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When to consider Mohs surgery

A long-standing malignant lesion or a tumor in a cosmetically sensitive area are 2 instances in which Mohs micrographic surgery yields superior results.

PRACTICE RECOMMENDATIONS

› Consider recommending Mohs surgery for cancerous lesions that are long-standing or when there is a high risk of local recurrence or metastasis. **C**

› Consider the procedure for the resection of tumors in cosmetically sensitive areas. **C**

Strength of recommendation (SOR)

- A** Good-quality patient-oriented evidence
- B** Inconsistent or limited-quality patient-oriented evidence
- C** Consensus, usual practice, opinion, disease-oriented evidence, case series

CASE ▶ A 64-year-old white woman with no personal or family history of skin cancer came to our practice complaining of a lesion on her right cheek (**FIGURE 1**) that had been present for at least 9 months. The lesion had the appearance of a “rodent bite” ulcer that the patient said bled easily when scratched and occasionally drained clear fluid. She had no other complaints. Biopsy confirmed a nodular, infiltrative basal cell carcinoma (BCC). How would you proceed?

BCC is the most common cutaneous malignancy, with an incidence of more than 1 million cases each year in the United States.¹ BCCs occur more commonly in men than in women, usually on the head or neck in both sexes.^{2,3}

■ Specifying BCC subtype has treatment implications. As the terminology indicates, these lesions arise from the basal cell layer of the epidermis, and they can be further defined histologically as superficial, nodular, micronodular, infiltrating, or other subtypes.

Treatment options for BCCs

Selecting a treatment modality from among the many options depends on a lesion’s subtype and its location. Comorbidity can also influence the decision, favoring nonsurgical intervention if an acute or chronic medical condition or overall health status makes a patient a poor surgical candidate.

Surgical options have the highest clearance rates with the fewest recurrences. Mohs micrographic surgery (MMS) has a cure rate of 99% for primary BCCs and 94% for recurrent lesions.⁴ Standard excision with appropriate margins yields cure rates of 90% and 83%, respectively.⁴

Superficial destructive options are typically reserved for superficial BCCs. One example, curettage with electrodesiccation, cures 92% of primary lesions but just 60% of recurrences.⁴

Additionally, noninvasive modalities such as cryosurgery, laser ablation, radiotherapy, and photodynamic therapy have varying clearance rates. Topical applications of immune

system modulators and chemotherapeutic agents including imiquimod and 5-fluorouracil are also available.⁵ Target lesions for these modalities may include cancers located on surfaces in which surgical excision would result in unacceptable amounts of tissue loss, such as some periocular BCCs.⁵

CASE ▶ Given our patient's tumor location (adjacent to the lower eyelid) and its nodular and infiltrating histologic subtype, MMS was the best treatment choice to minimize the chance of recurrence and to achieve an acceptable cosmetic outcome.

A tissue-sparing approach

MMS is a tissue-sparing cutaneous surgical technique first described by Dr. Frederick Mohs in 1941.⁶ The procedure uses real-time microscopic examination of all removed tissue margins, offering maximal tissue preservation and the highest cure rates of all BCC treatments.⁷

Compared with other surgical techniques, MMS is unique in that the surgeon also serves as the pathologist and performs reconstruction. After clearing tumor margins of all malignant tissue, the surgeon closes the wound using complex techniques such as tissue flaps and grafts that should be avoided with standard excision due to its inadequate real-time margin control.

■ When MMS would be the treatment of choice. While MMS may be appropriate for a number of situations, common indications include tumors that are long-standing or have a high risk of local recurrence or metastasis; affected areas where tissue preservation is important such as the face and genitalia; and patients who are immunosuppressed.⁷

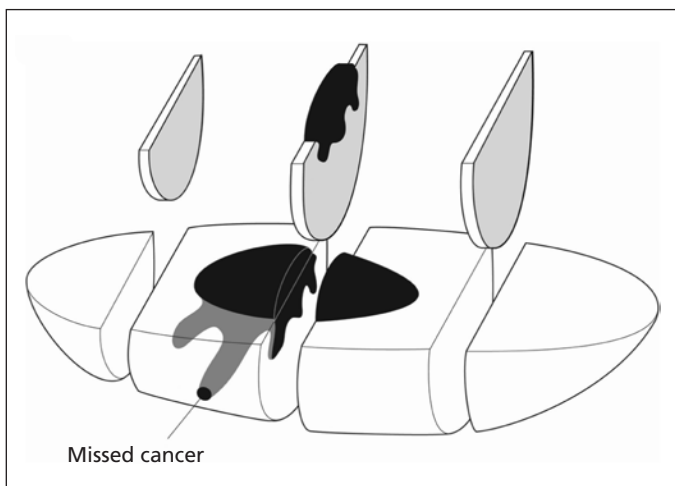
■ Basics of the technique. To systematically visualize and clear 100% of tumor margins, MMS uses a cyclical process of tumor excision, pathology assessment of specimens with microscopy, and mapping of any remaining positive tissue margins noted.⁴ These cycles, or stages, are repeated until all excised margins are confirmed cancer free. The ability to establish this outcome with certainty is what permits Mohs surgeons to close surgical wounds with flaps, grafts, and other complex closures.

FIGURE 1
64-year-old patient with lesion on right cheek



■ Advantages of MMS over excision alone. Recurrence rates of BCC after MMS are lower than those seen with excision alone. The 5-year cure rate in the treatment of primary tumors with all non-Mohs modalities combined is 91%, whereas the 5-year cure rate with Mohs surgery is 99%.⁸ This finding is believed to reflect the difference in the methods used to assess excised specimens histologically. In standard surgical excision, the specimen is examined using the “bread loaf” technique in which the surgical margins are examined in consecutive vertical sections (FIGURE 2).⁴

FIGURE 2
How the “bread loaf” technique can lead to a false-negative result



Vertical sections of tumor tissue collected with the “bread loaf” technique during simple excision allow visualization of only a small portion of tumor margins (compared with the horizontal sampling performed during Mohs surgery) and increase the likelihood that tumor extensions will go undetected.

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FIGURE 3

Mohs surgery reduces risk of recurrence, with good cosmetic result



After biopsy confirmed a nodular, infiltrative basal cell carcinoma, we circumscribed the margins of the tumor (A) before performing Mohs surgery. Two procedural stages were needed to clear all surgical margins, leaving a residual defect (B). Repair with a cheek advancement flap followed (C). At 4 months postop, the patient was pleased with the result (D).

Because not all of the surgical margins are directly visualized with this technique, it can increase the rate of false-negative results. In contrast, specimens removed by MMS are examined in horizontal sections, and all surgical margins are directly visualized.⁹

Aesthetic results are another strong point of MMS. For tumor resection in cosmetically sensitive areas, MMS is the standard of care. The Mohs surgeon is trained to use closures that result in less noticeable scars and minimize distortion of surrounding tissue.

CASE ▶ With our patient, we circumscribed the clinical margins of the tumor (FIGURE 3A) before performing Mohs surgery. Two procedural stages were needed to clear all surgical margins, leaving a residual defect (FIGURE 3B). We used a cheek advancement flap to repair the wound (FIGURE 3C). At 4 months postop, the patient was pleased with the cosmetic result (FIGURE 3D). **JFP**

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➤ For more information on MMS, visit the American College of Mohs Surgery at www.skincancer mohssurgery.org