SAS Journal of Surgery (SASJS) **ISSN 2454-5104**
Abbreviated Key Title: SAS J. Surg.

A Unit of Scholars Academic and Scientific Society, India

Nasal Septal Perforation Management:A Challenging Task

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Short Communication

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Article History
Received: 15.12.2017
Accepted: 20.12.2017
Published: 30.12.2017

DOI:
10.21276/sasjs.2017.3.12.2

Abstract: Nasal septum perforation is an anatomic defect that develops as a consequence of necrosis of mucosa, bone and cartilage structures of septum. Although relatively rare, septal perforations are difficult problems that the otolaryngologist has to solve. There are many etiological causes of nasal septum perforation. As it may be idiopathic, the most common cause is iatrogenic as nasal surgeries. The majority of nasal septal perforations are asymptomatic. Septum perforations can cause complaints such as whistling in the respiratory tract, drying, epistaxis, cacosmia and nasal discharge. Nasal saline lavages and shell softening creams are conservative treatment methods to prevent scaling and bleeding after septal perforation. Besides septal silicone button application, the main treatment is surgical repair of perforation. In this review, etiology of nasal septal perforation, clinic and treatment options are discussed in the light of current literature.
Keywords: Nasal septum, perforation, respiratory tract, drying

INTRODUCTION

The midline cartilage (septum) that divides the nasal cavity in two and the mucosa that covers it may be pierced in some cases as a full layer. This condition is called nasal septal perforation. Nasal septum perforation is an anatomic defect that develops as a consequence of necrosis of mucosa, bone and cartilage structures of septum. Although relatively rare, septal perforations are difficult problems that the otolaryngologist has to solve. In fact, the otolaryngologist has to identify the cause, which in most cases is either iatrogenic or idiopathic, to decide upon the need for surgery, and select the most suitable surgical technique of those currently available, for the case under consideration.

Nasal septal perforations are a very frequent nasal disorder. These defects in the cartilaginous areas of the septum, with direct communication between the two nasal cavities, leads to impairment of air flow and pressure which are often accompanied by a wide variety of symptoms. Patients usually go to see a specialist when they develop symptoms, which may be very troublesome (crusting, nose bleeding, cacosmia) and may, in some cases, even impair nasal respiration [1].

Etiology

Nasal septum perforation has many etiologic causes. As well as it may be idiopathic, the most common causes are nasal surgeries such as submucosal resection, septoplasty, functional endoscopic sinus surgery. Other causes for etiology include; bilateral and frequent chemical and electrical cauterization of septum, untreated septal hematoma, some systemic diseases (Wegener Granulomatosis, syphilis, tbc), neoplasms and cocaine use [2-5]. Congenital septal perforation can also be seen very rarely. Although nasal steroids and decongestive sprays are important causes in recent years, unfortunately, septal perforations are the most common causes of iatrogenic conditions such as septoplasty [6]. The mucoperiocondrial and mucoperiostal ruptures in the nasal surgeries or chemical and electrical cauterization of septum increases the risk of perforation due to mucosal injury on both sides [2,4]. In perforations involving mucopericondrium and cartilage on both sides, wound healing on the perforation edges is thin and atrophic. If the edges of the nasal septal perforation do not improve normally, they are covered with an atrophic mucosa layer and a permanent perforation floor is prepared. For this reason, wound healing plays an important role in nasal septal perforation [3,7].

Clinical Presentation

The majority of nasal septal perforations are asymptomatic and are diagnosed through examinations made for other purposes. Symptomatic patients have epistaxis, nasal obstruction, discharge, pain and whistling complaints [8]. Most of the symptoms occur in the nasal mucosa due to turbulence, which is caused by perforation [9]. Posterior perforations cause less symptom than the anterior perforations because the nasal mucosa moistens the respiratory air rapidly [10]. Symptoms may vary according to location, size and cause of perforation. A small perforation in the posterior can be asymptomatic, but it can cause a

particularly whistling voice when perforation is in anterior. As the size of the perforation increases, laminatery air flow deteriorates and turbulence increases. This causes drying, crusting and nasal congestion. In addition, a large anterior perforation may cause saddle nose deformity with loss of nose structure support. In cocaine users, mid- to low-grade chondritis may cause pain in infectious perforations [11-13].

Management

Septal perforations have always represented a distinctive challenge to otolaryngologists and facial plastic surgeons. They are a common problem, with countless causes and treatments, and have therefore been the subject of publications all over the world [14,15].

The symptoms of the patient are very important when it is decided to close the perforation. Asymptomatic patients do not require any treatment. In cases with mild symptoms, drops containing serum physiological nasal spray, irrigation solutions, moisturizers, vaseline, antibiotic creams, vitamins A and E are among the medical treatment options. These medical agents moisturize the mucosa, reduce crustling and local inflammation. The purpose of this medical treatment is not to close the perforation but to reduce the symptoms of perforation [16]. Apart from medical treatment, septal button application is among the treatment options. With this treatment, crusting, irritation are reduced and the growth of existing perforation can be prevented. Septal button application may also be effective in controlling epistaxis, nasal airway obstruction and whistling [17]. Silicone septal button can be preferred especially for patients who are not suitable for surgical intervention due to any medical reasons. Treatment with this method should be preferred to patients with chronic disease, continued cocaine use, and large perforations [18.

Main treatment of nasal septal perforation is surgery. There are many methods described in literature for surgical treatment of nasal septal perforation. But the most important factors affecting the success of septal perforation repair besides the defined methods are; the skill and experience of the surgeon, the amount of tissue in the rest of the septum, the size and localization of septal perforation [2,18].

Way of approach to perforation is also important as much as the preferred technique. Closed or open technique can be used for surgical repair of septal perforations. The advantages of the closed technique are the absence of external scars, minimal tissue damage, and minimal damage to anatomical integrity. In addition to these advantages, inadequate surgical field of view is the difficulty in suturing of the created mucopericondrial and mucoperiosteal flaps, and the disadvantages of placing the grafts to be used. The advantages of open technique septal perforation repair include a better field of view, easier access to the perforated area, and the ability of the surgeon to use both hands [2]. The biggest disadvantage of the open technique is that it disrupts the nose support and creates skin scarring [1].

The techniques described in the surgical procedure include repair with bilateral septal mucosal flaps and interpositional connective tissue grafts, repair with unilateral septal mucosal flaps with or without interpositional graft, repair with bilateral septal mucosa flap inserted without grafting, nasolabial flap and buccal mucosa flap with composite grafts or flaps [19].

CONCLUSION

Successful repair of nasal septal perforation depends on the cause of perforation size and place of perforation, the presence of cartilage bone tissue on the perforation edges, the surgical technique and the surgeon's experience. Nasal septal perforation is often the result of mucopericondial and mucoperiosteal ruptures in the septoplasty surgery and should be repaired simultaneously when mucosal tears on both sides are recognized [19].

It is not possible to mention a single technique that provides complete success in the repair of nasal septal perforation in the literature. The preferred method of surgery should be determined by the size of the perforation, the localization, and the amount of tissue contained in the remaining septum. To increase the success of surgical outcomes; care should be taken to create a contralateral flap prepared from different regions, to avoid stretching of the flaps in the reconstructed region, to avoid mutual suture lines and to provide a comfortable surgical technique. However, even with surgical methods, repair of chronic perforation is difficult. For this reason, it would be more appropriate to intervene septal perforation in the first and support a good wound healing process as a preventive measure.

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