

# ARCHIVES

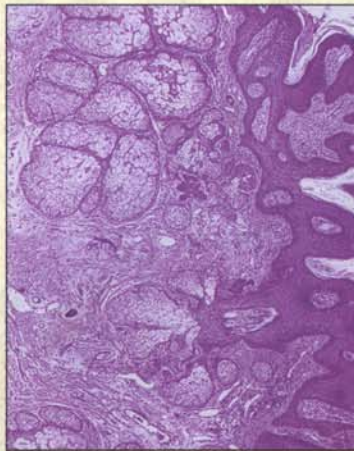
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# FACIAL PLASTIC SURGERY

JULY-SEPTEMBER 1999



*Histologic specimen of nevus sebaceus. See page 212.*

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A 3-YEAR MULTI-INSTITUTIONAL  
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# Mucous Cyst Formation After Rhinoplasty

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**T**he development of a deforming nasal-dorsal mass after rhinoplasty is a very rare and, for the most part, an avoidable complication. The list of differential diagnoses for such a postoperative external nasal lesion ranges from simple soft tissue edema or hematoma, which is usually temporary, to more serious lesions, such as lipogranulomas, epidermoid inclusion cysts, tumefactive cartilage proliferation, and mucous cysts, which can cause permanent deformities. Although various nasal tumors, infections, and granulomatous diseases are not specifically related to surgery, they should also be considered.

We report a case of an expanding nasal-dorsal mucous cyst that developed after a closed septorhinoplasty procedure. The cyst was related to sequestration of a mucosal-lined nasal bone that was not removed at the time of dorsal osteotomy. The nasal-dorsal mucocele and misplaced nasal bone were managed through an external skin resection of the cystic mass and osteotomy of the nasal bone. The patient's nasal-dorsal contour remained aesthetically corrected at the 1-year postoperative visit, with no evidence of recurrence of the mucous cyst.

## REPORT OF A CASE

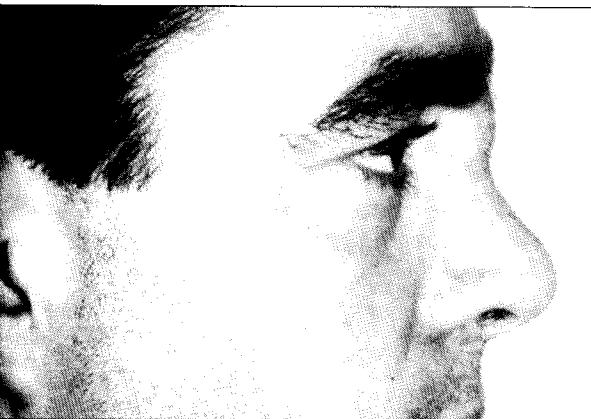
A 33-year-old man with no significant medical history had previously undergone 3 septorhinoplasty procedures at various outside institutions. After the last procedure, performed over 2 years ago, he observed a gradually expanding mass over the dorsum of his nose. He also complained of persistent nasal obstruction and increased snoring. On physical examination, it was noted that his nasal septum was moderately deviated to the right and that he had a cystic 2.0 × 2.5-cm upper nasal-dorsal mass (**Figure 1**). Computed tomography of the paranasal sinuses initially revealed a moderately deviated septum with no evidence of sinusitis and

a poorly defined soft tissue density with calcifications along the superior nasal dorsum. Antibiotic treatment and a short tapering course of oral prednisone were begun. However, because of the poor definition of the nasal mass on the computed tomographic scan, a subsequent magnetic resonance imaging scan was obtained. The magnetic resonance imaging scan revealed a 1 × 2-cm proteinaceous cystic lesion just below and to the right of the nasofrontal suture, in contact with the superior aspect of the nasal bones. No fistula or dural contact was noted (**Figure 2** and **Figure 3**).

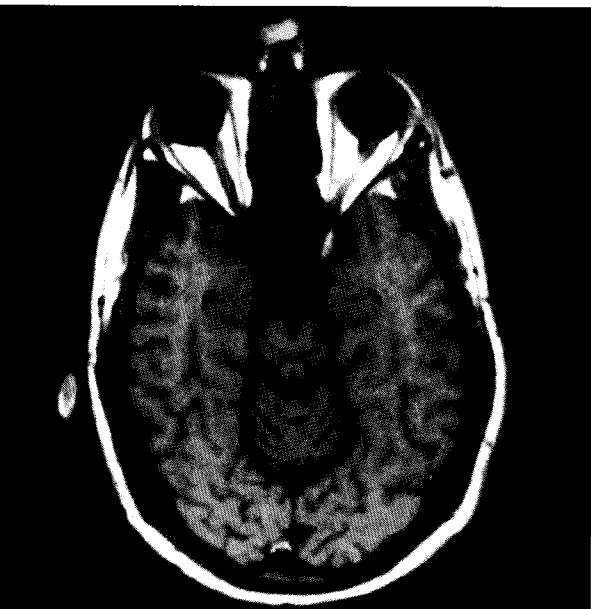
The options were discussed with the patient, and the decision was made to perform an open excision of the lesion, as well as revision septorhinoplasty. Intraoperatively, a 2-cm horizontal midline incision was made along a skin crease overlying the nasal mass. The incision was carried subcutaneously, and a well-circumscribed 1.4 × 2.3-cm cystic mass was noted to be firmly attached to the superior aspect of the right nasal bone, which was markedly displaced upward at the level of the nasofrontal suture line (**Figure 4** and **Figure 5**). The mass was dissected from the nasal bone and surrounding nasal-dorsal and glabellar soft tissue, and the displaced nasal bone was removed with an osteotome and a rasp, with good cosmetic result. Within the complete capsule, a mucous-lined cavity was confirmed and noted to be filled with a thick

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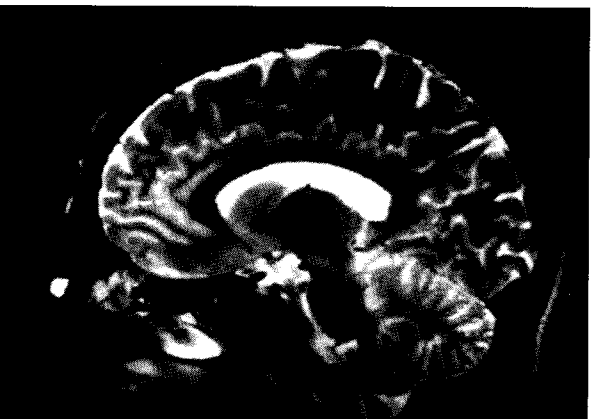
yellowish liquid. Histopathologic findings confirmed a benign epithelial mucous cyst with a fragment of normal cartilage and bone noted within the specimen



**Figure 1.** Profile view of our patient's nasal-dorsal mass before surgery.



**Figure 2.** Axial postcontrast  $T_1$ -weighted magnetic resonance imaging scan shows the partially enhancing superficial cystic mass just below the right nasofrontal suture.



**Figure 3.** Sagittal postcontrast  $T_2$ -weighted magnetic resonance imaging scan of the nasal-dorsal mass.

(**Figure 6**). A 1-year postoperative view of the patient is shown in **Figure 7**.

## COMMENT

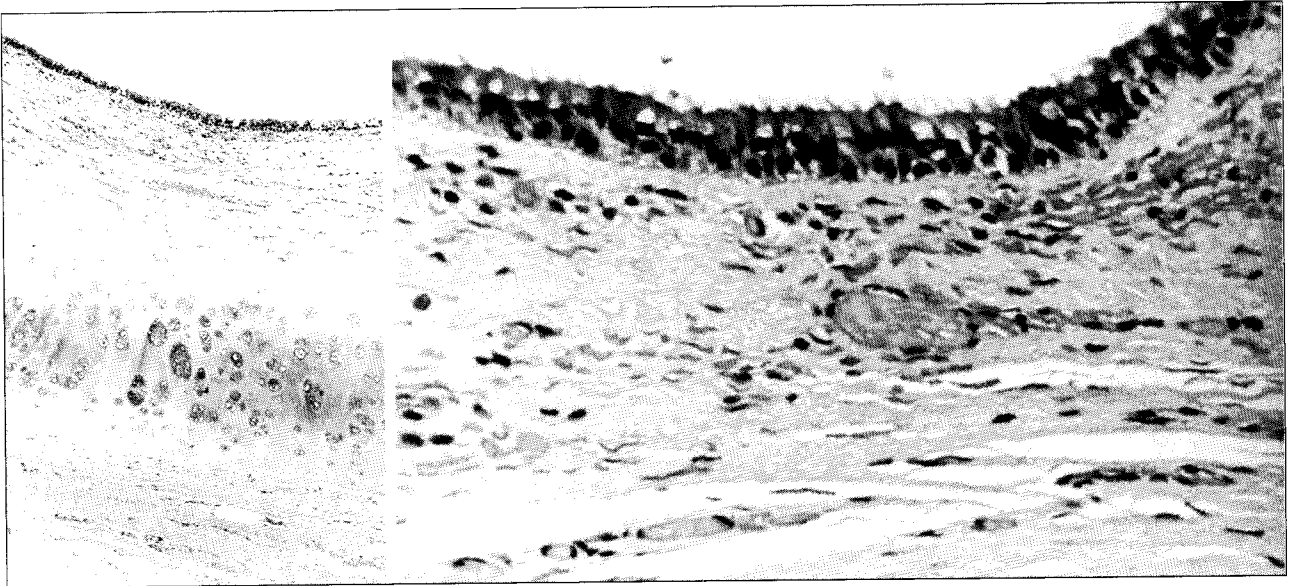
The formation of a mucous cyst after rhinoplasty is exceedingly rare and should be considered a late soft tissue complication of septorhinoplasty. To our knowledge, fewer than 10 cases have been reported in the world literature to date.<sup>1-9</sup> In all previous cases, the mucous cyst appeared several months to years after rhinoplasty. Sites described include the glabellar region and the bony and cartilaginous nasal dorsum, as well as the area overlying the alar cartilages. On exploration, a distinct capsule with no direct connection between the nasal mucosa and the cyst was reported in all cases. The most reasonable explanation for this phenomenon appears to be the proliferation of ectopic or displaced mucous membranes, acting as free grafts, caused by improper clearing of mucous epithelial remnants attached to bone or cartilage either in situ or as part of an autogenous graft. It is also hypothesized that cysts may develop by occlusion of sebaceous glands because of scar tissue formation.<sup>10</sup> In our case, the cyst undoubtedly formed as a result of an incomplete osteotomy, with superior displacement and sequestration of the nasal bone and its attached mucous remnant (**Figure 8**).



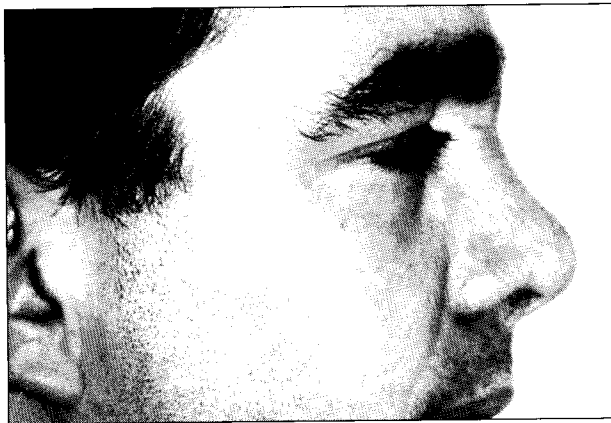
**Figure 4.** Intraoperative view of the nasal-dorsal mass shows the mucous cyst being dissected from the overlying skin.



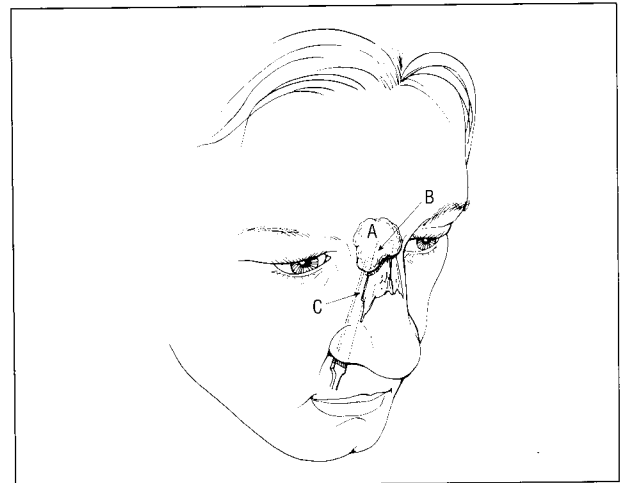
**Figure 5.** Intraoperative view of the nasal-dorsal mass shows a prominent right nasal bone after removal of the mucous cyst.



**Figure 6.** A benign epithelial mucous cyst with a fragment of normal cartilage. Left, Intermediate power shows respiratory mucosa with a thin layer of lamina propria devoid of seromucinous glands disposed on cartilage (hematoxylin-eosin, original magnification  $\times 40$ ). Right, Higher magnification shows pseudostratified respiratory epithelium, including goblet cells and many ciliated cells (hematoxylin-eosin, original magnification,  $\times 100$ ).



**Figure 7.** Profile view of our patient 1 year after resection of a nasal-dorsal mucous cyst.



**Figure 8.** Drawing of operative findings illustrating a misplaced dorsal osteotomy. A indicates the mucous cyst; B, the right nasal bone; and C, the projected dorsal osteotomy.

Other entities that must also be considered in the differential diagnosis of the postrhinoplasty nasal-dorsal mass include rare cases of lipogranulomas (paraffinomas), which are thought to represent foreign body reactions to displaced lipid ointment from nasal packings through intranasal incisions.<sup>11</sup> Recently, 4 cases of tumefactive cartilage proliferation occurred after rhinoplasty in relation to morsellized dorsal cartilage implants.<sup>12</sup> A case of multiple recurrent epidermoid inclusion cysts has also been reported and was thought to be related to implantation of epithelial tissue within scar tissue of the nasal skin by an original compound fracture of the nasal bones.<sup>13</sup>

There are various other nasal lesions that must be excluded, even though they are not related to surgery. Neoplastic lesions that can involve the nasal region include squamous cell carcinoma, malignant melanoma, adenocarcinoma, sarcoma, and lymphoma. Benign processes, such as the congenital midline nasal masses (encephaloceles, gliomas, and dermoids), osteomas, lipo-

mas, and even frontal sinus mucocoeles, must also be considered. If an intranasal component exists, lesions such as inverting papillomas, juvenile nasopharyngeal angiofibroma, and ethesioneuroblastoma must be excluded. Finally, certain granulomatous diseases (Wegener granulomatosis, sarcoidosis, and rhinoscleroma) and infections (fungus, syphilis, and tuberculosis) may potentially present as a nasal mass. These entities should be able to be excluded with a careful physical examination, nasal endoscopy, anterior rhinoscopy, and radiographic studies. If any concern exists as to the possible diagnosis, a biopsy should be considered.

Concerning treatment of the nasal-dorsal mucous cyst, depending on the size and location, complete excision of the mucous cyst capsule and reconstruction of the surgical defect through an intranasal or open approach must be performed. The endonasal approach

using intercartilaginous or intracartilaginous incisions offers limited exposure but has been used successfully by Shulman and Westreich,<sup>4</sup> Flaherty et al,<sup>8</sup> and Kotzur and Gubisch<sup>9</sup> for mucous cysts involving the tip and supratip regions. The open rhinoplasty approach with bilateral rim and transcolumellar incisions offers greater exposure and was used successfully by Zijlker and Vuyk<sup>7</sup> for a supratip mucous cyst. Both of these approaches offer cosmetic advantages for inferiorly placed and small masses. However, given our patient's 3 previous rhinoplasty procedures and the size and superior location of the mass, we opted for a direct external cutaneous approach to obtain a safe and maximal exposure, with good cosmetic result. Although the theoretical concerns of an external scar exist, this approach was also used successfully by Kotzur and Gubisch for a mucous cyst below the glabella.

### CONCLUSIONS

Postrhinoplasty nasal-dorsal mucous cyst formation is a preventable complication. Meticulous removal of all bony, cartilaginous, and mucous remnants is essential. Maintaining mucosal integrity during intranasal osteotomy and completing all osteotomies are also important to prevent such postrhinoplasty complications as mucous cysts. Treatment of this unfortunate complication is complete excision through an intranasal or open approach.

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### Quotable

Change is not merely necessary to life. It is life.

Alvin Toffler