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Mini Review

Peri-operative Techniques to Reduce Post-operative Periorbital Edema and Ecchymosis for Patients Undergoing Rhinoplasties or Septorhinoplasties Requiring Osteotomies; Review and Personal Approach after 3,000 Rhinoplasties

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Introduction

Rhinoplasties are one of the most common facial cosmetic surgeries that aim to alter the external appearance of the nose, with it being estimated that more than 350,000 rhinoplasties are performed per year [1]. Patients may choose to proceed with a rhinoplasty for cosmetic reasons, to improve the nasal airways to enhance breathing, or to fix the shape of their nose following a nasal trauma [2]. The two common approaches are an open rhinoplasty versus a closed rhinoplasty. During an open rhinoplasty, two incisions are made to the skin within the nostrils, and an incision is made across the columella to connect the two internal nostril incisions [3], permitting for complete observation of the nasal anatomy [4]. For endonasal rhinoplasties, incisions are made within the nose to limit scarring of the external nasal skin [5]. Itis common for rhinoplasties to involve nasal bone osteotomies, including lateral osteotomies to narrow the nasal lateral walls [6] or to medialize the nasal bone following a dorsal hump reduction. [7]

Due to the surgical invasiveness of rhinoplasties and osteotomies, patients may experience post-operative edema and periorbital ecchymosis, [8] which is caused by blood leakage into the tissue in the periorbital area. [9] Post-operative ecchymosis can last up to several weeks following surgery and may temporarily impair patients' visual sharpness [10]. Research has shown that patient usage of NSAIDs, antiplatelet and anticoagulant medications,and various herbal supplements, as well as patient history of blood clotting disorders, may impact post-operative periorbital ecchymosis. [11] It has been demonstrated how nasal packing [12], steroid usage, intraoperative cooling, and post-operative head elevation [13] may be effective in reducing post-operative periorbital ecchymosis. Thus, it is essential to model perioperative care around these factors to minimize post-operative ecchymosis following rhinoplasties and septorhinoplasties requiring bony osteotomies, enhance patient outcomes, and accelerate the body's reparative process.

Pre-operative care to reduce post-operative periorbital ecchymosis:

Prior to surgery, it is imperative to ask the patient about prior nasal surgeries and to review their medical history, allergies, blood-clotting disorders, and

history of nasal trauma [14]. The patient must have a physical examination and blood work completed. Patients are instructed to discontinue NSAIDs, antiplatelet and anticoagulant medications, supplements, and herbal medications prior to surgery.

Intra-operative care to reduce post-operative periorbital ecchymosis:

In the pre-operative area, 12 milligrams of Decadron are injected intravenously and two squirts of Afrin are dispensed into each nostril for vasoconstriction. In the surgical suite after induction of general anesthesia, the infraorbital nerves are anesthetized and constricted bilaterally w/ one percent Lidocaine with 1:100,000 Adrenaline. The same injection is used subcutaneously in the nasal septum, the nasal tip, and the nasal dorsum as needed. During surgery, ice packs are placed intermittently on the malar complex. Following extubation, an aquaplast dressing is placed on the nose and ice is placed immediately on the eyes in the form of a glove with ice. The patient is to remain with ice over the eyes for the first hour in the recovery room. Another key to this personal approach in limiting postoperative ecchymosis and edema is to perform bony work, such as osteotomies, toward the end of the surgery.

Post-operative care to reduce post-operative periorbital ecchymosis:

Following surgery, at-home treatment should include two days of head elevation at twenty degrees with silastic cold eye packs on the eyes for the first forty-eight hours as much as can be tolerated. Antibiotics are given and to be taken as necessary. It is advised that the patient does not take Aspirin for two weeks. Regarding diet, the patient should eat a smaller, softer diet for the first two to three days following surgery to minimize chewing and should avoid alcohol, salt, MSG in Chinese food, and hot foods. The patient should avoid citrus juice for twenty-four hours. Adequate fluid intake is essential and emphasized. For several weeks after surgery, patients should prioritize rest, not engage in intensive exercise, avoid bending over, and sleep in an elevated position.

Two days post-operation, the patient returns to the office for the removal of the intranasal packing, which is commonly mericel splints that are injected with four percent lidocaine five minutes before removal. Following the removal of the intranasal packing, the airways are cleared endoscopically. Six days post-operation, the aquaplast dressing is removed in-office, and the nasal dorsum is retaped with steri-strips to defeat the “dead space”.

Figure 1: Typical patient during a two-day post-operative visit. The patient was status post rhinoplasty and bilateral lateral osteotomies and presented with minimal ecchymosis and edema.

Conclusion

Facial plastic surgeons have developed an array of peri-operative techniques and methods in order to limit the amount of post-operative edema and ecchymosis for patients undergoing rhinoplasties or septorhinoplasties with bony osteotomies. Periorbital ecchymosis is prevented when using the methods of the first author (NLS). This enhances patient outcomes and allows patients to accelerate their recovery.

However, there is currently a limitation regarding the measurability of the effect of the discussed techniques on ecchymosis reduction. While there is a wide variety of approaches to measure ecchymosis/edema, with the most common being human subjective rating, MRIs, ultrasounds, and digital analysis, only a small fraction of physicians utilize quantifiable methods [15]. This may lead to ineffective post-operative care of edema and periorbital ecchymosis [16]. Thus, further research surrounding the effectiveness and systemization of various edema and ecchymosis measurement tools can assist physicians in providing adequate post-operative management addressing periorbital ecchymosis [17] and can continue to advance literature on the subject.

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