

Malignancy Is Top Concern With Giant Nevi

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CHICAGO — A treatment plan for infants and children with large and giant nevi must satisfy concerns about malignancy while optimizing aesthetic and functional outcomes for the patient, Dr. Bruce Bauer said at the annual meeting of the Society for Pediatric Dermatology.

“Conducting a critical assessment of a large or giant nevus in a child and choosing the appropriate procedures as early as possible will reduce the total number of surgeries and the need for complex surgery later on to deal with potential complications caused by scarring,” noted Dr. Bauer, a pediatric plastic surgeon and chief of plastic surgery at Children’s Memorial Hospital, Chicago, who specializes in the treatment of large and giant congenital nevi.

Each child and each tissue heal differently, and some surgeries are easier and more effective at earlier ages than later, he added.

Although various classifications for nevi exist in the medical literature, a nevus larger than 20 cm in a child is usually considered a giant nevus, and a nevus that is 11-20 cm is considered large. In general, patients with large or giant nevi are at the greatest risk for malignant change, but size doesn’t guarantee malignancy. The overall incidence of cutaneous or extracutaneous melanoma in patients with large or giant nevi is between 4.5% and 10%, said Dr. Bauer, and controversies persist about the medical necessity of plastic surgery to manage the nevi.

“The exact risk of malignant change in congenital melanocytic nevi may never be determined,” Dr. Bauer acknowledged. “The managing physician or surgeon must develop a treatment philosophy based on an understanding of pertinent studies.”

The primary rationales for excision of large or giant nevi are a concern for malignancy and a desire for an improved appearance. Some patients and physicians may decide that the risk of malignancy is too small to warrant the potentially extensive scarring or unsightly skin grafts needed to excise a large or giant nevus. But for those who make the decision in favor of excision, the sooner the better, Dr. Bauer said.

If the excision is performed in infancy or early childhood, the tissue is more flexible and heals more smoothly and rapidly. The psychological benefits and generally good patient tolerance also tip the scales in favor of early excision.

Tissue expansion—in which skin adjacent to the nevus is stretched, with both stretch and new cell growth occurring—provides the added tissue needed to cover the area from which the nevus has been excised, and is now one of the most powerful tools available in the treatment of these extensive lesions. The ability to expand tissue of similar skin characteristics to the involved area allows expansion of hair-bearing scalp to replace a scalp nevus, and non-hair-bearing skin to replace nevi in all other areas.

Dr. Bauer shared some elements of his

surgical approach to large and giant congenital nevi the following areas of the body:

► **Scalp/forehead.**

Tissue expansion is the preferred method for treatment of large and giant nevi of the scalp and forehead, and has become the standard of care. Expansion may begin when the patient is as young as 6

months of age without long-term effects on the growing skull. In addition, the use of transposition flaps yields a more natural hairline reconstruction.

Good flap planning can reduce the need for repeated tissue expansion procedures, Dr. Bauer noted. Combined expansion of scalp and forehead for nevi that cover both areas will also reduce the number of surgical procedures needed to excise the nevus and reconstruct the defect. In rare cases in which minimal normal forehead skin is available, free tissue transfer can be considered, with expansion used at the distant donor sites to allow harvest of a large, microvascular free flap, with primary closure of the donor site, he explained.

► **Midface/periorbital region.** Tissue expansion can be used for large and giant nevi on the forehead, neck, and cheek, and large expanded full-thickness skin grafts may provide color-compatible coverage for the periorbital and nasal area in a single skin unit.

“As you get to the midface, you need to avoid distortion of the lateral canthus and the downward pull of the lower eyelid,” Dr. Bauer noted. “Use of direct upward advancement of either expanded or nonexpanded flaps from the lower cheek and submental area may increase the risk of these problems,” he added. Lateral movement with rotation or transposition of flaps reduces this risk.

With thoughtful flap planning, one can place scars at the borders of the natural aesthetic units of the face and minimize their visibility. With adequate time for tissue healing and changes in the reconstructed tissues with the child’s growth, one can achieve a natural appearance and minimize the need for additional complex reconstruction later in life.

► **Trunk.** On the anterior trunk, abdominoplasty techniques (with or without tissue expansion) are most effective. “We try to have the challenging part of the reconstruction done while the child is still small and the tissue is more flexible,” Dr. Bauer said. But when the nevus encroaches on the breast area, particularly in girls, delay surgery until the breasts have begun to develop in order to avoid an injury to the developing breast bud, he said.

On the posterior trunk, tissue expansion has provided a way to excise many giant nevi with excellent aesthetic and function outcomes, Dr. Bauer said. Transposition flaps from the lower abdomen and the back can be moved longer distances than can the



This infant had a circumferential giant nevus—from above the wrist to the mid upper arm—that could have undergone a malignant change.



Skin of the child’s abdomen and flank is expanded to create a flap through which the arm will be tunneled after the majority of the nevus is excised.

traditional advancement flaps. Flaps can be transposed from the back to the buttocks and reexpanded and brought to the perineal area. And flaps from the lower abdomen can be transposed into the upper-thigh region.

“In some cases, as tissue is moved into the buttock and perineal area, the extra tissue that is gained can be used for genital reconstruction in young girls,” Dr. Bauer added. But aside from rare cases, he leaves genital nevi in place in both boys and girls to avoid potential tissue scarring.

Excision of a nevus and coverage of the defect with a split-thickness skin graft are reserved for cases in which there is little, if any, uninvolved tissue available to expand. “The excision is concentrated on the back where the risk of degeneration is thought to be greater and the aesthetic and functional outcome can still be quite acceptable,” Dr. Bauer said.

When there is so little uninvolved tissue that there are no acceptable skin graft donor sites, the patient should be followed by a pediatric dermatologist and areas of concern should be selectively biopsied, he said.

In some cases of patients who underwent early excision and skin graft with poor aesthetic outcomes and dense scarring, tissue expansion may be able to provide the normal tissue necessary to excise or revise the scars and provide a more acceptable outcome.

► **Extremities.** The treatment of large and giant nevi on the extremities is especially challenging because the contour from skin grafts is often poor, said Dr. Bauer. Although skin grafts can be used for large nevi on the hands, concerns about mobility and functional problems are significant, he said. “Looking for a better way, we went back to the old plastic surgery techniques and drew from the ideas of pedicle flaps, but we used tissue expansion to advantage,” he explained.

For example, tissue expansion from the abdomen and flank can be used to reconstruct large nevi from the wrist to the arm proximal to the elbow. The use of staged, expanded pedicle flaps can yield excellent contour without distortion of the limb. When such flaps are combined with expansion of the scapular region, the extremity can be resurfaced with tissue of similar quality, thickness, and sensibility



The baby’s arm is shown attached to the created flap. After 3 weeks, the area of attachment can be divided.



The arm after surgery shows excellent contour and color match. Scars are positioned to avoid any late functional disturbance.

from the shoulder to the wrist, with the donor scars placed in acceptable positions, noted Dr. Bauer.

Microvascular transfer of expanded skin flaps—and some unique application of pedicle-flap principles—may be used for reconstruction of large and giant nevi of the lower extremity where expansion of that region is less effective. The lower extremity region remains one of the greater challenges in the treatment of large and giant nevi, Dr. Bauer said.

The search for newer approaches, or the application of older techniques in new ways, can lead to improved aesthetic and functional outcomes. But cooperation and understanding from patients and families are the true essentials for successful treatment of large and giant nevi, Dr. Bauer said. ■