Introduction

The purpose of this review is to evaluate the effectiveness and significance in utilizing Micrograph Onclographic Histography (MOHS) for excision of and diagnosis of localized melanoma compared to traditional cancer excision techniques. It is designed to not only remove cancerous tumors (prior to metastasis) from commonly exposed skin but will also preserve the surrounding healthy tissue and sparing anatomical facial features in an aesthetic fashion. It can provide an overview of the technique’s diagnostic capability and potential improvement for upcoming studies, as well as avoiding potential prognosis post operation. (Norrin, Holmes, Goldman, 2019)

Background

Melanoma is a cancerous mutation of pigmented skin cells. Typically unknown by the patient, melanoma metastasizes quickly on visually exposed skin, and requires unique surgical technique for removal. MOHS is an invasive surgical procedure that effectively displays the successful removal of melanoma invaded tissue on the face, prior metastasizing. The procedure requires a multitude of skillful medical professionals in one setting. Its success rate depends upon the MOHS dermatology staff for removing cancerous tissue layer by layer from the face via a technique known as “staging.” The successfully removed stage will be handed to an onsite histotechnologist who will prepare the tissue slides for review and diagnosis from the dermatologist. Fast results will confirm the stage is either clear of cancer or will require another layer excised. A MOHS prognosis can vary, and medical professional aid may continue depending on the severity of post-op outcome. Facial reconstruction might be recommended post MOHS.

The typical locations for development of melanoma make MOHS the most beneficial method for these special-site tissues. The ability for this surgery to proficiently remove unburned tissue, while preserving the aesthetic of the patient’s natural anatomy makes this the most ideal route of treatment. This process also includes the exhaustive histological assessment and post-operative aid to achieve a natural look to the skin. This is the determining factor of MOHS surgery over traditional surgery for patients who are seeking high effectiveness in skin cancer removal, low surgical recurrence, and minimal tissue disfigurement. (Etkowitz, J. R., & Alam, M, 2020)

Methodology

The meta-narrative analysis research process was used to analyze the findings of MOHS technique involving its diagnosis and treatments for non-metastasized melanoma on the face. The intention of these findings is to evaluate the overall knowledge and information of MOHS technique as the optimal surgery for cancer removal over traditional excision treatments. Hence, the specific technique involving the precise skill set a MOHS medical professional must possess for successful cancer removal. Noting no current changes in the review process.

The article search began January 21st, 2024. The Research Medical Library and PubMed were used as the data search engines and were initially queried for articles related to “diagnosis” and “techniques”. Key search terms such as MOHS, non-metastasized melanoma, MOHS technique, and MOHS profession skill were also included. These key terms navigated the search to National Library of Medicine, Ovid, PubMed and Springer Link, providing 12 scholarly and peer articles. By searching key terms in the titles and abstracts, this was narrowed down to 8 articles.

Article findings relied on the inclusion criteria that focused on patients with non-metastasized melanoma particularly on the face and requirements that fulfilled the MOHS technique. All other types of cancers were excluded as well as other publications that did not meet the focus of treatment time frame, location and non-metastatic or treatment evolution, histological mapping, and treatment complexity. Exclusion of skill sets not related to MOHS were filtered through as well. Narrowing review and research continued with the consideration of current published articles no older than 5 years, starting findings in 2019 and ending 2024, and all non-English and inaccessible articles were also excluded.

The data collected consisted of different related articles which showed the evidence of diagnosis and correlated melanoma deaths, as well as patient case studies depicting the results in tissue removal. Additional data also provide patient tumor characteristic demographics (Ishii, L., Ardanapallai, A., Surprenant, D., Reserva, J., Moy, L., Martin, B., Krol, C., Cesarin, L., Alam, M., & Tung, R. 2019). Synthesis of these findings will be reported in this meta-analysis utilizing MOHS for improved outcomes for cancer removal, and tissue sparing over traditional skin cancer removal surgeries.

Results

• Results demonstrated effectiveness of MOHS micrographic surgery in treating extensive midfacial lesions that may have otherwise been deemed inoperable.
• Evidence supporting MOHS as a treatment for thin melanomas specifically in anatomically difficult facial locations on face, head, and neck.
• Utilizing Immunohistochemical stains improving the accuracy of MOHS.
• Early detection of melanoma on the face for better aesthetic results post operation.
• Longer frequency between diagnosed tissue was treated to be correlated with larger post operative surgical defect size.
• Established essential standards for credentialing MOHS surgeons and Histotechnologists for expertise in performing MOHS technique.
• Without MOHS surgery melanoma specific mortality rates are twice as high.
• MOHS surgery requires skill but can done locally and effectively.
• Use of Histotechnologist’s mapping and orientation technique to improve MOHS accuracy.

Discussion

What procedures and techniques does MOHS surgery involve when diagnosing and treating non-metastasized Melanoma, as well as how it will maintain healthy and appealing skin, and provide positive outcomes for the patient?

Justification

Determining optimal procedures and medical personnel of MOHS can be justified by practical aspects. The skill and practice a dermatologist and histotechnologist must undergo in addition to their license for practice implies the seriousness of MOHS surgeries compared to other surgeries. The status of the melanoma in the patient’s skin, and depth removal justifies surgical precision. Yet MOHS is an upcoming procedure and can provide an overview of its diagnostic capabilities and its strengths, limitations, and potential improvements for future studies, as well as avoiding potential prognosis post operation.

Future Research

Future recommendations for research on MOHS surgery for melanoma, it is important to continue studying the effectiveness of MOHS surgery compared to other treatments, exploring ways to improve outcomes and reduce recurrence rates, and investigating potential advancements in surgical techniques and technologies collaborating with experts in the field, eg: clinical trials, and staying updated on the latest developments in melanoma research would contribute to establishing a standard protocol. New research plays a crucial role in advancing the insight and treatment of melanoma, as ongoing efforts in this field are essential.

References


