Periorbital Subcutaneous Emphysema in Rhinoplasty

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Aesthetic Surgery Journal published online 7 March 2014
DOI: 10.1177/1090820X14526616

Aesthetic Surgery Journal OnlineFirst, published on March 7, 2014 as doi:10.1177/1090820X14526616

Case Report

Periorbital Subcutaneous Emphysema in Rhinoplasty

Aesthetic Surgery Journal
1–4

DOI:10.1177/1090820X14526616
www.aestheticsurgeryjournal.com

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Abstract

In this article, the authors present a case of postrhinoplasty periorbital subcutaneous emphysema in a 35-year-old woman. This is an uncommon and benign rhinoplasty complication that can sometimes result from other pathologies such as barotrauma, hematoma, and allergic reaction. This patient's symptoms appeared to be a result of postanesthesia agitation. The patient's symptoms resolved after 1 week.

Keywords

subcutaneous emphysema, rhinoplasty, complication, barotrauma, periorbital, anesthesia

Accepted for publication September 19, 2013.

Facial subcutaneous emphysema is a well-recognized complication associated with respiratory trauma, fractures involving the midface and orbital wall, severe infections, and other conditions. Postrhinoplasty periorbital emphysema may occur after nasal blowing or the Valsalva maneuver, as well as in situations involving the sudden elevation of intranasal pressure. It is usually a benign, self-limiting condition. Visual loss is uncommon with this type of emphysema; as a result, conservative treatment is the preferred approach. In cases of severe retrobulbar emphysema with exophthalmos and visual impairment, lateral canthotomy and cantholysis may be mandatory. To our knowledge, no cases of subcutaneous emphysema limited to the periorbital region during rhinoplasty have been described in literature. The aim of this article is to present an unusual case of isolated periorbital subcutaneous emphysema following rhinoplasty, which is a differential diagnosis among other pathologies such as barotrauma, hematoma, and allergic reaction. In addition, we aim to describe ideal management strategies for periorbital complications in rhinoplasty.[1-3]

CASE PRESENTATION

A 35-year-old black woman who was dissatisfied with her nasal shape was admitted to our service. The patient had no functional deficits and no history of facial surgery, trauma, allergy, or disease. Physical examination revealed moderate nasal skin thickness, retracted columella, a bulbous and underprojected nasal tip, smooth dorsal elevation, and hypertrophic basal alar implantation. Given these characteristics, a surgical plan was made for a closed, structured rhinoplasty under general anesthesia with endotracheal intubation (Figure 1).

At the beginning of surgery, we introduced gauze packing in the oropharynx after intubation. Local anesthetic of 0.5% lidocaine and epinephrine diluted to 1:80 000 units was injected. With an intercartilaginous incision and undermining of the nasal dorsal skin in the subperiosteal layer, we reduced the dorsum using rasps. The dermocartilaginous ligament was identified and resected. The cephalic portions of alar cartilage were removed and interdomal sutures were placed. A columellar strut harvested from the

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Figure 1. This 35-year-old woman presented with a broad, ill-defined nasal tip.

Figure 2. The patient is shown postrhinoplasty, immediately after extubation, demonstrating intensive bilateral periorbital emphysema.

septal cartilage was inserted to support and project the nasal tip, and lateral osteotomies were conducted with a 4-mm osteotome. Finally, basilar alar wedge resections were performed. At the end of surgery, no alterations to the periorbital region were noticed. Nasal dressing and a dorsal splint plaster were applied, and endonasal packs were inserted.

During extubation, the patient presented with agitation and several Valsalva maneuvers and was forcibly trying to breathe through her nose. Soon afterward, we noted sudden and full bilateral periorbital swelling without crepitus (Figure 2). No bruising or visual or respiratory impairment was present. Tomographic imaging revealed bilateral subcutaneous emphysema in both the upper and lower eyelids (Figures 3 and 4). Postoperatively, the patient did not experience any additional symptoms, and the periorbital swelling disappeared after 1 week (Figure 5).

DISCUSSION

Rhinoplasty may cause serious orbital and periorbital complications such as orbital hemorrhage, enophthalmos, exophthalmos, periorbital cellulitis, and blindness. Most acute orbito-periorbital complications are related to lateral osteotomies. Medial orbital wall damage following osteotomy may result in orbital emphysema as it allows air to enter the orbit from the paranasal sinuses, resulting in high retrobulbar pressure and compression of the bulb. The presence of orbital, subconjunctival, and subcutaneous emphysema may be due to air from the nasal cavity entering between the loose tissue planes of the orbit after fracture of the orbital wall(s).[4,5]

Emphysema may be subcutaneous, subconjunctival, orbital, or any combination of these. Most occurrences of orbital emphysema require no specific treatment because the process is self-limiting, with an approximate duration of 2 weeks. Surgical treatment of a sudden severe exophthalmos due to orbital emphysema includes lateral canthotomy or cantholysis, orbital decompression by needle aspiration, and bone decompression to avoid compressive optic neuropathy.[6] Therefore, the presence of any type of periocular emphysema after blunt trauma should raise suspicion for orbital blowout fracture and mandates orbital tomography with careful follow-up of the patient. In 2010, Findikcioglu and Findikcioglu[7] reported 1 case of orbital emphysema

Figure 3. The sagittal slice computed tomography scan shows emphysema in the periorbital area.

Figure 4. The axial slice computed tomography scan shows emphysema in the periorbital area.

that unexpectedly developed before performing osteotomy. The authors hypothesized that a small space in the orbital septum could have resulted in a ball-valve effect during the

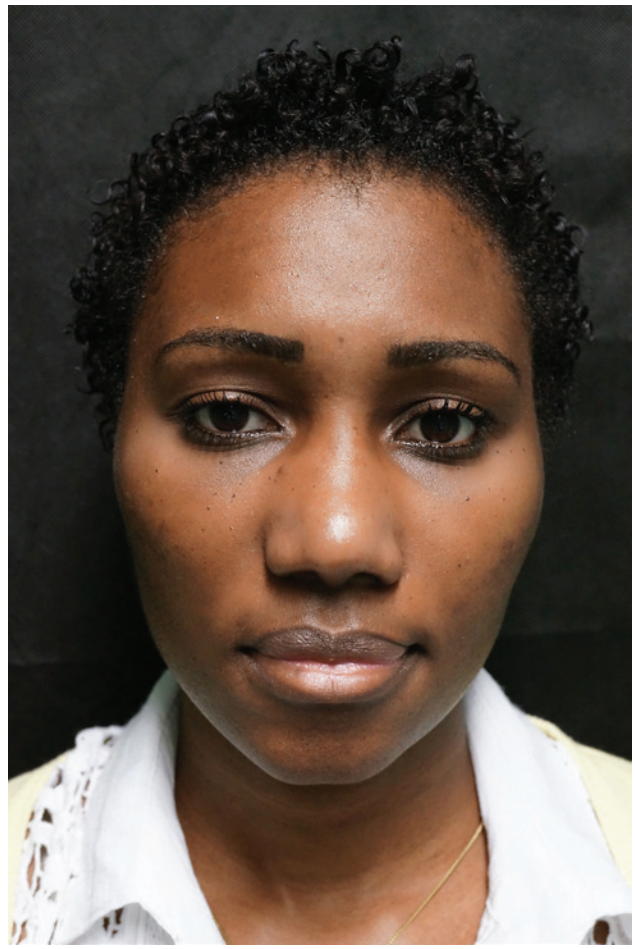

Figure 5. The patient is shown 15 days after rhinoplasty with total resolution of emphysema.

subperiosteal elevation of the dorsal nasal skin, which allowed air to enter but not to escape the orbit. Because all of the orbital walls remained intact, an extremely high intraorbital pressure may occur in this scenario. Pressure applied on the nasal dorsum to drain the blood may also route the air from the nasal dorsal tunnel to the orbit via the damaged area at the orbital septum.[8-10] Subcutaneous emphysema usually occurs during a brief period after trauma when air may be forced into the tissues. After this, the escape routes are sealed by blood clots or herniated tissues in the sinuses at the fracture sites.[11-14]

In the present case, bilateral subcutaneous emphysema limited to the periorbital region was not associated with orbital fracture or barotrauma. We believe that air forced a passage route through the lateral mucosa incision of the piriform aperture from lateral osteotomy, which then acted as a 1-way valve. Furthermore, an inappropriate plaster splint with light compression to the undermined nasal skin was used, facilitating the spread of air. Although mechanical ventilation provides many benefits in rhinoplasty,

primarily by protecting the airways during surgery, it may also contribute to significant complication rates.[15] The problem seemed to be related to agitation as the patient came out of anesthesia, which could have been avoided with appropriate maneuvers during extubation and adequate planning. Numerous studies in both critical care and trauma literature have analyzed criteria for extubation, examining both calculated and clinical factors that may help predict its success or failure.[16] Continued use of the endotracheal tube, which can cause discomfort and anxiety, is unnecessary at the end of surgery, particularly when hemodynamic function has stabilized and spontaneous breathing has been restored.

CONCLUSIONS

We presented a case of subcutaneous emphysema limited to the periorbital region, an uncommon and benign complication following rhinoplasty. This complication may lead the surgeon to consider differential diagnoses with other emergency situations that need prompt, adequate, and singular approaches for successful outcomes.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, or publication of this article.

Funding

The authors received no financial support for the research, authorship, or publication of this article.

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