

Assess Future Risk Before Mohs Defect Repair

BY SUSAN LONDON

SEATTLE — Successful reconstruction of facial defects created by Mohs surgery requires knowledge not only of appropriate operative techniques, but also of patients and their cancers.

Assessing a patient's skin cancer risk factors is key before repairing any Mohs defect, according to Dr. Michael L. Bentz, professor and chairman of the division of plastic and reconstructive surgery at the University of Wisconsin, Madison. "It's important to know who is more likely to come back with other skin cancers because it may change the way you stage and think about the reconstruction," he said.

A prerequisite for successful reconstruction is ensuring that the cancer has been adequately treated, Dr. Bentz said at the annual meeting of the American Society of Plastic Surgeons.

"The first thing you are going to throw at these patients reconstructively is your best option, so you want to make sure that you have not compromised that by inadequate primary tumor treatment." He recommended a good working relationship between the Mohs and reconstructing surgeon (if applicable), a careful review of pathology reports, and, if necessary, a reassessment of margins.

"Knowing your tumor is important," he said. It is prudent to avoid initial definitive reconstruction of defects from dermatofibrosarcoma protuberans because of its high recurrence rate. "My goal with these is to get them grafted, let them sit a year or two, and then come back and do the definitive reconstruction," he explained.

Maximizing the likelihood of a successful and uneventful reconstruction also requires a thorough preoperative assessment of the patient, given that most patients with skin cancer are older, with comorbidities, and that many take medications, particularly anticoagulants, that may need to be tapered.

Dr. Bentz and Dr. Frederick J. Menick, a plastic surgeon in private practice in Tucson, Ariz., went on to discuss the best way to repair defects and the best flaps to use.

► **Pericranial flaps.** These flaps are often a good option for repairing Mohs defects of the forehead, especially if bone is exposed, noted Dr. Bentz. "For patients who particularly are at risk of other skin cancers, you want to use big flaps because if you use small flaps, you will have difficulty using them again," he said.

► **Cheek flaps.** If they are elevated to reconstruct lat-



This patient's defect from Mohs surgery was repaired with a modified folding line technique developed by Dr. Frederick J. Menick as part of his three-stage forehead flap approach.

eral forehead defects, cheek flaps should be suspended from bone. "They weigh a fair amount and there is some tension on them," he said. "So taking a permanent suture and suspending them to the appropriate tension point in bone, with or without drilling holes, helps avoid postoperative complications."

Reconstructing Mohs cheek defects poses several challenges, including the limited number of lines available for hiding donor sites and the potential for distorting the eyelid. "You want to be thoughtful about how you reallocate cheek tissue, trying to hide your donor site and yet minimize the associated complications," he said.

► **Lip defects.** Principles of cleft lip repair are often helpful in reconstructing larger Mohs defects of the lip, according to Dr. Bentz. "Don't be afraid to take the whole lip down to full-thickness fashion and put it back together," he advised.

► **Ear defects.** Small defects can be reconstructed with full-thickness grafts, ideally taken from somewhere other than the ipsilateral retroauricular area, given the possibility of subsequent cancers of that ear requiring a retroauricular flap. Large ear defects can be reconstructed with a variety of techniques, but they all require attention to avoid constricting or accentuating the ear.

► **Nose defects.** When reconstructing small, superficial Mohs defects of the nose, Dr. Menick said that he mainly uses secondary healing, small composite grafts (for minor rim defects), and one-stage nasolabial flaps (for alar sidewall defects), along with a lot of full-thickness forehead skin grafts.

When reconstructing Mohs defects of the nose that



PHOTOS COURTESY DR. FREDERICK J. MENICK

are large (over 1.5 cm in diameter), deep, or adversely located (affecting the tip or columella), he recommended a forehead flap over the two-stage nasolabial flap. The forehead flap does not distort the nasolabial fold, is less obvious during the maturation phase, and never dies or contracts excessively.

► **Forehead grafts.** The secret to getting good results with a forehead skin graft is to not apply it right after the Mohs excision or if a Bovie has been used in the area, noted Dr. Menick. "I send the patient home, have them put Vaseline on the defect, wash it with soap and water, [and] wait about 14 days till it starts to granulate and all that burn injury is spit out," he explained.

As to the type of forehead flap, he expressed a preference for the vertical flap, which, compared with the oblique flap, is much less likely to distort the eyebrow and leaves more options if patients need a second flap. "The vertical forehead flap is reliable, efficient, more vascular, and more widely applicable—it works like a charm," he said.

Dr. Menick also endorsed the three-stage forehead flap over the two-stage because the added intermediate operation provides the ability to sculpt and contour the nose. Other relative merits include its provision of a thin, supple cover; a maximal blood supply; and an ideal framework. Adding an intermediate operation lengthens reconstruction from a 1-month procedure to a 2-month procedure, he acknowledged, but patients generally tolerate it, especially given the aesthetic outcome. ■

Disclosures: Dr. Bentz and Dr. Menick had no relevant conflicts of interest.

Technique May Rival Excision

Elastography from page 1

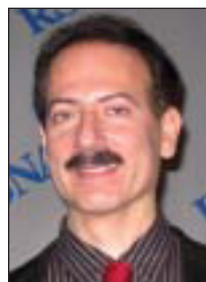
detection of melanoma before the classic signs such as asymmetry or changes in border are present on the skin's surface. In addition, elastography could have a role during surgery.

"This also could guide the surgeon as the surgeon is doing an excision or biopsy to not just look at the tip of the iceberg that they can see at the skin surface, but actually to be able to look deeper, so they can see exactly which areas they can cut out safely and still remove the entire tumor without unnecessarily removing more than that," he said.

Elastography software is available on most new ultrasound machines, and has been used with promising results for breast, thyroid, and liver cancer. It has not been used to explore skin lesions, except for one prior study from 2007.

That study used absolute strain values, whereas Dr. Siegel and associates also cal-

culated strain ratios. Malignant lesions had higher strain ratios (minimum 5.3; maximum 32.2), compared with benign lesions (min. 0.01; max. 3). None of the malignant lesions violated a strain-ratio



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DR. SIEGEL

cutoff of 3-5, Dr. Siegel said. He presented a few examples, including a squamous cell carcinoma with a ratio of 13.27 and a benign keloid with a ratio of 1.25.

Although preliminary, the data suggest that strain ratios may also be useful in

distinguishing between malignant lesions. Squamous cell carcinomas had a higher ratio overall, said coauthor Dr. Bahar Dasgeb, a radiologist and second-year dermatology resident at Wayne State University in Detroit. Moreover, the strain ratio was higher, even within squamous cell or basal cell cancers, when more invasive cells were present.



'A couple of clinical dermatologists said, "there is no other way."'

DR. DASGEB

If strain ratios are combined with higher ultrasound frequencies, it's possible that the anatomic information gleaned from elastography "could rival the information that a pathologist would see after the lesion was excised," Dr.

Siegel said. "That's really the direction that we'd like to head into for research and development, as we look at much higher ultrasound frequencies."

The current study used a clinically available 14- to 16-mHz ultrasound unit.

The findings were enthusiastically received when presented by Dr. Dasgeb at the Michigan Dermatological Society meeting in November.

"The feedback from Mohs' surgeons was amazing," she said in an interview. "A couple of clinical dermatologists said, 'there is no other way.'"

She suggested transitioning this technology from radiology to clinical dermatology would not be difficult nor take long because of need and the rising incidence and economic impact of skin cancer. It is estimated that one in five Americans will develop skin cancer at some point in their lives. ■

Disclosures: Dr. Siegel disclosed receiving research grants from several imaging companies. Dr. Dasgeb had no disclosures.