Outcomes of Bilateral Pediculated Septo-Nasal Flap for Large Septal Perforations Repair & Surgical Technique

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Abstract

Objective: To evaluate the surgical outcomes and describe the technique for septal perforations repair. Methods: Retrospective clinical study of septal perforations from a tertiary care hospital during a period of 08 years. An endonasal approach with bilateral pediculate septo-nasal flaps were used to solve this situation. The statistical data analysis was made with the IBM ® SPSS software, using chi-square and Fisher exact tests.

Results: Thirteen cases underwent to this surgical approach with more than 85% of complete resolution of the problem. There are no complications related to the procedure. There were significant improvements comparing pre and post operatory outcomes.

Conclusion: This study demonstrated a good surgical option for treating large septal perforations. A larger study with more patients and comparing others techniques would be interesting to have more scientific evidence to this technique.

INTRODUCTION

Septal perforations are estimated to be present at 0,9% of adult population and with a wide range of symptoms and etiologies. Surgical treatment is required when are symptoms present even with the correct clinical treatment. The goals of the surgical treatment are to get the perforation closure and to restore nasal physiology [1,2].

The main symptoms are related to nasal obstruction (sensation), headache, epistaxis/bleeding, crusting, dryness of mucosa and whistling sounds [3].

The causes of septal perforations are many and can be by trauma (external, fracture, hematomas, piercing injuries), self inflicted (nose picking, foreign bodies), iatrogenic (nasal and endonasal surgery/approaches, cryosurgery, nasotracheal intubation), medicines/chemicals (vasoconstrictive nasal sprays, steroids nasal sprays, cocaine, smoking, acids substances, heavy metal, etc), inflammatory (vasculitides, collagen diseases, sarcoidosis, Wegener’s granulomatosis, renal diseases, etc), neoplastic (squamous cell carcinoma, adenocarcinoma, etc), infectious (tuberculosis, syphilis, rhinoscleroma, mucor, etc) and others causes [4,5].

There are no consensus regarding on the better technique for repair of the septal perforation, and there are lack of randomized trial or systematic reviews or meta analysis about this topic. Almost all articles discuss small sample sizes wit not o long follow-up [6,7].

This study aimed to describe the surgical approach and evaluate the outcomes to the bilateral pediculated septo-nasal flap for large septal perforations repair in patients that underwent to this treatment.

METHODS

This is a retrospective and clinical study that was conducted at the ENT-Head and Neck Surgery Service of a tertiary care center that serves a population of 2.5 million people.

All patients with a nasal septal perforation operated on...
between March 2007 and August 2015 were included. All surgeries were performed by only one ENT doctor, that who is the most experience at the ENT Service and with a high experience level and training in ENT surgeries.

It was collected data on comorbidities, systemic diseases, smoking, medication, etiology, size, details aspects of the surgery, closure rate, outcomes, and complications.

The clinical treatments were applied to all patients, previously to the surgery, with steroids sprays, saline solutions, mucosal hydration, antibiotics and specific medications regarding the causes. The surgery treatment was only selected if their symptoms were not adequately controlled by the clinical treatment.

Biopsy was performed only if all tests prove negative and give no dear indication of cause. The material for biopsy was taken from the posterior edge of the perforation including enough tissue area away from the perforation to give the pathologist a definitive diagnosis.

It is necessary to alert that the superior or inferior edge of the perforation is not a good area to biopsy because that may increases the height of the vertical perforation and impairs the surgeon’s ability to dose a perforation. Also biopsies should be avoided at the anterior portion of the perforation, which is the preferred area for closing to decrease symptoms.

Besides, a review of the medical literature in PubMed and Scopus database was performed, covering articles published since 1980 in English, using the following keywords (MeSH): “septal perforations, septal perforations repair, large nasal septal perforations”.

Operative technique

The patient is placed on horizontal dorsal decubitus, positionated with lifting body around 15 to 30 degree, for an endonasal surgery with general anesthesia.

The operative field is prepared by antisepsis with 2% chlorhexidine and cocaine pasta inside the nose for vasoconstriction. Antibiotic prophylaxis is done with endovenous cefazolin (50 mg/kg) during induction of anesthesia.

1. Antisepsis with 0.2% aqueous chlorhexidine, placement of sterile drapes and steri-drape;
2. Preparing for endonasal approach with 0 and 30 degrees otics from Storz™.
3. Complete endonasal examination and evaluate the nasal septal perforation; (Figure 1).
4. Perform a bilateral posterior-inferior lateral flap, with a dissection in subperioosteal/subpericondrium plan; (Figure 2).
5. Closure of the bilateral flap with Vicryl 3.0 /4.0™. It is not necessary to use fibrine glue or any others materials. The suture and closure needs to be without tension, near to the anterior edge of the perforation; (Figure 3).
6. Check up the bleeding and performed any hemostasis that could be necessary;
7. Positioning bilateral Silastic™ (or any similar device) and fixing anterior, in the caudal septum, with nylon 2.0™.

The postoperative care concern to remove the Silastic™ in 5-7 days and to have similar approach like any other endonasal
functional surgery. Saline solutions were used for weeks to manage crusting.

Note: The figures shows only one side, but it is necessary to say the this flap are bilateral.

Statistical analysis

The statistical analysis of the data was made with the IBM ® SPSS software, using chi-square and Fisher exact tests.

Ethical considerations

The study complied with the principles of the Declaration of Helsinki. An institutional research approval was granted for the study.

RESULTS

Thirteen patients underwent to this surgical approach. There are 70% (9) males and 30% (4) females. The average age was 38,07 years old with a range between 18 up to 55 years old. The median was 38,08 (min: 18; max: 55) and standard deviation was 10,50 years old.

The average size of septal perforation was 2,5 cm with 3,2 in the maximum and 2 cm in the minimum size. The median was 2,4 cm and standard deviation up to 0,35 cm.

Unsuccessfully previous surgeries aiming to close the perforation were performed in 77% of patients.

The follow up average time was 23,53 months with a range between 12 to 36 months. The median was 22 months and the standard deviation was 7,38 months.

There was a rate of 85%[9] of complete success regarding the closure of septal perforation. The 15% of failure cases remained with a perforation 50% less than when compared to preoperative time. Some examples are show in Figures 4, 5.

The etiology remained in almost all cases to previous septoplasty (9 patients), trauma in 2 patients and pituitary surgery in the other 2 patients. The 2 cases that did not have closure success were by previous septoplasty. The Table 1 detail the main data mentioned above.

There was no infection or bleeding in post operative time. Crusting was the main complain of the patients and no others complications were observed in this group. The complete reepithelialization of the nasal site that had been left uncovered during surgery took 3 to 7 weeks to heal.

DISCUSSION

There are a lot of surgical approach’s to repair the nasal septal perforation. The first considerations were made by Seilfert in 1947. A lot of variety and different materials for grafts were described to repair nasal septal perforations [4,9,10-14].

In medical literature there is a similar technique describe in 2011 with endonasal approach, but with unilateral mucosa pediculate flat related to anterior etmoidal artery with excellent outcomes [15]. This can be a good option for small size and anterior perforation.

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Previous septoplasty was the main cause of other medical papers in the literature, similar to our findings [16-18]. There is a systematic review that alerts to perforations bigger than 2 cm with more risk of failure, but in our population this situation did not happen [7].

In our approach, we can consider a small donor site, preservation of vascular supply with pedicled flaps, without use of any graft material, simple surgery approach, low cost of the procedure (material and devices) as the most important advantages of this technique. The follow up time of our cases is adequate and can be reliable to the described findings [1].

Nasal septal perforations occur with disintegration of the septal anatomy and also can impair in nasal physiology, not only for anatomicals reasons but also for mucosa disfunction/loss. It would be interesting that surgical outcomes could solve the anatomical and physiological problems [9]. We believe that techniques with nasal/mucosa tissue can help to restore nasal physiology, because non nasal grafts, like skin grafts or oral buccal mucosal grafts, may be successful anatomically, but leave the patient with a dry nose that continues to crust as these grafts either shed or dry.

The retrospective analysis and the small sample are the main bias of this paper. However, it is important to publish this data, because it is a simple surgical technique, stimulates more studies, more surgical treatments with this approach and can improve more data to medical literature.

CONCLUSION

This study demonstrated a good surgical option for treating large septal perforations with 85% rate of complete success. A larger study with more patients and comparing others techniques would be interesting to have more scientific evidence to this technique.

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REFERENCES


Cite this article