

CARTILAGE WINDOW TECHNIQUE FOR ENDOSCOPIC NASAL SEPTAL DEVIATION CORRECTION

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ABSTRACT

Endoscopic septoplasty is a minimally invasive technique for correction of nasal septal deviation. It offers excellent visualization with least trauma. A retrospective study was conducted in Dept of ENT at Santosh Medical College Ghaziabad to include 50 patients who underwent endoscopic septoplasty with our novel technique. There were minimal complications with positive surgical outcomes. It helps in correction of complex deformities and deviations of septum. This makes it an ideal teaching technique.

INTRODUCTION

Nasal Obstruction is one of the most common symptoms amongst patients visiting to ENT OPD. Various structural and physiological pathologies can be the cause of obstruction. Deviated Nasal Septum is noted in about 30-40 % of patients presenting to ENT OPD with obstruction¹. Surgery of deviated nasal septum is the main stay of treatment. There has been a gradual change and advancement of surgeries for DNS over the years ranging from radical Sub Mucosal Resection to conservative septoplasty.

The first attempt at nasal endoscopy is largely credited to Hirschman in 1901. Professor Harold H. Hopkins developed the rod optic endoscope system, advanced and updated versions of which are still used for various endoscopic sinonasal surgeries². In 1991 Lanza et al and Stammberger described use of endoscopic techniques for septal deformity correction. The use of rigid endoscopes in nasal diagnostic technique helps in identification of exact site and severity of septal pathologies along with any lateral wall anomalies. The endoscope aided septal surgery is gives minimum trauma to mucosa of septal flap and gives excellent visualization. It specially helps in cases of posterior septal deviation and revision surgery candidates.^{3,4}

In this paper we present our experience in 50 cases of endoscopic septoplasty in terms of indication, our technique and results.

MATERIAL AND METHODS

A retrospective study was designed to study to include 50 cases of endoscopic septoplasty done from January 2020 to September 2022 in Dept of ENT at Santosh Medical College Ghaziabad. The patients included 36(72%) male and 12(28%) females in the age group of 18-54 years.

50 patients , who presented to ENT OPD for nasal obstruction as main complain and DNS was confirmed on anterior rhinoscopy were included in the study. Diagnostic Nasal Endoscopy and Non contrast tomography of nose and para nasal sinuses was performed on all patients to assess the lateral wall pathologies. Patients suffering from medical conditions like diabetes mellitus, hypertension, coronary artery disease, nasal malignancy and with history of previous nasal surgery were excluded from the study.

Patients were counseled regarding the available treatment modalities and need for surgery. They were made aware of benefits and risk and complications of surgery and a written informed consent is taken. The surgery was planned under general anaesthesia and preoperative anaesthetic clearance. A standard procedure was followed in all patients as mentioned .

Patient is positioned supine with head end elevated to 15degrees. Bilateral nasal cavity are packed with with ribbon gauze soaked in a solution of 1:1000 adrenaline under endoscopic vision. 0 degree rigid 4mm endoscope is used to perform repeat diagnostic nasal endoscopy after maximum medical decongestion(fig 1). The site and dimensions of spur and DNS are noted and surgical step planning is done.

Local infiltration is given with 2% xylocaine with 1: 1lac adrenaline. 26 G needle is used for caudal end infiltration to prevent any mucosal tears and anterior to posterior infiltration infiltration is preferred.

Incision is given on convex side of septum just anterior to the mucocutaneous junction(fig 2). The thickness of skin at this point given advantage and decreases chances of flap tears. The anterior tunnel is created by raising the mucoperichondrial plane on the non deviated side. Anterior tunnel is extended inferiorly and posteriorly if vision is not compromised. The flap is not to be raised beyond the deviated part as blind elevation increases chances of tears. The interchondral incision is given with back of blade or sharp edged freers elevator almost 1cm behind the columella (fig 3). This piece of cartilage prevents any post operative tip deformities. The cartilage is cut and opposite side of mucoperichondrial flap is elevated with suction elevator (negus) or freers elevator. After raising both sides flap a incision is given on cartilage as high leaving cranial strip intact. A cartilage window is created using Ballenger swivel knife(fig4) . This step provides extra space and better visualization for further instrumentation(fig 5). Inferior cartilage strip is removed from maxillary crest by swinging it out posteroanteriorly. In cases of sharp spur , the cartilage or bone surrounding and above them are removed in piecemeal with Lucs forceps. The flap is not directly elevated above them. Freers elevator is placed between flap and spur and sharp projection is pushed medially and removed after rotating the sharp axis. This prevents trauma to flap while removal. Similar process is followed for maxillary spurs and spur is chiseled of the maxillary crest.

Flaps are repositioned and nasal cavities are inspected for patency. Hemostasis is done and bilateral nasal cavities are packed with available nasal sponge packs.

Postoperative regimen includes antibiotics, analgesics and oral decongestants along with supportive medications. Nasal packs are removed 48hrs after surgery and patients are discharged on oral medications. Alkaline Nasal douching was started from next day. Routine follow-ups were done of Day 7,14 and 28. Routine post operative DNE was done on day 14.

RESULTS

A study was done on 50 patients visiting RNT OPD of Santosh Hospital and Medical Collge, Ghaziabad. Patients belonged in the age group of 18-54 yrs of age, with mean age of 36 years. Male to female ratio was 3:1. Most common complain was of unilateral nasal block followed by facial heaviness. Mean surgical time was 96mins. Amongst complications septal hematoma was noted in one patient, with no incidence of septal abcess and septal perforation. Mucosal flap tears were present in 13 patients. Residual deviation was present in 2 patients, which improved following revision surgery.

DISCUSSION

Septoplasty is a routine nasal surgery to provide relief from nasal obstruction due to deviated nasal septum. Endoscopic septoplasty is a minimally invasive modification of head light septoplasty which offers excellent visualization. It corrects DNS but also improves access for lateral wall surgeries. Endoscope helps surgeon to get direct visualization of sharp cartilaginous and bony spurs, enabling complete corrections with minimal injury to surrounding structures. It provides as an excellent teaching tool that enables better understanding of septal anatomy and surgical steps.

In our study we included 50 patients from 18-54 years of age, 18 being the youngest. However, septoplasty can be performed even in children as young as 4yrs old in case of clear indications 5. Postoperative complications like septal hematoma was found in only one pt, while residual deviation was noted in two patients. Mucosal Flap tears were noted in 13 of 50 patients most of which were located along the axis of sharp spur. There was no incidence of septal abscess and perforation in our study. Thus incidence of complications during endoscopic septoplasty is very low as is supported with literature.^{6,7}

Our technique of endoscopic septoplasty is different as we create a cartilage window first before approaching bony cartilaginous junction. This enhances visualization, provides space for instrumentation. It aides visualization of posterior septal spurs. Spur lifting helps in preventing flap tears .It doesnot lead to recurrence of deviation due to cartilage memory. All this makes it different and unique technique. The rate of intraoperative and postoperative complications is low and gives adequate relief to complains of nasal obstruction in the patients.

CONCLUSION

Septoplasty is a routine nasal surgery to provide relief from nasal obstruction due to deviated nasal septum. Endoscopic septoplasty is a minimally invasive method which provides excellent visualization with minimum injury to surrounding structures. There are least postoperative complications. Our technique helps in creating more space for surgical field in cases with acute deviations and sharp spurs. It is a novel technique in this regard.

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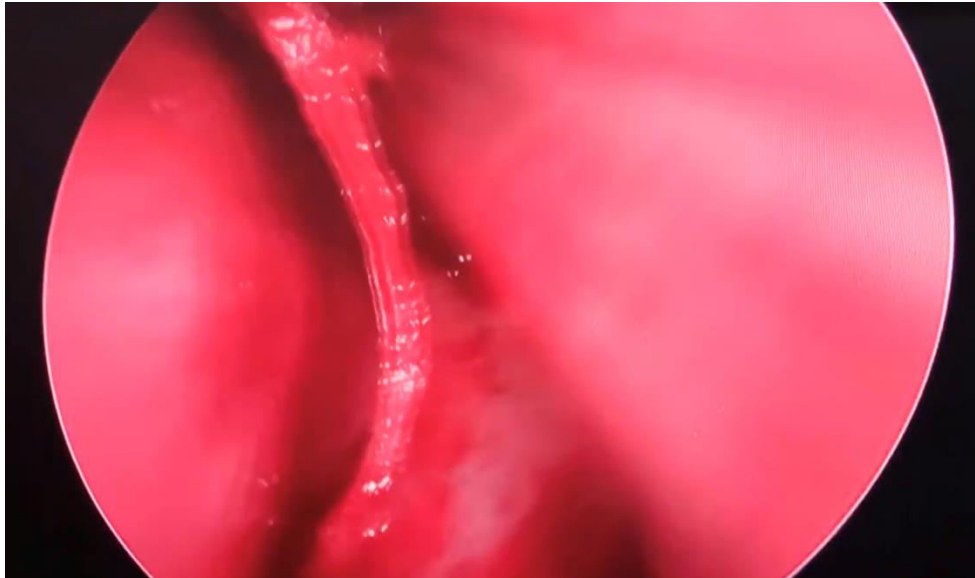


FIGURE 5: SPACE CREATED BETWEEN FLAPS POST CARTILAGE WINDOW

HELPING IN
BETTER
VISUALISATION
OF POSTERIOR
SHARP BONY
SPUR



FIGURE 1 : Diagnostic nasal endoscopy showing sharp septal spur obscuring view of choana



FIGURE 2: INCISION AT THE ANTERIOR PART OF SEPTUM TO GAIN ADVANTAGE OF THICK SKIN

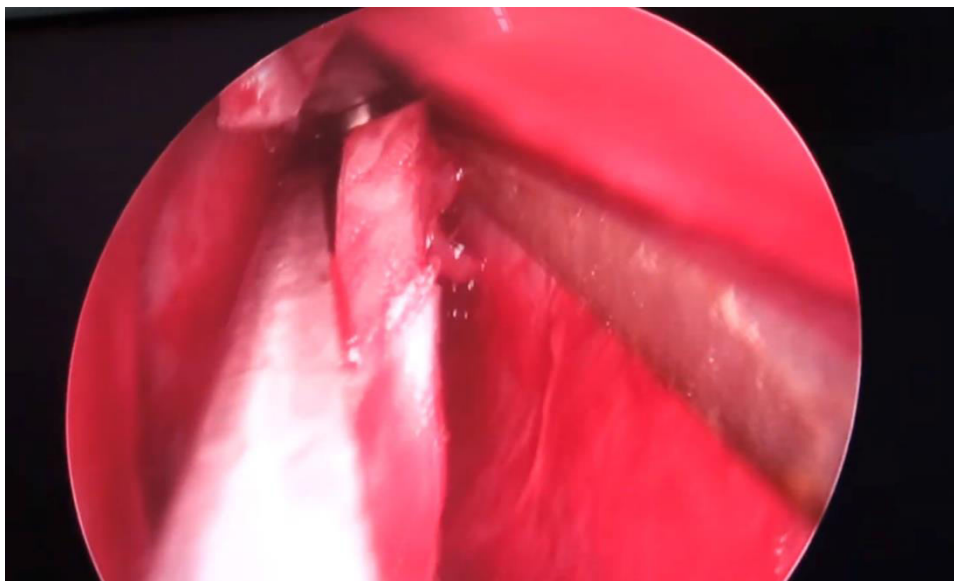


FIGURE 4: BALLENGER SWIVEL KNIFE USED TO MAKE CARTILAGE WINDOW.

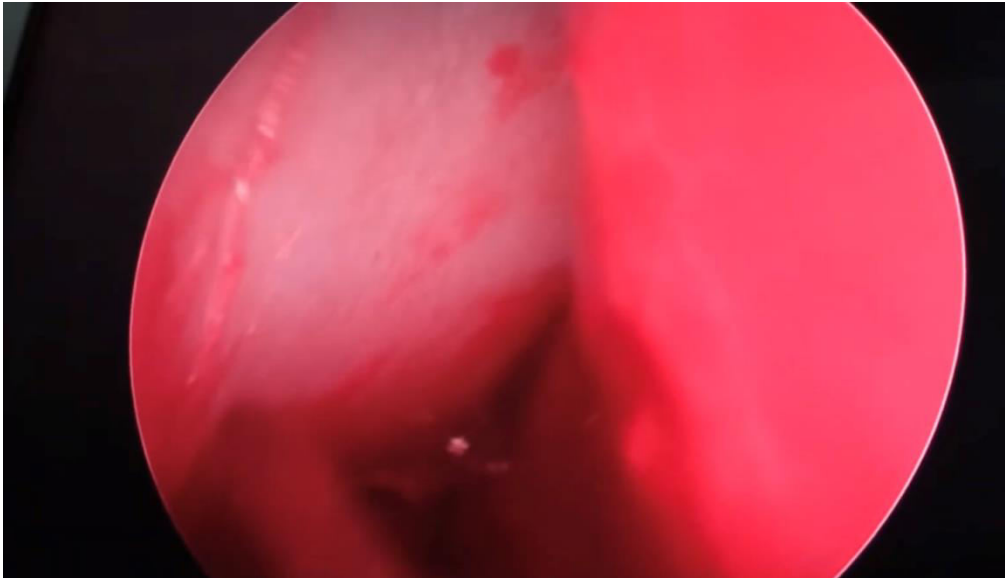


FIGURE 3: INTERCHONDRAL INCISION BEING MADE AT THE ATERIOR PART OF CARTILAGE AFTER SECURING DORSAL STRIP