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Mohs Surgery: Proclamation, Proof, Principles, and Promise

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The authors of a trio of articles in this issue proclaim “Mohs micrographic surgery to be the treatment of choice” for periocular basal cell carcinoma (BCC) and squamous cell carcinoma.^{1–3} Certainly, the results are laudable. For BCC, no recurrences were noted after 5 years of follow-up among patients who had a primary tumor, and less than 8% of recurrent BCCs excised with the Mohs technique failed treatment. Unfortunately, 5-year follow-up was achieved in only 42% of patients. Furthermore, because the patients who were lost to follow-up had more aggressive tumors (a significantly higher percentage of infiltrating BCCs that required a greater number of levels to achieve complete excision), the authors conceded that it is “likely that the results in our series underestimate the true recurrence rate.”

Mohs surgery is intuitively attractive: the same person who excises the tumor orients the tissue specimen and examines its entire periphery, repeating the process until tumor-free margins are confirmed.⁴ Sound principle, solid results, case closed? Well, comparably favorable results (i.e., 5-year cure rates in the high 90th percentile) have been reported by authors who used frozen sections, examined by a pathologist, to assess the margins of resection.^{5–7} Cure rates are particularly good when the pathologist comes into the operating room to consult with the surgeon and observe the specimen being excised.

Do we therefore have unimpeachable proof that Mohs—or any other method of tumor excision—is sufficiently superior to the alternatives to be proclaimed the “treatment of choice”? Detractors are not reticent to criticize the technique; a recent editorial included language that is rarely encountered in published opinions: “cavalier,” “astonishing,” “amazingly,” “allegedly,” “preposterous,” “ingenious but technically trivial,” and “What is going on here?”⁸ Unfortunately, a randomized clinical trial to settle the question has not been performed and is unlikely to be conducted anytime soon.⁹ Such a study would be methodologically challenging and would require huge numbers of patients to determine statistically significant differences. Additionally, although the issue is of great interest to subspecialists from several disciplines, it probably would not be competitive for fund-

ing given other contemporary health care priorities—cancer, heart disease, diabetes, the risk of an engineered biological weapon, or diseases (like severe acute respiratory syndrome) that nature allows to evolve.

So if we are left to our best clinical judgment, what should we recommend to the next patient who comes into our office with an eyelid malignancy? Many factors need to be considered: the tumor’s size, location, and histological type and subtype; the likelihood of local recurrence or orbital or perineural invasion; the patient’s age and concerns about cost, (in)convenience, and cosmesis; and the experience of the surgeon excising the lesion and the availability of a pathologist skilled in interpreting frozen sections.

If the preeminent therapeutic goal is complete removal of the tumor, the principle on which everyone can agree is that it is necessary to examine the entire periphery of the excised tissue, not just random bread-loafed sections.^{10–12} For a nodular BCC on the eyelid margin, this is relatively simple—but even here it is important that the surgeon and the pathologist communicate appropriately about the precise location and orientation of the tumor to ensure an effective, tissue-sparing excision. The task is a lot more challenging for high-risk lesions—for example, recurrent or incompletely excised tumors; malignancies with indistinct margins or in areas (such as the medial canthus) with a high frequency of local invasion, recurrence, or metastasis; metatypical or morpheiform subtypes of BCC that often behave aggressively; and when maximal tissue conservation is desired. In these situations, I believe that Mohs micrographic excision affords considerable advantage.^{13–17}

The promise of Mohs surgery, however, remains somewhat unfulfilled. First, although published reports suggest that no more than one third of skin cancers require Mohs excision,^{18,19} a few practitioners, some of whom have no formal Mohs training, use the technique to remove lesions that could be treated satisfactorily by less invasive and less costly methods, such as cryotherapy, electrodesiccation and curettage, or perhaps even topical fluorouracil or imiquimod cream.^{20,21} Second, optimal functional and aesthetic results are achieved when the dermatologist who ex-

cises the tumor works seamlessly and selflessly with reconstructive surgeons from several surgical disciplines. Turf battles preclude such collaboration in some practice environments, to the detriment of patients. Mohs surgeons have assertively increased their repertoire of flaps and grafts during the past 2 decades, which likely has resulted in decreased referrals from some plastic surgeons, otolaryngologists, and ophthalmologists of patients who might benefit from Mohs excision.

Rapini²² opined that “the term *Mohs surgery* has taken on such a reverent connotation so as to imply that any other method for evaluating margins histologically is inferior.” Few “truths” in medicine are carved in stone so let’s not equate Mohs with Moses, but rather promote a more henotheistic attitude. After all, Frederic Mohs’s original description more than 6 decades ago of in situ zinc chloride fixation bears little resemblance to the technique in widespread use today.^{23,24} Contemporary Mohs surgery yields consistently high cure rates and optimal functional and aesthetic reconstructions when specialists combine their talents. The best interest of the patient—which is the only interest to be considered²⁵—deserves nothing less.

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