

MOHS MICROGRAPHIC SURGERY: BEST OPTION FOR RESECTION OF FACE SKIN BASAL CELL CARCINOMA?

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Abstract: Among skin neoplasms, basal cell carcinoma (BCC) is the most frequent, with a prevalence of 70 to 80% of cases of cutaneous neoplasms (CAMERON, 2022). Currently, the most effective surgical method for its removal is Mohs micrographic surgery (MMS), a refined and precise surgery, which allows complete removal, with analysis of the superficial to deeper layers, being a safe, precise and detailed therapy, which allows tissue preservation, better evaluation of the layers and minimal aesthetic damage.

INTRODUCTION

Mohs Micrographic Surgery, as it is a technique that allows individualized treatment, consists of a broader and more complete visualization of the surgical margin during the procedure in a singular way (WONG et. al, 2019). It aims at a better surgical safety margin and greater attention to tumor residues, which could remain after removal by the standard technique (BITTNER et. al, 2021). With better expertise, it results in a lower risk of recurrence, providing better quality reconstruction in the area of tissue removed and less loss of functional tissue during the surgical procedure.

OBJECTIVE

To analyze the effectiveness of Mohs surgery in the treatment of skin BCC, in the face region, in relation to the treatment of standard surgical removal, in order to unravel the CMM technique and thus understand its greater effectiveness, not only aesthetically, but also its safety.

THEORETICAL FRAMEWORK

CMM is a surgical and laboratory procedure that aims at the total excision of a cutaneous tumor, being surgically and microscopically controlled. It originated in the 1930s, in the United States, and was

developed by physician Frederic Mohs, who, based on his research on tissue fixation, realized that a zinc chloride paste had the ability to fix living tissues while preserving their microscopic anatomy. Based on this discovery, his resolution was to fix the interface region of tumors with normal structures in the same way. The fixation of the tumor and the skin around it safeguards the primordial topographical references so that any tumor residue visualized in the microscopic and pathological examination could be precisely found in the indicated place, proceeding with the fragmented removal, analyzing the tissue in stages, allowing the complete resection of the neoplasm. Furthermore, Mohs chemosurgery, a method that would dominate microscopically controlled surgical excision until the 1970s, has been improved (BITTNER, 2021). Over the years, there have been several modifications in the form of microscopic control of surgical margins, however, preserving their elementary characteristics. Its efficiency has been proven by identifying and removing subclinical tumor growth, which has enabled a better understanding of the way in which free-border cutaneous tumors expand, as well as increased the efficiency of the surgical treatment of these neoplasms. Despite these apparent advantages of the method in relation to conventional surgical treatment, the technique is currently little disseminated in practice, and not very familiar in our environment. In order to analyze the advantages of this surgery compared to the standard procedure, this bibliographic review aims to unravel the method and point out its greater effectiveness, based on its guiding question: would Mohs micrographic surgery be a better option for resection of basal cell carcinoma of the skin on the face?

METHODS

This is a bibliographic review that mostly used scientific productions from the period 2017 to 2022 in electronic databases *Scielo-Brasil*, *MedLine*, *LILACS e PubMed*, in order to analyze and synthesize the set of basic articles to create a comparative theoretical basis between surgical techniques specialized in the removal of skin neoplasms on the face, with a focus on basal cell carcinoma.

RESULTS

Because CMM is a technique that allows for individualized treatment, it allows for a broader view of the surgical margin during the procedure in a unique way. With better expertise, it results in a lower risk of recurrence and providing better quality in the reconstruction of the removed tissue area (PRICKET, 2022).

As shown in figure 1, conventional surgery by **excision**, the tumors are removed with a margin of normal tissue, which may leave a scar (TANESE, 2019). This aims at sectioning

the tissue in just one step, without evaluating the safety margins, so that remaining parts may not be observed after pathological resection. in order to prevent residual tumor in the skin (TOLKACHJOV, 2022).

When it comes to neoplasms in areas with free edges, removing the recommended margins can lead to the undue removal of healthy tissue, both laterally and deeply (SILAPUNT, 2022), which can lead to surgical imperfections greater than necessary, causing aesthetic damage and even functional, or incomplete removal of the lesion, thus making reconstruction difficult (SMEETS, 2004).

The following steps demonstrate the most common modality of CMM applied today: (1) initial excision of the visible area of the tumor; (2) systematic marking of the surgical specimen in terms of the topographic situation of the affected area in the patient; (3) Insertion of a dressing in the surgical wound, in order to await the result of the micrographic pathological analysis of the surgical specimen; (4) In the laboratory setting, there is systematic marking with special inks, maintaining the

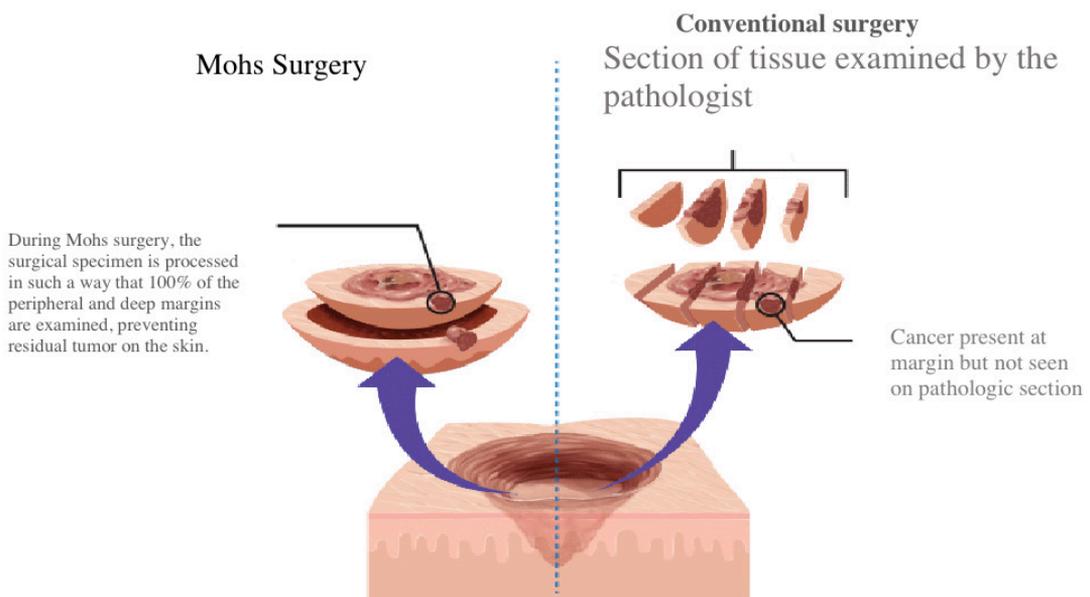


Figure 1: Comparison between standard technique and CMM.

Source: <https://dermacenterav.com.br/cirurgia-micrografica-mohs/>

primary topographical orientation, and transforming it into histological sections. The microscopic examination has the role of examining the surgical borders as a whole, in order to recognize the possible reminiscence of involvement by the tumor or not; (5) If the laboratory findings show free edges of neoplastic cells, the surgery proceeds to the reconstruction phase of the area. If any surgical border persists, the micrographic examination pinpoints the exact location. The existence of topographical orientation, both macroscopically and microscopically, helps to accurately locate the location of residual tumor remnants in the patient; (6) In a second moment, in the operating room, the cycle is repeated, with a new excision at the affected site indicated by the micrographic examination, where the piece passes through the same process previously described; (7) In the resection that continues (by cycles or stages), continuously, until, only after the micrographic examination proves that the entire surgical margin is free of tumor involvement, the procedure ends, finally performing the reconstruction of the affected area, free of tumor.

The concept of the margin of **safety** is based on the issue that BCCs have unexpected subclinical extensions, which can measure less than 1 mm, or occasionally exceed 15 mm from the visible clinical margins in laterality, and may also be restricted to the superficial dermis. Likewise, they can also invade deep tissues such as muscle, cartilage, bone, among others (KIM et al, 2022). Thus, in the standard procedure, the surgeon would remove a portion of normal skin around the tumor, both laterally and in depth, with the aim of completely removing the tumor, but without ensuring that there are no visible remnants, which supports the need for a complete histopathological evaluation of all margins of the removed tissue, in addition to ignoring the

safety of removing excess healthy tissue. The semiological ability to recognize this tumor growth around its visible and delimitable part unfortunately proved to be very limited (WONG, 2019). The clinical limits of the tumor are not usually easy to recognize, which already brings tribulation and insecurity in the preoperative evaluation, and even in security in relation to recurrences or remnants not visualized in conventional surgery. It is common, especially in recurrent tumors, as well as in specific histological subtypes, such as BCC (BITTNER, 2021). Regarding the topic “surgical margin control”, there are not enough medical publications by pathologists and surgeons, or relevant enough to build a basis for its definition, being a vague concept, nevertheless, it requires understanding this concept empirically in everyday life, whether in pathological anatomy laboratories or surgical centers.

With regard to the discussion of “safety margins”, narrow margins open possibilities of leaving tumor remnants, while wide margins tend to completely remove tumors, with the disadvantage of occasionally generating functional or even aesthetic sequelae. Wide surgical margins do not always guarantee complete tumor resection (WONG, 2019). In short, the concept of safety margin is based on a supposed prediction of subclinical tumor growth, which, in reality, cannot be fully evaluated with the help of common semiological examination alone.

However, the Mohs micrographic surgery proved to be more indicated, a technique that allows instant visualization of all surgical margins of the tumor, assisting its complete removal, and thus with lower risks of recurrence, with a 5.6% chance, compared to 19.9% of the other modality (BITTNER et al, 2022) and greater expertise to perform the reconstruction of the area and tissue removed in the same surgery.

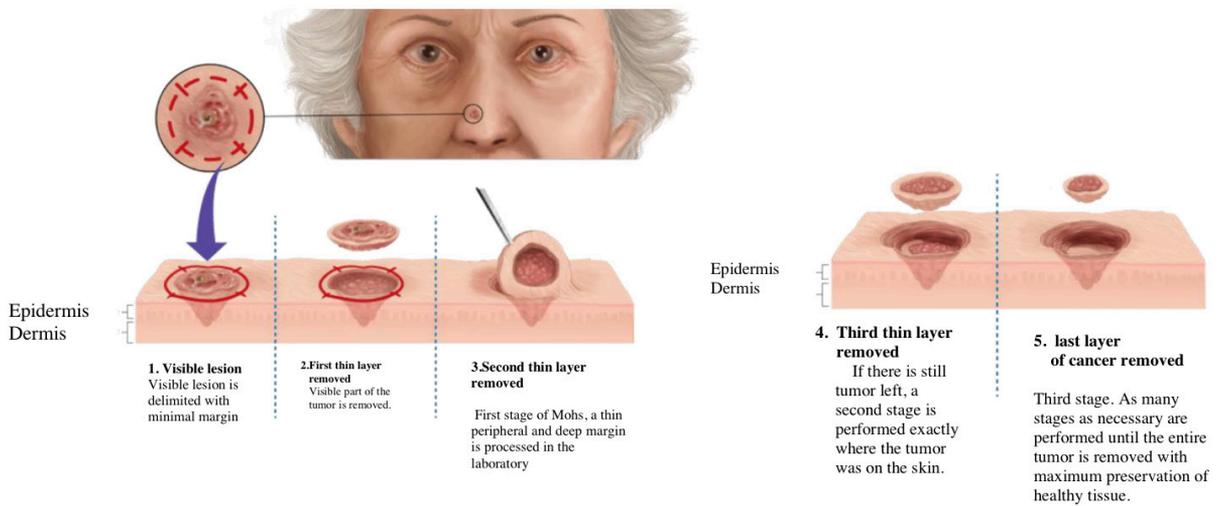


Figure 2: Exemplified method of CMM.

Source: <https://dermacenterav.com.br/cirurgia-micrografica-mohs>



Image 3: Figure 3: Surgical and post-surgical results of CMM.

Source: <https://dermacenterav.com.br/cirurgia-micrografica-mohs/>

As it can be seen in figure 3, healing proves to be extremely effective, and it can be observed that the consideration of the safety margin, in the complete visualization of the tumor, and its fragmentations, avoiding the removal of undue tissue, this with greater caution demonstrated better efficiency. The aesthetic results are also satisfactory, observing excellent healing, showing good granulation and consequently better re-epithelialization.

CONCLUSION

Mohs micrographic surgery offers greater safety, better aesthetic results and a lower risk of recurrence in the treatment of basal cell carcinoma of the skin, in relation to the treatment of standard surgical removal. In short, the CMM was superior in all aspects, being a more beneficial option for the patient.

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