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AUGMENTATION RHINOPLASTY USING AUTOLOGOUS INFERIOR TURBINATE BONE

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ABSTRACT

BACKGROUND: Augmentation rhinoplasty is performed to correct saddle nose deformity both close and open approaches are used for augmentation, each having its oven merits and demerits. A wide variety of graft material i.e autologus cartilage, bone and synthetic materials are used, each having its own advantages and disadvantages, we want to introduce a new graft material to the armamentarium, which is easily available and not associated with a second site operating morbidity.

OBJECTIVES: To document the long-term advantages and disadvantages of inferior turbinate grafts used to correct saddle nose deformity. Additionally, to evaluate functional improvement and cosmetic satisfaction with the use of inferior turbinate bone as a new graft material.

MATERIAL & METHODS: it is a Retrospective chart review study conducted in Department of Otorhinolaryngology and Head & Neck Surgery, Saidu Group of Teaching Hospitals Saidu Sharif Swat and Hayat Medical Complex Peshawar from July 2005 to July 2013. Data was collected of all patients who underwent closed augmentation rhinoplasty for saddle nose deformity. Data was reviewed for age and gender of the patient, aesthetic assessment from patient as well as surgeon perspective and the complications of the surgery. An autologous demucosalized inferior turbinate bone graft was used as a graft material. Photo documentation were obtained before surgery, during surgery and after two weeks, three months, six months and one year.

RESULTS: Out of 30 patients, 19 (63%) were male and 11 (37%) were female. Twenty one (70%) were in age group 20-29, 8 (26%) in age group 30-39 & one (4%) were in age group 40 -49 years. Only 2 of the 30 patients were dissatisfied with the overall outcome. Twenty Three (77%) were extremely satisfied, 07 (23%) were satisfied Table 03. In terms of function, ten (34%) experienced excellent relief in nasal obstruction, 9 (30%) moderate relief, 7(24%) mild relief, and four (13%) noted no difference. Regarding cosmesis, twenty (67%) noted excellent improvement, four (13%) moderate improvement, four (13%) mild improvement, and two (6 %) noted no significant change. One (3%) patient reported cyst formation at the dorsum 6 year after the operation. He was explored and managed via open rhinoplasty approach.

The indication of augmentation rhinoplasty was nasal deformity along with nasal obstruction in 21 (70%) patients whereas 09 (30%) patients requested for cosmetic reasons only.

CONCLUSION: The inferior turbinate bone is a viable graft for augmenting saddle nose deformity. Moreover, it maintains dorsum shape and needs little remodeling. The graft is easy to harvest, prepare, and place and can be used without requiring a second operative site.

KEY WORDS: Saddle nose deformity, Augmentation rhinoplasty, autologous inferior turbinate graft.

INTRODUCTION

Nose is one of the most striking components of the face in aesthetical respect as even minimal anomalies attract attention. Dorsum defects of the nose not only create an undesirable aesthetical appearance but may lead to functional problem that seek surgical care. Augmentation rhinoplasty techniques are used to repair dorsum saddle defect. Graft materials are the key point of these surgeries; however, ideal graft material remains controversial. Alloplastic material are advantageous for being

readily available, easy to shape and without any donor site morbidity [1-2], but they pose the risk of infection and extrusion[3]. Bone and cartilage are frequently used as autogenous grafts[4-5]. Cartilage graft may be harvested from nasal septum, auricular or rib depending on the needed amount of cartilage and availability. Bone graft may be harvested from calvarium, rib, iliac crest, inferior turbinate or nasal crest of the maxillary bone[6]. These autogenous graft do not have compatibility problem on the other hand, fashioning these grafts to the desirable shapes may be challenging[7]. As the success of augmentation rhinoplasty operation are determined by milimetric ratios of the size of the grafts, experience and solicitude of the surgeon become critical[8-9]. The purpose of the present study is to share our experience with this technique and to present the long term aesthetic and functional results of augmentation rhinoplasties with autogenous inferior turbinate bone graft.

MATERIAL AND METHODS

The study was conducted in department of Otorhinolaryngology and Head & Neck Surgery, Saidu Group of Teaching Hospitals Saidu Sharif Swat and Hayatabad Medical Complex Peshawar. We conducted a retrospective medical records review of 30 cases from July 2005 to July 2013, in which inferior turbinate bone graft was used for repair of saddle nose deformities. Medical records were reviewed for gender and age distribution, etiology and complications such as infection; graft extrusion, resorption and dislodgement. Furthermore all the photographs taken before and after the procedure in each follow up visits were reviewed. In addition, aesthetic appearance was evaluated by the surgeon and patient at each follow-up visit.

TECHNIQUE

All the procedures were performed under general anesthesia. First inferior turbinectomy was done, bone and soft tissue were trimmed and graft molded according to the shape of saddle. A vertical mid line columellor incision was made and closed rhinoplasty approach was carried out. Then a narrow tunnel was created in the soft tissue beneath the skin with fine mosquito's straight artery forceps and molded graft inserted in the dorsal tunnel to correct the deformity. The columellor incision was closed with non-absorbable suture 6/0 proline. Intra nasal splint put in for 10 days, no external splint age were applied in any case, anterior nasal packing done for 24 hours. Pre-Operative prophylactic intra venous antibiotic were given and post operatively patient continued on oral antibiotic for seven days. Serial photograph taken with consent of the patient before surgery, during surgery and after two weeks, three months, six months and one year.

RESULTS

Out of 30 patients, 19 (63%) were male and 11 (37%) were female (Table 01).

Table No: 01 Gender Distribution

Sex	No of Patient	Percentage
Male	19	67%
Female	11	37%

Twenty one (70%) were in age group 20-29, 8 (26%) in age group 30-39 & one (4%) were in age group 40 -49 (table 02).

Table No: 02 Age Distribution

Age group	Percentage
20-29	70%
30-39	26%
40-49	04%

Only 2 of the 30 patients were dissatisfied with the overall outcome. Regarding patients satisfaction Twenty Three (77%) were extremely satisfied, 07 (23%) were satisfied (Table 03).

Table No: 03 Overall Satisfaction of patients

Extremely satisfy	Just satisfy
77%	23%

In terms of function, ten (34%) experienced excellent relief in nasal obstruction, 9 (30%) moderate relief, 7(24%) mild relief, and four (13%) noted no difference (table 04).

Table No: 04 Patients Satisfaction in terms of nasal obstruction

Level of Satisfactions	Excellent	Moderate	Mild	No Difference
No of Patients	10	09	07	04
Percentage	33%	30%	23%	13%

Regarding cosmesis, twenty (67%) noted excellent improvement, four (13%) moderate improvement, four (13%) mild improvement, and two (6 %) noted no significant change (table 05).

Table No 05 Patients Satisfactions in terms of cosmesis

Level of Satisfactions	Excellent	Moderate	Mild	No Difference
No of Patients	20	04	04	02
Percentage	67%	13%	13%	6%

One (3%) patient reported cyst formation at the dorsum 6 year after the operation. He was explored and managed via open rhinoplasty approach.

The indication of augmentation rhinoplasty was nasal deformity along with nasal obstruction in 21 (70%) patients whereas 09 (30%) patients requested for cosmetic reasons only.



DISCUSSION

When searched on Pak Medinet, we could not find any original or review article/ report in Pakistani medical journals on the use of autologous inferior turbinate bone for the correction of saddle nose deformity and its results in Pakistani population. The demographic analysis of our study population revealed that majority of our patients were males (64%) and most of them were (70%) between the ages of 20 to 30 years. The underlying fact might be that this age group is usually more concerned about cosmetic appearance of the face. In adolescent population, there is complex interplay of psychological, social and physiological factors that should be given due importance to avoid conflicts over the post operative aesthetic results of augmentation rhinoplasty[10]. Females especially those belonging to lower and middle class, have lesser opportunities of health care due to our specific cultural and socioeconomic setup. This aspect is more pronounced when it involves undergoing a surgical procedure solely for cosmetic reasons. This feature is reflected in our study as only 36% of our patients were female We did not offer rhinoplasty to patients less than 20 years of age due to the concerns that at a younger age it carries the risk of growth disturbances of nose and premaxilla[11]. Majority (70%) of our patients presented with complaints of not only cosmetic deformity of nose but also of nasal obstruction requiring augmentation septorhinoplasty. This feature was also observed in other studies[12] Trauma, congenital or developmental factors, previous septal surgery, septal infections and various granulomatous diseases are various factors which are considered to be the cause of external nasal deformity. Saeed M and Mian FA[10], in a study conducted on thirty patients undergoing augmentation rhinoplasty, found trauma to be the commonest etiological factor responsible for saddle deformity of nose in 67% of patients[10]. Although nasal trauma is considered to be the commonest predisposing factor for deviated nose, we observed that in almost half (35%) of our patients, congenital or previous septal

surgery were found to be the commonest etiological factor followed by trauma. A possible reason for this difference might be the fact that most of the childhood nasal trauma, which usually occurs during play or due to falls, are either not recognized or forgotten. Augmentation rhinoplasty is a challenging procedure and complications can arise due to in appropriate patient selection, inadequate diagnosis, errors in surgical technique, and variations in patient's anatomy or healing response[13]. We did not encounter any significant complications like extrusion or absorption of graft, post operative infection, bleeding, ecchymosis, odema or pain except in one of our patient i.e 3% who developed cyst. This may be due to our practice of using autologous bone grafts, meticulous surgical technique, keeping nasal packs for 24hrs, and routinely prescribing antibiotics and analgesics in the post-operative period.

To judge the cosmetic outcome of augmentation rhinoplasty many factors and different standards of aesthetic values are taken into consideration. Aesthetic results of rhinoplasty are usually judged by the surgeon who evaluates the results according to his aesthetic standards. Very few examples are available in literature where cosmetic outcome of rhinoplasty was evaluated from the patient's perspective.[14]In the present study both surgeon's and patient's point of view was taken into consideration for the cosmetic outcome. We categorized our results as appreciably good in 86% of cases according to surgeon's evaluation standard. Seventy six percent of the patients were satisfied while six percent were not satisfied with the final outcome of correction.

CONCLUSION

Demucosalised inferior turbinate bone graft with minimal soft tissue is a good and viable graft material for augmentation of sadal nasal deformities. Inferior turbinate bone is easily available, is taken by performing partial inferior turbinectomy carefully not to damage the turbinate bone. By taking inferior turbinate as a graft material we can avoid the complications associated with second operation that is with costal cartilage or iliac crest bone.

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