent period of time, and covers a definable population. All this work is under the auspices of the County Medical Society and has the unanimous approval of the physicians. The plan and organization for the survey was designed and administered by the epidemiologist under the auspices of the Texas Coordinating Cancer Council. The base data are more complete than those usually found in cancer record registries.

ELEANOR J. MACDONALD, EPIDEMIOLOGIST

Miss Macdonald graduated from Radcliffe College where she received an A.B. degree. She attended Harvard Medical School for special courses in public health, epidemiology and statistics. She served as statistician and epidemiologist for the Massachusetts Department of Public Health from 1930 to 1940. From 1941 to 1948 Miss Macdonald was research statistician, Division of Cancer Research for the Connecticut State Department of Health. In 1948 she joined the Anderson Hospital staff as epidemiologist.

Over 40 publications have been published under her name, on such subjects as state-aided cancer clinics, complete records to aid cancer control, evaluation of cancer control methodology, malignant melanomas in Connecticut, end results reporting, and the epidemiology of cancer. These have appeared in *Am. J. of Roentgenology, Bull. of Am. Coll. of Surgeons, N. Y. Acad. of Sc., ACTA, J. of Invest. Dermatol.*, and other journals.

Miss Macdonald wrote the "Handbook for Cancer Registries and Follow-Up Services" distributed by the American College of Surgeons to all approved tumor clinics.

Miss Macdonald served as consultant to Memorial Hospital for Cancer and Allied Diseases in New York, and is assistant clinical professor and lecturer at Yale University School of Medicine, professor of biostatistics at The University of Texas Postgraduate School of Medicine, and is consultant to the Texas Cancer Coordinating Council. She recently was elected chairman of the definitions committee of the end-results committee of the Cancer Chemotherapy National Service Center.

She is president of the Public Health Cancer Assoc. of America.

TUMOR INDUCTION BY VIRAL PARTICLES

"Studies on Submicroscopic Structure of Parotid Gland Tumors of Mice" was presented at the Cancer Congress by Leon Dmochowski, virologist and electron microscopist. Contributing authors were Clifford E. Grey, section of virology and electron microscopy, and Ludwik Gross, Cancer Research Unit, V. A. Hospital, Bronx.

Studies on submicroscopic structure of organs of mice with spontaneous leukemia and leukemia induced by cell-free preparations of mouse leukemic organs have been reported. In the present study, ultra-thin sections of parotid gland tumors induced in C_3Hf strain mice with cell-free preparations of leukemic organs of mice with induced leukemia, were examined in an RCA EMU 3A electron microscope. The cell-free preparations of C3H leukemia were obtained either by differential centrifugation or by the same centrifugation followed by filtration, and the final supernatant or the filtrate inoculated into C_3Hf strain mice less than 16 hours old.

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In organs of mice with spontaneous and induced leukemia, cells in various stages of break-down as well as virus-like particles were encountered. In the parotid gland tumors comparatively few signs of cellular destruction were observed. Alterations in the structure of mitochondria, occasional formation of vacuoles in the cytoplasm filled with homogeneous material and surrounded by an area of dense osmiophilic material were found, with few alterations in the abundant ergastoplasm. In addition, virus-like particles were frequently observed, usually in the intercellular spaces and in vacuoles of the cytoplasm, but seldom in the cytoplasm itself. While the structure of virus-like particles was somewhat similar to that of particles present in leukemic organs, their size was found to be much smaller, approximately 650 Å in diameter compared with the average size of 1,100 Å of particles in the leukemic organs of mice with both spontaneous and induced leukemia.

Similar virus-like particles were found in sections of pellets obtained by centrifugation of cell-free extracts of leukemic organs of mice. The extracts were put through a series of centrifugation. These cell-free extracts have been observed to induce parotid gland tumors.

The significance of these studies is this: (1) parotid gland tumors can be induced by cell-free extracts of leukemic cells containing virus particles of a characteristic size and structure; (2) the induction of leukemia in mice can be carried out by means similar to the induction of parotid gland tumors, and (3) there is a possibility that similar virus-like particles induce both spontaneous and induced luekemia, though there is a difference in the particle size.

LEON L. DMOCHOWSKI, VIROLOGIST

Leon Dmochowski received M.B. and Ch.B. degrees from the University of Lwow, Poland, and his M.D. degree with distinction from the University of Warsaw. He obtained his Ph.D. from the University of Leeds, and is a licensed medical practitioner in England.

In 1953 and 1954, while on leave from staff activities at Leeds, he was visiting associate professor at Columbia University. In 1955 he became head of the section of virology and electron microscopy at MDAH. He is also clinical professor of microbiology at Baylor University College of Medicine.

Dr. Dmochowski has published over 80 papers in the fields of immunology and serology, endocrinology, tumor-inducing viruses, genetics and electron-microscopy. These have appeared in such journals as *Compt. rend. Soc. de Biol., Am. J. Cancer, Brit. J. Exper. Path., Cancer Res., Brit. J. Cancer, J. Nat. Cancer Inst., Brit. Med. J., Acta Union contre le cancer, and J. Neuropath. & Exper. Neurol.*

COMBINED SURGERY AND RADIOTHERAPY

"The Association of Surgery and Supervoltage Roentgen Therapy in Tumors of the Head and Neck" was presented at the International Cancer Congress by William S. MacComb, surgeon. Contributing authors were Gilbert H. Fletcher and Paul M. Chau, department of radiology.

In the squamous cell carcinomas of the head and neck, depending upon the site and extensions, surgery and radiation are used either independently or in combination at M. D. Anderson Hospital. The primary lesion may be treated by radiation therapy and the

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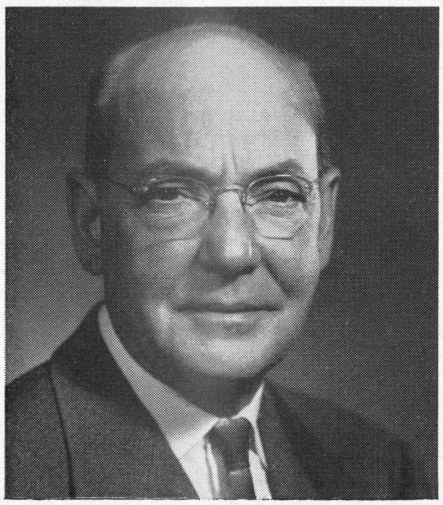
secondary by surgery, or both methods of treatment may be employed on both primary and secondary lesions.

The basis of the present study is a series of 186 patients with cancer of the oropharynx and palatine arch. One hundred five, treated since 1954 with supervoltage therapy, have a three-year follow-up. The results are compared with 81 patients with cancer of the oropharynx and palatine arch treated with conventional techniques.

The morbidity of radical neck dissection after irradiation to the neck is decreased because of the increased skin tolerance to supervoltage roentgen therapy. There is also better primary healing of operative wounds of the oral mucous membranes with supervoltage therapy. Because of these facts the range of indications for combined procedures is greater.

Supervoltage roentgen therapy permits the delivery of higher doses to larger volumes of tissue, such as in the oropharynx where the mandible is covered with only a minimum of mucous membrane and fascia. A definite percentage of severe to moderately severe necroses will be produced as a calculated risk if a high percentage of tumor sterilizations is to be procured. Such a calculated risk cannot be taken without available surgical management when needed.

Uncontrolled primaries are less frequently the cause of death. Failures in controlling metastatic disease in the neck are still common and the possibility of throwing viable cells into the blood stream by surgical procedures warrants an investigation of possible value to preoperative radiation prior to neck dissection in selected groups.



WILLIAM S. MacCOMB, SURGEON

William S. MacComb received his M.D. degree from the Professional School of the University of Buffalo. He completed an internship at Genessee Hospital, Rochester, N. Y., and residencies at both Genessee and St. Luke's hospitals in New York City. After completing a three and one-half year fellowship at Memorial Hospital in New York, he joined its staff and served as associate surgeon until 1952 when he joined the staff at M. D. Anderson Hospital as chief of the section of head and neck surgery.

He has published manuscripts on the treatment of patients with head and neck cancer, planned combination of surgery and radiotherapy, and a number of papers on radical neck dissections. His papers have appeared in ***Am. J. Roentgenology, Annals of Surgery, Postgraduate Med., Am. J. Cancer, N. Y. State Med J.,*** and ***Radiology.***

Dr. MacComb is on the consulting staff at St. Luke's Hospital and Texas Children's Hospital, and is associate professor of surgery at The University of Texas Postgraduate School of Medicine. He is a member of the Am. Coll. of Surgeons, Am. Radium Society, Radiol. Soc. of No. Am., New York Surgical Soc., Soc. of Head and Neck Surgeons, and the James Ewing Society.

TOTAL THYROIDECTOMY ADVOCATED FOR THYROID CANCER

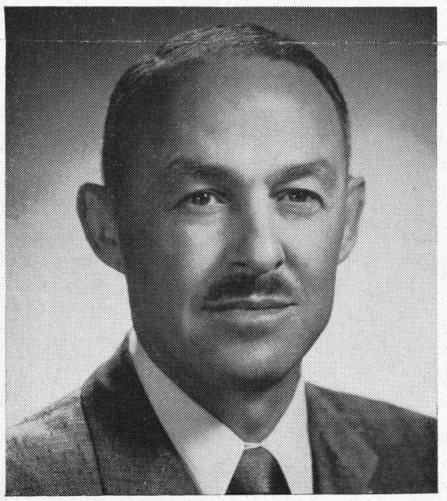
"Clinicopathologic Considerations in the Treatment of Thyroid Cancer by Total Thyroidectomy" was presented at the International Cancer Congress by R. Lee Clark, Jr., Director and Surgeon-in-Chief. Contributing authors to the paper were William O. Russell, Michael L. Ibanez, department of pathology, and Edgar C. White, department of surgery.

Pathologic studies of whole organ subserial sections of thyroid glands removed *in toto* for carcinoma have demonstrated that, by the time thyroid cancer becomes clinically manifest, in more than 60 per cent of cases both lobes or one lobe and the isthmus will contain tumor.

The study supports the view that multiple intraglandular foci of cancer may properly be regarded as metastatic extensions, rather than multiple primary lesions. It was shown that the capsule of the thyroid gland functions as the first limiting barrier to the spread of cancer cells via the lymphatics: thus, the gland may be regarded as a lymphatic lake, in which tumor cells may be readily disseminated from one side to the other. The small pericapsular lymph nodes attached to the gland are therefore the first regional nodes to be invaded by metastases. In surgical specimens which included these nodes, they were uniformly involved with tumor, as demonstrated by sectioning.

These observations readily explain the high incidence of recurrence of thyroid cancer in the contralateral lobe or isthmus when simple enucleation of the tumor mass or unilateral lobectomy is employed. The findings from these studies, with the clinical experience at The University of Texas M. D. Anderson Hospital, constitute the basis for the use of total thyroidectomy in the treatment of thyroid cancer at MDAH.

To be maximally effective, total thyroidectomy must include pericapsular tissues with all the adjacent lymph nodes. The operative mortality is not increased and the clinical sequelae are minimal; the resulting myxedema may be controlled by standard replacement therapy.



R. LEE CLARK, JR., SURGEON-IN-CHIEF

Randolph Lee Clark, Jr., Director and Surgeon-in-Chief of M. D. Anderson Hospital since 1946, received his B.S. from the University of South Carolina, and his M.D. from the Medical College of Virginia. He interned at Garfield Memorial Hospital in Washington, D. C., and studied at the University of Paris Graduate School of Medicine. He obtained his M.Sc. in surgery from the University of Minnesota Graduate School of Medicine in Rochester, and was associated with the Mayo Clinic for five years. In 1954 he was given an honorary D.Sc. by his alma mater, the Medical College of Virginia.

Dr. Clark has published over 50 articles on such subjects as resection of carcinoma of the rectum, chronic obstruction of the duodenum, treatment of pilonidal cysts, gastric cancer, and biologic and clinical aspects of malignant melanoma. Papers have been published in the following journals: ***Postgraduate Med., Surgery, AMA Arch. of Surg., N. Y. State J. of Med., Air Surgeons Bull., Surg., Gynec., and Obstet., Bull. of the Am. Coll. of Surg., Clin. Med., Am. J. of Path.,*** and others.

He is clinical professor of surgery at The University of Texas Dental Branch, lecturer in surgery at The University of Texas Medical Branch, professor of surgery at The University of Texas Postgraduate School of Medicine, clinical professor of surgery at Baylor University College of Medicine. He is directing medical editor of ***The Cancer Bulletin,*** medical editor of ***The Psychiatric Bulletin*** and ***The Heart Bulletin,*** and co-editor of the YEAR BOOK OF CANCER.

SUBMICROSCOPIC STRUCTURE OF HUMAN LEUKEMIC TISSUES STUDIED

"Studies on Submicroscopic Structure of Human Leukemic Tissues," by Leon Dmochowski, Clifford E. Grey, John A. Sykes, section of virology and electron microscopy, C. C. Shullenberger, and Clifton D. Howe, department of medicine, was presented at the Cancer Congress by Dr. Howe.

In view of the observations on ultrastructure of leukemic organs of mice and of organs of chickens with leukosis, studies have been carried out on the submicroscopic structure of tissues of patients suffering from leukemia.

The results of electron microscope studies of ultra-thin sections of biopsy specimens obtained from the affected lymph nodes were presented. Altogether material obtained from 14 patients has been examined. These cases comprised: five patients with acute lymphocytic leukemia, two with acute myelomonocytic leukemia, two with acute monocytic leukemia, one with acute granulocytic leukemia, and four with Hodgkin's disease. Four of the 14 cases were untreated before the biopsy specimens were taken; the remaining patients received other treatment.

CLIFTON D. HOWE, CHIEF OF CLINICS

Clifton D. Howe received his B.S. and M.D. degrees from the University of Vermont College of Medicine, and he interned at the Mary Fletcher Hospital in Burlington, Vermont. He was a fellow for two years and a resident for one year at the New York University Third Medical Division, Goldwater Memorial Hospital in New York City. Prior to joining the staff at MDAH, he was instructor in the department of tropical medicine at the Army Air Force School of Medicine at Randolph Field, Texas.

Dr. Howe is head of the department of medicine and chief of clinics at MDAH. He is professor of medicine, The University of Texas Postgraduate School of Medicine. He is directing medical editor of ***The Heart Bulletin*** and has recently been appointed to the publications committee of the American Heart Association. His publications include papers on the treatment of leukemia, needle biopsy, and clinical evaluation of numorphan, which have appeared in the following journals: ***J.A.M.A., Texas St. J. of Med., Science, Southern Med. J., Cancer,*** and others.

WILLIAM O. RUSSSELL, PATHOLOGIST

William O. Russell received his B.S. degree from Stanford University and his M.D. degree from Stanford Medical School. He interned at Cleveland City Hospital and had residency training in pathology at the Mallory Institute of Pathology in Boston, and Washington University and Barnes Hospital in St. Louis. From 1945 to 1948 he was pathologist and director of laboratories at Santa Barbara Cottage Hospital in California. In 1948 he was named pathologist-in-chief at MDAH.

He has published over 40 papers on induction of cancer and pathological diagnosis.

CRYOSTAT—FROZEN SECTION TECHNIQUE

"Improved Frozen Section Diagnosis of Cancer by Cold Chamber Cryostat" was presented by William O. Russell, pathologist-in-chief. Contributing authors were Michael L. Ibanez, Arthur J. Speece, and Jeffrey P. Chang, department of pathology.

There are two major specific advantages. Extremely soft tissues, such as brain, lymph nodes and necrotic tissue, are more amenable to complete section than by the conventional method. A more accurate diagnosis than is afforded by the usual technique is possible in four types of cancer: malignant lymphoma; transitional carcinoma of the bladder; intracranial tumors; and carcinoma of the thyroid, endometrium, prostate and breast.

There are eight general advantages; principally, the technique is simple.

The technique and the results of frozen section diagnosis were given.

RELATIONSHIP OF ENZYME CONTENT AND CANCER

"Quantitative Relationships between Deoxyribonucleic Acid (DNA) Content and Metabolism of Diploid and Tetraploid Tumor Strains" was presented at the International Cancer Congress by Saul Kit, associate biochemist. Technical assistance was contributed by Odette L. Graham, Arthur Gross, Rae S. Ragland, and Jane Fiscus, all of the department of biochemistry.

In his paper Dr. Kit presented data on the enzyme content and metabolism of related diploid and tetraploid tumors. These data were discussed in connection with the problem of genes and cellular enzyme content, and the relation of the above problem to cancer.

The metabolism and enzyme content of the following diploid and tetraploid tumors were investigated: hyperdiploid Ehrlich-Lettre and tetraploid Ehrlich carcinomas; diploid lymphoma 6C3HED, E9514A, and LL5147, and tetraploid lymphoma 6C3HED/DBA-2.

SAUL KIT, BIOCHEMIST

Saul Kit received A.B. and Ph. D. degrees in biochemistry from the University of California, Berkeley. Prior to joining the staff at MDAH in 1953 he was a Post-Doctoral Fellow of the National Foundation of Infantile Paralysis at the University of Chicago. He is associate biochemist in the department of biochemistry at MDAH.

Dr. Kit has published over 30 papers on such topics as intermediary metabolism and growth mechanism of deoxyribonucleic acid, glycerol metabolism of normal and malignant lymphatic tissues, and pathways of ribonucleic pentose biosynthesis. His papers have appeared in ***Cancer Research, Journal of Biological Chemistry*** and other journals.

He is assistant professor of biochemistry at The University of Texas Postgraduate School of Medicine.