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The Wide Array of Surgical Manoevers in External Rhinoplasty

By Dr. Deepalakshmi Tanthry, Tanthry Gururaj, Devan PP, Kavitha A & Bhandary Rukma
AJ Institute of Medical Sciences, India

Abstract- *Introduction:* In the last few decades external approach to rhinoplasty has gained enormous popularity for the correction of functional and aesthetic problems of face. Our study aims to demonstrate the wide array of surgical manoeveres that can be done by external rhinoplasty.

Materials And Methods: This prospective study was done in AJ Institute of Medical Sciences. 52 patients were presenting to our outpatient department with nasal deformity with or without nasal obstruction between January 2010 to 2011 were selected.

Results: Among the 52 patients who underwent external rhinoplasty 44 (84.6%) were males and 8 (15.6%) were females. 16 (30.8%) had deviated nose, 10 (19.2%) had tension nose, 23 (44.2%) had various tip deformities and 3 (5.8%) had saddle nose.

Conclusion: External approach facilitates full exposure of osseocartilagenous vault, easy implementation of modern rhinoplasty techniques to yield an aesthetic result well balanced with other facial components.

Keywords: *rhinoplasty, external approach, tip deformities, tension nose, deviated nose.*

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The Wide Array of Surgical Manoevers in External Rhinoplasty

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I. Introduction

Among the frequently performed plastic surgery operations rhinoplasty is the most difficult to obtain consistently good results. It is very challenging for young surgeons to modify the external appearance of the nose and restore or maintain a good airway[1].External approach to rhinoplasty offers several distinct advantages over classical endonasal approach for incising, repositioning, excising and augmenting the framework of the nose for functional and aesthetic improvement[2]. This prospective study aims at demonstrating the wide array of surgical manoeveres that can be performed using external approach in rhinoplasty.

II. Materials and Methods

This study was conducted in the Department of Otorhinolaryngology and Head & Neck Surgery of AJ Institute Of Medical Sciences, Mangalore between 2010 – 2011. 52 patients who presented to the out patient department with nasal deformities alone or combined with nasal obstruction were included in the study. A detailed pre-operative evaluation including medical history, clinical examination and photo documentation was done before the surgical procedure. All the surgeries were done under general anaesthesia and inverted V shaped transcolumellar incision was used. Bilateral marginal incisions were made using no 15 blade perpendicular to the skin, pocket was created underneath skin. Marginal incisions were extended at least halfway along the vestibulum. Spreading movements using tenotomy scissors were made to obtain adequate exposure of nasal skeleton[3]. (Fig 1 External rhinoplasty) Dissection was done in direct perichondrial plane to prevent intraoperative bleeding and to enhance the healing process. Nasal septum can be accessed by dividing tissue between the medial crura or alternatively by a separate hemitransfixion or Killian's incision[4].In our study septoplasty was done by using a separate hemitransfixion incision. The harvested septal cartilage was used in various tip procedures. The graft was placed in a well defined pocket between crura and extended from 2 mm above anterior nasal spine to the angle between medial and intermediate crura. To prevent asymmetry at the caudal plane of the columella and in the dome, medial crurae were fixed temporarily with a needle after which final fixation with mattress sutures were applied with 2 O vicryl. The graft was also used to strengthen weak medial crura, correct tip asymmetries. Dorsal humps were rasped under direct visualisation where as intermediate osteotomies were done to mobilise frontal process of maxilla and their attached upper lateral cartilages. In cases of saddle nose, autologous rib cartilage was harvested and used for augmentation. The wound was closed with non absorbable 5 O ethilon and plaster of paris cast was applied. The sutures were removed along with the cast after seven days and photo documentation was done.

III. Observation and Results

Of the 52 patients who underwent external rhinoplasty, 44 (84.6%) were males and 8 (15.4%) females. Age of the patient ranged from 18 to 47 years with a mean of 28 +/- 2.2 years. Most of the patients (84%) belonged to the age group 20 to 40 years. 16 (30.8%) had crooked nose, 10 (19.2%) tension nose, 23 (44.2%) had various tip deformities and 3 (5.8%) had saddle nose. (Fig 1). The patients were followed up after 1, 3 and 6 months.

Author α: e-mail: deepalakshmitanthry@yahoo.com

IV. Discussion

External rhinoplasty is a surgical technique that allows through the transverse incision of the columella to access osteocartilaginous structures of the nose thanks to a direct and wide vision of the incision site [5]. In the last decade, external approach has gained enormous popularity in rhinoplasty. The indications are – Asymmetry of alar cartilages or upper lateral cartilages, nasal tip with lack of support, rotation or overprojection over projected nose, saddle nose or for revision rhinoplasty [3]. The common deformities of the upper two thirds of nose are – dorsal saddling, dorsal irregularities, valve collapse, open roof or polly beak deformities where as deformities of the lower two thirds of the nose are higher incidences of depressed tip, tip over rotation, tip asymmetry, retracted columella and alar notching [6]. In our study, tip deformities were the most common 23 (44.2%). Among the tip deformities, broadened nasal tip 8 (34.7%) was very commonly encountered, followed by tip rotation 6 (26%), asymmetry of nasal tip 5 (21.8%) and depressed nasal tip 4(17.3%). Structure concept of rhinoplasty advocates conservative resection of supportive tissues (cartilage and bone), preservation of major and minor support mechanisms, reconstitution of any support mechanisms divided or compromised and the use of suture techniques or grafts to increase support or provide the necessary structures that may be needed to stabilise the bone[6]. (Fig 2 Tip deformity before and after) External incision creates a large surgical access that makes it possible to model the shape of the nose by inserting and fixing cartilage grafts. External approach is more easy and accurate not only for removal of cartilage from the septum but also for more accurate and stable placement of grafts in different sites [5]. In our study, external incision offered easy exposure of the lower lateral cartilages. Excessive caudal edge of the lateral crura was excised to narrow the nasal tip and to improve the tip definition. Autologous septal cartilage was used as a graft to increase tip projection and increase the tip support. The tip graft was sutured to the caudal margin of the medial crura with 3 O vicryl to provide a bidomal tip configuration and as a solid structure that will resist the forces of scar contracture. The stability of the nasal tip requires additional sutures between the medial crura of the lower lateral cartilages[7]. Intra domal sutures were applied with 2 O vicryl to increase tip definition as well as to narrow the nasal tip in order to give a more youthful appearance. Vertical dome division using cartilage overlap and suturing to re establish integrity of alar cartilage is indicated in lobule asymmetry, retro displacement, wide domal arch, hanging infra tip lobule and rotation of the tip[8].(Fig 3 Tip before and after) This method was adopted in few cases of traumatic lobule asymmetry in our study.

The major aim of septo rhinoplasty is the treatment of overall internal and external nasal defects[9]. External approach to deviated nose lends itself well to accurate correction of such a deformity due to added exposure it provides and ability to place corrective grafts[4]. In our series, deviated nose were treated through external rhinoplasty.(Fig 4 Deviated nose before and after) Septoplasty was done via a separate hemitransfixion incision and osteotomies were performed under direct vision. External incision facilitates excellent control of osteotomies, fewer incidences of open roof and lateral step without causing visible scar[10].

Tension nose is defined as nose with high nasal dorsum with stretching of the overlying skin and soft tissue together with a highly arched and narrow nasal vault. There is an overgrowth of quadrilateral nasal septum along both dorsal and caudal aspects which exerts a pedestal effect by pushing lower lateral cartilage in a forward and downward direction, causing a blunting and anterior displacement of the nasolabial angle and shortening of the upper lip. Excision of excessive elements of nasal septum and anterior spine followed by reprojection of the domes using tip grafts and suture techniques. Such measured modifications can be performed with precision using external approach[4]. Cases of tension nose in our study were cosmetically corrected using the external approach.(Fig 5 Tension nose before and after external rhinoplasty) Common incorporation of certain manoeveres offers more consistent aesthetically pleasing and superior functional outcomes. Improved exposure afforded by external rhinoplasty has allowed for precise surgical manoeveres and makes more consistent results possible[11].

V. Conclusion

External approach will achieve better understanding of patient's individual anatomy and thus leads to a more predictable result through increased exposure and precision tailoring. The external technique facilitates the application of a great variety of tip refinements[12]. This study demonstrates that a wide range of manoeveres can be performed using external approach. The advantages are full exposure of osseocartilagenous vault, easy implementation of modern rhinoplasty techniques and tip sutures. External approach facilitates modification of nasal tip deformities and asymmetries to gain an aesthetic result balanced with other facial components.

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