

Post-rhinoplasty Sinonasal Symptoms

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ABSTRACT

Background: Rhinoplasty is one of the most common aesthetic procedures. It has several potential complications. There is no systematic study with direct focus on these complications.

Purpose: To evaluate the likelihood for occurrence of different complications following septorhinoplasty.

Methods: One hundred and fifteen patients who underwent rhinoplasty were observed for post-operative occurrence of nasal obstruction, hyponasal speech, post nasal discharge (PND), rhinorrhea, facial congestion and headache. They were also examined for aesthetic results of the surgery and asked about their satisfaction about the external shape of the nose as well as overall satisfaction of surgery.

Results: Twenty-one patients developed sinonasal symptoms after surgery. The most annoying symptom was permanent unilateral nasal obstruction, which was observed in 38% of patients followed by long lasting PND (19%), anosmia (14%) and altered voice resonance (9%). Five patients eventually underwent surgery due to their functional problems.

Conclusion: Rhinoplasty and septorhinoplasty have numerous complications. Nasal obstruction, PND and anosmia are the most common. A careful follow-up is required for diagnosis and appropriate treatment of these complications.

Keywords: Rhinoplasty; Post-operative Symptoms.

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INTRODUCTION

Rhinoplasty is one of the most common nasal procedures. It is often performed in conjunction with septoplasty (1). Theoretically, nasal airway and sinonasal function should not be altered during rhinoplasty or it should get better. In reality, there are numerous post-rhinoplasty patients with new or sustained sinonasal symptoms.

In a number of patients, the symptoms initiated after surgery and in others, the pre-operative symptoms were not completely recovered or even they have become worse post-operatively (2). Even though this issue seems to be very frequent and can potentially impose a considerably difficult situation both for the patient and the surgeon, it has not been reviewed and there was not enough studies to find out the right prevalence of postrhinoplasty sinonasal symptoms.

PATIENTS and METHODS

Patients who underwent rhinoplasty or septorhinoplasty included in this retrospective study. Patients who had complaint of nasal obstruction, congestion, hyponasal voice,

continuous post nasal discharge (PND), continuous rhinorrhea and history of rhinitis were excluded from study. The patients who were diagnosed with polyposis, chronic rhinosinusitis (CRS) or rhinogenic contact point headache (RCPH) were also excluded from this study. At the end, one the hundred and fifteen patients were enrolled in the present study. They were informed about the conditions and methods of the study and written consent were obtained from participant. All patients underwent rhinoplasty using open approach. Depending on the condition, standard techniques were used to address each patient's problem. Cartilaginous grafts for reconstruction of internal valve (spreader grafts), external valve (alar cartilage strut) or columella were used when it was necessary. No obvious septal deviation left untreated. The patients were followed up for at least 6 months and then underwent physical examination and they were asked to fill a questionnaire regarding their sinonasal symptoms. We investigated post-operative occurrence of nasal obstruction, hyponasal speech, PND, rhinorrhea, facial congestion and headache.

They were also examined for the aesthetic results of the surgery and they were asked about their satisfaction about the external shape of the nose as well as overall satisfaction of surgery. The data was analyzed by SPSS v. 19 for windows.

RESULTS

One hundred and fifteen patients underwent rhinoplasty or septorhinoplasty from which 76 (66.1%) were female and 39 (33.9%) were male. The mean age was 27.2 ± 5.2 . Overt septal deviation was present in 89 cases (77.4%). Hump removal and lateral osteotomy performed in all patients. Spreader graft inserted in 45 (39.1%), lateral crural strut graft in 12 (10.4%), Gunter's graft in 8 (6.6%) and columellar strut graft in 102 (88.7%) patients.

The patients were followed up for at least 6 months (12.4 ± 6.1). One hundred and one cases (87.8%) were satisfied with the external nasal appearance. The remaining had some complaints about the aesthetic issues, which led to revision surgery in 7 patients (6.1%).

On the functional point of view, 21 patients developed sinonasal symptoms after surgery. There were 12 patients (10.4%) with minor symptoms namely sensation of alternating nasal blockage especially during nighttime and sense of abnormal cooling of the nasal tip. On the other hand, in 9 patients (7.8%) the symptoms were interfering with normal function. The most annoying symptom was permanent unilateral nasal obstruction followed by long lasting PND, anosmia and altered voice resonance. Five patients eventually underwent surgery due to their functional problems. Examination of patients 6 month after surgery, the retained septal deviation was present in 24 patients from which 11 ones were symptomatic. Obstruction of internal nasal valve was evident in 3 patients and collapse of external valve was present in 2

cases. All the cases with internal or external valve disorders were symptomatic. One patient diagnosed with chronic rhinosinusitis, which was confirmed afterward by imaging techniques. In 5 symptomatic patients there was no obvious abnormality in physical examination. Four patients underwent revision surgery due to functional issues. In one case, functional and aesthetic issues treated simultaneously in a revision surgery.

DISCUSSION

Rhinoplasty is one of the most common aesthetic surgeries around the world. Nose and paranasal sinuses have very complicated anatomy and numerous factors can alter the function of the airway and drainage of sinuses (1, 3). The valve areas of the nasal airflow passage have special importance during rhinoplasty. During rhinoplasty, the relation between nasal bones, upper lateral cartilage and nasal septum usually alters and the internal valve area is prone to change. This area has triangular shape and is confined by upper lateral cartilage laterally, nasal septum medially and inferior turbinate inferiorly (4). Disruption of the normal relation between upper lateral cartilages without an appropriate reconstruction, will lead to internal valve strictures, which can cause nasal obstruction even in the presence of a straight septum. External valve, on the other hand, is confined by lower lateral cartilage laterally, vestibular part of the nasal septum medially and nasal seal inferiorly. This area may be involved when the lateral crura of the lower lateral cartilage is weakened due to over resection or when it is weak by its own and is not addressed during the surgery (5, 6). A weak ala may pinch during inspiration and cause nasal obstruction. Theoretically, narrowing of the bony pyramid of the nose following aggressive lateral osteotomy can interfere with normal airflow.

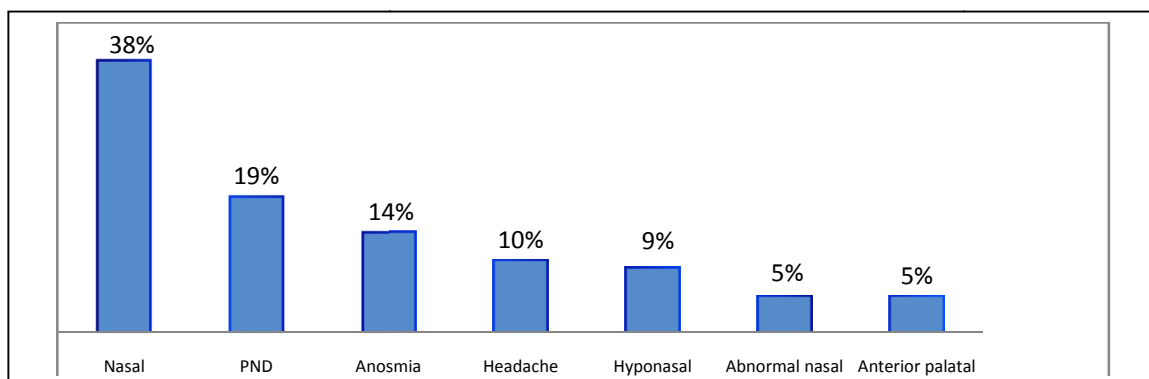


Figure 1. Primary symptoms

Adhesion and scars are other causes of nasal obstruction following any surgery that involves area including rhinoplasty and septorhinoplasty (7, 8 and 9).

Any change in the nasal airflow or drainage of the sinuses may lead to chronic mucosal change and abnormal secretions from mucosal gland. This secretion usually presents as postnasal discharges (PND). This is a very common but non-specific symptom which happens in almost all sinonasal abnormalities. Some PND after surgical manipulation of the nose and paranasal sinuses may be considered normal but long lasting PND (lasting more than 6 weeks) needs careful consideration (10).

Anosmia may be secondary to nasal blockage after surgery. A normal airflow contacting the olfactory mucosa is required for olfaction and in the lack of normal airflow there would be no sense of smell. On the other hand, surgical trauma specialty in anterior skull base may lead to partial or even complete injury of the fibers of the olfactory nerve that result in permanent olfactory loss (11, 12).

Hyponasal speech usually arises from an obstruction that blocks the airflow from nasal passages either in nasopharynx or nasal cavities. In post-operative patients, altering of the characteristics of the nasal passages usually leads to a change in the resonance of the nose, which is almost always, hyponasality. It may become the first and the most annoying symptom of the patient (3).

Headache after surgical manipulation of the nose and nasal cavity may have numerous reasons. An underlying headache may exist and it may be flared up after surgery and anesthesia. On the other hand, headache may be a presentation of the underlying sinonasal inflammatory disease. An important issue will be rhinogenic contact point headache (RCPH), which is a headache that arises from contact between two opposing mucosal surfaces. There may be some abnormalities in the nasal cavity and after performing osteotomies and cartilaginous manipulations, these underlying anatomical variations show themselves as mucosal contacts and RCPH. This kind of headache is relatively hard to be diagnosed and ruling out other possibilities in the presence of a supporting imaging study often would make the appropriate diagnosis (5).

In our study, the most common symptom was nasal obstruction. According to Palesy T. et al., successful rhinoplasty has little effect on

resistance in nasal valve. Patient may feel a relief because of appropriate changes in collapsibility of the area. The authors emphasized on the importance of lateral nasal wall reconstruction after surgery, which may lead to valve problem and consequently nasal obstruction (1). Adamson PA et al. also stated that successful reconstruction of a vestibular stenosis, airflow indexes come back to normal ratios and nasal obstruction relieves (2).

We can justify our results about nasal obstruction by discussing about the problems that can lead to this symptom. Obviously nasal septal deviation and valve area conditions should move toward more favorable conditions during septorhinoplasty. A complicated anatomy that is usually seen in crooked or cleft noses may restrict the surgeon's hand to achieve its goals, which will leave the nose with a partially obstructed valve or cavity. On the other hand, adhesions and narrowing of air passage secondary to osteotomies may contribute to the post-operative results.

There are not many reports with direct focus on postoperative symptom in rhinoplasty. PND has not been mentioned in literature as a possible symptom following sinonasal manipulation. Nonetheless, when PND occurs, it is very hard to treat. This might be due to its multifactorial etiology that one cannot understand where to address for appropriate management of this disorder. When PND happens after surgery, it may be due to a new sinonasal disease. We believe every one with long-lasting PND, especially when it starts after surgery and does not relieve in a reasonable time, needs to be evaluated by imaging modalities. Upon diagnosis of rhinosinusitis, an appropriate medical or surgical treatment should be initiated. Although Razmpa et al., noted that rhinoplasty did not alter the olfactory function (11). Our results showed that, up to 2.6% of patients experienced olfactory malfunction following the surgery. This risk must be mentioned in pre-operative interview sessions. We found no report about the relation between hyponasality and rhinoplasty. There are a considerable percentage of patients who experienced resonance problem especially hyponasality after surgery. In some of these patients nasal obstruction is not evident or it is minimal. We believe that resonance problems should be considered as a separate complication of the surgery. It is very hard to treat and should be mentioned in pre-operative interview sessions.

In our patients, no new headache case needed revision surgery. It seems reasonable to look for the possible etiologies of a new headache following the surgery and try to treat it with surgical revision.

CONCLUSION

Rhinoplasty and septorhinoplasty have numerous complications. the most common complications are Nasal obstruction, PND and anosmia. A careful follow-up is required for diagnosis and appropriate treatment of these complications.

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