

Consequently, the mesenchymal nasal ridge lined with ectoderm did not elevate correctly, forming a region in the olfactory pit that was missing the precursors for cartilage and skin. As this olfactory pit invaginated, the gap continued obliquely in a caudal-posterior fashion, creating this cleft. Because the gap had neither mesenchymal nor ectodermal tissue, the patient experienced a full-thickness cleft.

Nasal cleft repair in the pediatric population must be guided by the following three principles: creation of a volume with lining, support, and cover; conservation of an adequate airway; and aesthetic incorporation into the face.<sup>5</sup> Because no single method has been proven to be the standard of care in pediatric nasal reconstruction, the surgeon must possess thorough knowledge of the various techniques available to select the correct intervention for each child.

DOI: 10.1097/PRS.0b013e31819595ee

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#### DISCLOSURE

*None of the authors has a financial interest to disclose in relation to the content of this article.*

#### REFERENCES

1. Losee JE, Kirschner RE, Whitaker LA, Bartlett SP. Congenital nasal anomalies: A classification scheme. *Plast Reconstr Surg.* 2004;113:676–689.
2. Tessier P. Anatomical classification of facial, craniofacial, and laterofacial clefts. *J Maxillofac Surg.* 1976;4:69–81.
3. Szeremeta W, Parikh TD, Widelitz JS. Congenital nasal malformations. *Otolaryngol Clin North Am.* 2007;40:97–112.
4. Sedano HO, Cohen MM, Jirasek J, Gorlin RJ. Frontonasal dysplasia. *J Pediatr.* 1970;76:906–913.
5. Pittet B, Montandon D. Nasal reconstruction in children: A review of 29 cases. *J Craniofac Surg.* 1998;9:522–528.

#### Postmaxillectomy Prognathism

**Sir:**

**A**fter a patient undergoes complete maxillectomy, despite adequate bony and soft-tissue reconstruction, an arch discrepancy may result. The loss of anterior nasal spine and alveolus often results in an upper lip projection deficit. The SNA angle represents the relation of the maxilla to the sella and nasion (normal SNA,  $82 \pm 4$  degrees). A normal ANB angle depicts the maxilla anterior to the mandible; it is a positive value

in normal individuals. After complete maxillectomy, loss of upper lip support favors a type III malocclusion with maxillary retrusion and a negative ANB angle. Irradiation, surgical scarring, and tissue deficit conspire to retract the tissues further. If the patient leans to a type III malocclusion and reverse overjet preoperatively, the findings may be more pronounced.

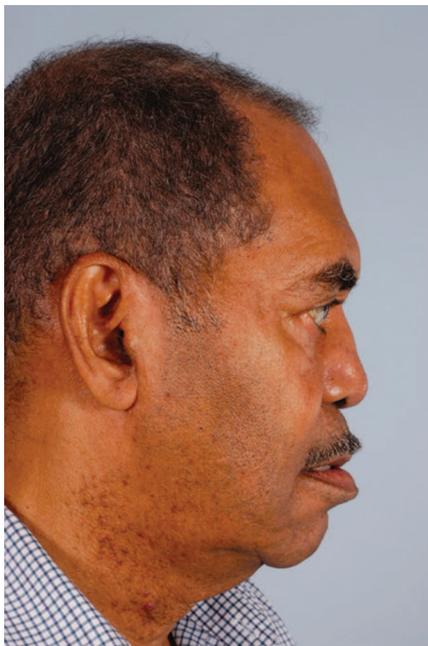
To illustrate this issue, we report the case of a patient who presented with mucormycosis of the maxilla resulting in complete destruction of bone. She subsequently underwent maxillectomy in January of 2007. Her reconstruction included a scapular flap, and this left her with a retruded maxilla and protruding mandible. This would require surgical revision to recreate balance in the upper and lower lips. Oral incompetence with drooling is evident in Figure 1.

Patient 2 underwent a complete maxillectomy in March of 2006 for recurrent pleomorphic adenoma of the palate (Fig. 2). After this operation, the patient demonstrated significant class III malocclusion and formed midface hypoplasia (Fig. 3). He was unable to eat and chew, and underwent surgical revision (Fig. 4) with dental implants (not shown).

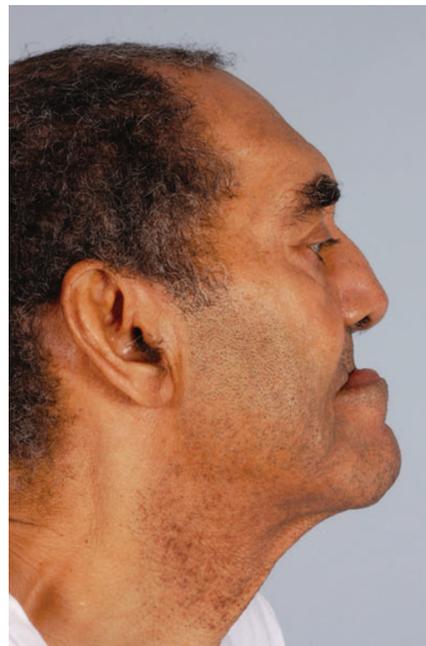
Techniques to improve upper lip support include rib graft and soft-tissue rearrangement, and reconstruction should be based on the type of defect created. In general, success can be limited when the scarred lip shortens horizontally, forcing the reconstruction backward. Maxillectomy involving the upper jaw will deem it edentulous. Because lower teeth no longer articulate with upper teeth, there are many viable reconstructive options as described in the literature.<sup>1–5</sup> When maxil-



**Fig. 1.** Patient 1 after maxillectomy; note oral incompetence and drooling.



**Fig. 2.** Patient 2 before maxillectomy in September of 2005.



**Fig. 4.** Patient 2 after horizontal mandibular osteotomy.



**Fig. 3.** Patient 2 after maxillectomy but before revision, in February of 2006.

lectomy compromises oral competence and cosmetic results, we suggest enhancing upper rib autograft alveoplasty with setback mandibulotomy. A horizontal mandibular osteotomy below the level of the teeth superior to the mental nerve can achieve this. Using this technique, up to 1 cm of setback is possible.

After revision surgery, patient 2 achieved a satisfactory cosmetic result. More importantly, he regained

oral competence, allowing him to eat and chew. He would go on to receive upper dental implants to supplement the reconstruction (not shown).

Medical conditions requiring complete maxillectomy and loss of the anterior nasal spine lend to oncologic retrognathism of the maxilla. Maxillary retrusion can be addressed with upper alveoplasty using rib graft. Horizontal osteotomy in the mandible, used for oncologic reasons rather than orthognathic, further addresses the class III relationship. The use of both procedures produces a superior cosmetic and functional result.

DOI: 10.1097/PRS.0b013e318196bba8

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**REFERENCES**

1. Anthony JP, Foster RD, Sharma AB, Kearns GJ, Hoffman WY, Pogrel MA. Reconstruction of a complex midfacial defect with the folded fibular free flap and osseointegrated implants. *Ann Plast Surg.* 1996;37:204–210.
2. Cordeiro PG, Santamaria E. A classification system and algorithm for reconstruction of maxillectomy and midfacial defects. *Plast Reconstr Surg.* 2000;105:2331–2348.

3. Davison SP, Boehmler JH, Ganz JC, Davidson B. Vascularized rib for facial reconstruction. *Plast Reconstr Surg.* 2004;114:15–20.
4. Sakuraba M, Kimata Y, Ota Y, et al. Simple maxillary reconstruction using free tissue transfer and prostheses. *Plast Reconstr Surg.* 2003;111:594–600.
5. Peng X, Mao C, Yu GY, Guo CB, Huang MX, Zhang Y. Maxillary reconstruction with the free fibula flap. *Plast Reconstr Surg.* 2005;115:1562–1569.

### A Late Complication of Fat Autografting in Breast Augmentation

**Sir:**

The case of a healthy young woman previously treated with bilateral injection of fat derived from trochanteric liposuction is reported. After 10 years, she developed two oval masses in the upper outer quadrants that caused a deformity in the breast profile and appeared like eggshells on mammography. She came to our attention because of an episode characterized by pain, hyperemia, and warmth on the left side. The clinical picture worsened, with skin discoloration and adherence to the underlying mass. The left mammographic picture changed, with an area of density not seen on previous examinations (Fig. 1). The ultrasonographic appearance was of uncertain significance, with a homogeneous solid mass 4 cm in diameter and a 2-cm lymphadenopathy in the ipsilateral axillary basin. Magnetic resonance imaging features were consistent with fat signal on the right, whereas on the left, the enhancement pattern could not exclude a malignancy. Results of cytologic examination performed by means of fine-needle aspiration were negative for malignant epithelial cells both on the node and on the mass. We suggested a bilateral subcutaneous mastectomy with

immediate reconstruction by silicone gel prostheses, implanted subpectorally. The proper placement of the surgical incision was not straightforward: the inframammary incision might have been technically challenging because of the adherence of the skin higher up, at a considerable distance from the incision. On the contrary, a circumferential scar in the upper outer quadrant with excision of the pathologic skin would have been quite visible under clothes. We finally decided to perform the subcutaneous mastectomy by the inferior approach. The detachment of the mass from the skin was difficult and, at last, a burn lesion necessitated a skin excision with a supplementary scar. The pathology report was consistent with a steatonecrotic cyst on the right, whereas inflammatory activity was apparent on the left. The immediate postoperative result was pleasing, even with the skin lesion evident in the upper outer quadrant; at 4 months, the appearance was better, even if the patient complained of too small a size (Fig. 2).

There are many problems associated with autologous fat injection in the breast, the most frequent being fat necrosis.<sup>1,2</sup> Only the adipose stem cell fraction seems to be the regenerative active component.<sup>3</sup>

From the diagnostic point of view, mammography with a calcified mass with translucent content was typically benign 2 years earlier, as in 27 percent of cases in the literature,<sup>4</sup> but the appearance of an inhomogeneous density in the axillary tail rendered the diagnosis doubtful.<sup>5</sup> Magnetic resonance imaging, which is usually helpful in differentiating fibrous scars from malignant proliferation, is influenced by the histologic process at the time of the examination.<sup>5</sup> Enhancement patterns may be similar to those seen in malignant lesions, with a significant overlap between fat necrosis and breast cancer characteristics. Moreover, calcifications, clearly seen on mammograms, are not evident on magnetic resonance imaging, thus engendering confusion.

As to technical solutions to the deformity, two problems had to be faced: the inflammatory process and the

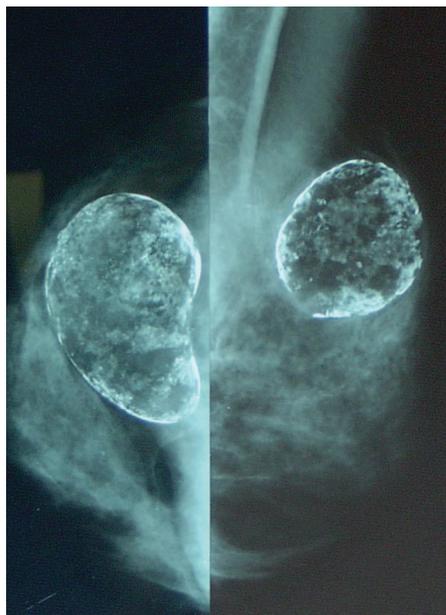


Fig. 1. Mammographic image.



Fig. 2. Postoperative result at 4 months.