

Complication of Conventional Septoplasty

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ABSTRACT

Background: Septoplasty is one of the most commonly performed operations with several complications.

Purpose: To categorize and demonstrate the probability of the occurrence of septoplasty complications.

Methods: Three hundred and twelve patients who underwent septoplasty in Loghman Hakim general hospital, Tehran, Iran, were followed up for 6 months and evaluated for probable post-operative complications.

Results: The most common complication was remained deviation, which was observed in 26.2% of patients followed by synechiae and perforations. There was no case of serious and life threatening complications.

Conclusion: Septoplasty has both aesthetic and functional complication. However, meticulous and careful surgery can prevent most of them.

Keywords: Septoplasty; Post-operative; Complication.

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INTRODUCTION

Septoplasty is one of the most commonly performed operations in otorhinolaryngology practice. Complications are not observed frequently when surgery is performed meticulously with good anatomical knowledge (1). Various surgical complications have been reported, namely hemorrhage, septal hematoma, septal abscess, septal perforations, saddle nose, infection, and anosmia, which are relatively common. There are rare but considerable complications that can even become life threatening. The most important ones are skull base and intracranial injury including traumatic cerebrospinal fluid (CSF) rhinorrhea, pneumocephalus, meningitis, subarachnoid hemorrhage, subdural, brain abscess, as well as orbital complications and cavernous sinus thrombosis (2).

PATIENTS and METHODS

A retrospective review of patients who underwent conventional septoplasty between Aug 2012 and Aug 2014 in otolaryngology department of Loghman Hakim hospital was conducted.

The indication of septoplasty in all cases was symptoms of nasal airway blockage. The cases with indications such as recurrent epistaxis, headache without nasal obstruction and concomitant sinusitis were excluded. These exclusion criteria was assigned by one of the attending physicians of the otolaryngology department and after obtaining informed consent, the patients underwent surgical procedure by otolaryngology residents under close observation of an attending physician. The standard surgical technique was used in all patients. After subperichondrial injection of a solution containing 1% Lidocaine and 1/100000 Epinephrine, mucoperichondrial and mucoperiosteal flap elevated via a hemitransfixion incision, the excessive amount of deviated cartilage and bone was removed and the remaining cartilage was straightened using cross hatching and wedge resection techniques. Mattress sutures and nasal packing was used for all patients and this pack was removed in the second post-operative day. Right after completion of surgery, we examined

the patients for probable post-surgery complications such as hemorrhages and overt central nervous system (CNS), skull base and orbital complications. In early post-operative period at the first week after surgery, the patients were evaluated for the presence of abnormal bleeding, rhinorrhea, headache, altered mental status, abnormal pain, swelling and discharges. We looked for evidences of septal hematoma, septal abscess, cerebrospinal fluid (CSF) leak and intracranial complications such as epidural and subdural hematoma and abscess, subarachnoid hemorrhage, meningitis, pneumocephalus and brain abscess.

Six month after surgery, the patients underwent interview and physical examination. They were asked for the amount of relief from initial symptoms and occurrence of potential complications. For objective issues including the quality of breathing and amount of pain, a conventional 10 point Visual Analogue Scale was used. They were asked if they have anosmia or numbness, especially in the anterior regions of the nose, upper lip and upper central teeth. The patients were examined in order to find out the existence of remaining septal deviation, excessive crusting, septal perforation, saddle nose, widened nasal base, loss of tip projection. They underwent nasal endoscopy and were examined for the existence of synechiae, perforations and signs of sinusitis. This information was recorded patient file and underwent statistically analysis using SPSS 18.0.

RESULTS

During a 2 year period between Aug 2012 and Aug 2014, five hundred and thirty five septoplasty procedures were performed in Loghman Hakim general hospital. Of these, 312 met our inclusion criteria from which 172 were male (55.1%) and 140 were female (44.8%). The age of patients ranged between 18 and 67 (mean=27.4±6.4).

Acute hemorrhages happened in 5 cases (1.6%). The source of bleeding was inside the flap cavity in 4 cases and inferior turbinate in one case. All

of them managed with extra packing and no one needed to bring back to the operation room to perform a surgical hemostasis. In 12 patients (3.9%) epistaxis happened after the removal of nasal packing in second postoperative day. All of these managed by ordinary application of vasoconstrictor agent.

We did not encounter any case of CNS complications in our patients. No one had complication with skull base problem such as CSF leak, meningitis, intracranial hemorrhage or orbital complications. Four patients (1.3%) experienced abnormally high levels of pain. While the mean pain score in our patient was 6.2±1.3, these four stated the pain score to be over 9. There was no explanation for this and none of them developed other complications such as infection or hematoma. The pain responded to systemic analgesics and subsided by the first post-operative week. Numbness in the upper central teeth and adjacent gum happened in 7 (2.2%) patients and remained unchanged in 6 ones (1.9%) in 6 month follow-up. We found septal hematoma in 4 patients (1.3%). All of them were identified in the second post-operative day right after removal of nasal pack. They were managed by needle aspiration and replacement of nasal pack. The pack remained for three extra days and antibiotic coverage prescribed. This method was successful in all cases but not in one (0.3%) who developed septal abscess. This patient was managed by operative drainage and irrigation of the flap cavity. Inpatient parenteral antibiotic prescribed for two days and oral antibiotic in outpatient fashion continued for 8 extra days. The patient recovered without further complications. Septal perforation was developed in 11 patients (3.5%) at six month follow-up. The perforation was anterior in 8 cases and posterior in 3. The average size of perforation was 7.3±1.4 mm. While 6 patients were asymptomatic, there were excessive crusting and occasional bleeding in 5 cases. These five patients scheduled for reconstructive surgery. Anosmia was present in 14 (4.5%) patients. Twelve of them had anosmia prior to surgery while this was a new

phenomenon in 2 cases (0.6%). On the other hand, out of 56 patients who had complaints of anosmia before surgery, forty four (78.5%) recovered after surgical correction of nasal airway by septoplasty.

Remained deviation was the most common finding in 6 month follow-up and it was found in 82 patients (26.2%), but symptoms of nasal obstruction which assumed to have correlation with remained deviation was found only in 10 cases (3.2%). These patients scheduled for revision surgery. Synechiae was present in 11 patients (3.5%). All of them underwent division and packing in outpatient fashion under local anesthesia. This procedure was successful in all cases.

Discussion

Septoplasty complications may be divided into functional and aesthetic groups (3). Aesthetic complications are post-operative deformities which are directly related to over-resection of cartilage. Saddle nose, widened nasal base, loss of tip projection and cartilage dislocations are the most common aesthetic complications.

Functional operative complications such as hemorrhage, septal hematoma, septal abscess, septal perforations and anosmia have been frequently reported (4). Life-threatening complications are skull base and intracranial injury including traumatic CSF leak, meningitis, pneumocephalus, subarachnoid hemorrhage, subdural abscess and brain abscess (2).

In our study on 312 cases that underwent septoplasty, we found early bleeding in 5 cases. Despite there is a huge amount of information about the pre-operative drug of choice for reduction of intra-operative blood loss; the published literature lacks adequate information about the rate and method of management for early bleedings after septoplasty (5-7). We found bleeding to happen in 1.6% of cases and the management seems to be not different from other cases of epistaxis. Flap complications including subperiosteal hematoma and abscess happened in 1.3% of patients. Our standard method consists of

both trans-septal mattress sutures and intra nasal packing for 2 days. We believe that this combination is an assurance for low rate of flap complications and post-operative bleeding. Synechiae was present in 3.5% of patients. Despite some previous studies recommended splints (7), we didn't use internal septal splints because we found it very uncomfortable for the patients. Considering our results, it seems that meticulous manipulation of the flaps and avoiding flap ruptures and injury of adjacent tissues especially inferior turbinate besides careful packing can reduce the likelihood of intranasal synechiae even in the lack of an internal septal splints. Septal perforation happens when two opposing mucosal flaps in both sides of the nose are lacerated and there will be a tissue loss. This presents itself with whistling, sense of nasal obstruction, excessive dryness and frequent epistaxis. This usually mandates a reconstructive surgery (7). We encountered this complication in 3.5% of cases. Conservative elevation of flap and preventing the unnecessary tearing may prevent the occurrence of this complication.

We did not encounter any CNS or orbital complications. Conventional septoplasty rationally should not lead to this kind of complications. Using sharp cutting devices instead of shearing and pulling the bone will decrease the probability of skull base and intracranial events (2).

Anosmia may happen due to diminished air flow. Abnormality in the olfactory mucosa and nerve can also be the etiology of anosmia. In our study, 2 new cases of anosmia happened after surgery. This may be due to mucosal injury in the area of cribriform plate, internal valve problems and traumatic assaults to the olfactory fiber secondary to the osteotomy or resection of a thick deviated perpendicular plate. Hypoesthesia of the upper central teeth is commonly due to involvement of nasopalatine nerves where it passes through the incisive foramen. It may be injured during the resection of deviated osseous crest (8). The most common complication in our study remained septal deviation. On the other hand, we can

propose the remained deviation can be considered as a complication only if it presented with signs and symptoms. The septum can rarely be straightened completely and maintaining an open and reliable airway should be considered as the goal of septoplasty.

CONCLUSION

Septoplasty may have several complications. Most of them are technique dependent and a good conservative surgical approach can minimize the risk. The most common complication remains deviation followed by synechiae and perforations. Severe complications such as CNS and orbital penetration are extremely uncommon.

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