



A “Non Intersecting Two-Incision” Endoscopic Technique For Septal- Spur Resection

¹Dr. Rajesh Boddepalli, ²Dr. Sowmya Annepu *, ³Dr. Jayashree Cheedi, ⁴Dr. Babu Prasanth Lagisetty

¹M.S (ENT), ²M.S (ENT), ³M.S (ENT), ⁴MBBS

¹Assistant Professor, ²Assistant Professor, ³Senior Resident, ⁴Junior Resident

Department of ENT,

Maharajah Institute of Medical Sciences, Nellimarla, Andhra Pradesh

***Corresponding Author:**

Dr. Sowmya Annepu

M.S (ENT), Assistant Professor, Department of ENT,

Maharajah Institute of Medical Sciences, Nellimarla, Andhra Pradesh

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Septal spurs are a common cause of nasal obstruction in India. This study presents a novel, minimally invasive two-incision endoscopic septoplasty technique. Compared to traditional methods, this technique emphasizes mucosal preservation through a unique flap design and minimal dissection. A controlled study in 50 patients demonstrated remarkable reduction in intraoperative bleeding, along with favorable patient satisfaction and rapid recovery. This modification offers a promising alternative for septal spur correction, potentially improving patient outcomes and establishing itself as a standard practice in septal surgery. Further research with larger cohorts is recommended to confirm the long-term benefits of this technique.

Keywords: septal spur, deviated nasal septum, non-intersecting two incision

Introduction

Deviated nasal septum is one of the most common clinical condition encountered by otorhinolaryngologists. The septal deviations may range from a mild deviation from midline to gross deviation impinging onto the inferior turbinate or middle turbinate laterally. Septal spur exists as an acute angulation at the bony cartilaginous junction and is usually associated with nasal obstruction, epistaxis or sometimes causes headache (sluders neuralgia/ anterior ethmoidal nerve syndrome). Septoplasty is the surgical procedure performed to correct the septal deviations and various techniques have been evolved. Presence of septal spur makes the procedure difficult, as there is a risk of tear in the mucosal flap during elevation. Various approaches/ techniques have been described to address the nasal septal spurs like endoscopic septal spur resection and open book method. In this report, we want to discuss and share our experience of a new non-intersecting

two-incision technique of addressing the septal spurs, to assess and correct the deformity with ease and without any tears during the mucosal elevation. The main motto of our new technique is to respect the nasal mucosa during nasal surgery and thereby preserving the normal architecture.

Materials and Methods:

We have performed the modified new procedure in a total of 50 patients with septal spur. Mild grade septal spurs could be easily addressed under endoscopic guidance through the traditional freer's or killian's incision. But gross septal spurs impinging onto the lateral wall are difficult to operate, due to narrowed space and inability to negotiate the instruments resulting in high chances of tearing the mucosal flap during elevation. Hence, we applied our new technique for gross deviations i.e. septal spurs with grade 4-6 according to Baumann's classification.

Surgical Technique:

Patient Preparation:

The patient is positioned supine on the operating table, and general anesthesia or local anesthesia with sedation is administered based on the patient's medical condition and the surgeon's preference. Decongestant nasal sprays are applied to the nasal passages to reduce mucosal swelling and improve visualization.

Preoperative Endoscopy:

The endoscope is introduced into the nasal cavity to gain knowledge of patient's septal anatomy, nasal mucosa is inspected, the severity of septal deviation, length of spur and its impingement on lateral wall are analysed.

Anesthesia:

The nasal cavity on both sides is packed with ribbon gauze soaked in 4% lignocaine with adrenaline (1:100000) at the beginning of the surgery and removed. 2% lignocaine with adrenaline is used for infiltration all along the length of septum on both the sides.

Incision:

A vertical incision is made just behind the mucocutaneous junction on the side of deviation (Figure 1) along with the cartilage without tearing the opposite side mucoperichondrial flap. An additional horizontal incision is given along the length of convexity of the spur, approximately perpendicular to the first incision, but not intersecting each other (Figure 2). We ensured a minimal distance of 1 cm between the two incisions. The maintained mucosal attachment between the two incisions helps to give support to the flap and keeping it well approximated to septum.

Flap Elevation:

Mucoperichondrial flap is elevated up to the level of the spur. opposite side flap is also elevated through the incised septal cartilage along the deviation taking utmost care at the gutter. Then the septal mucosa over the Spur is elevated superiorly and inferiorly through the previously given horizontal incision (Figure 3). The deviated part of the septum along with the spur are exposed, incised and removed in piecemeal.

Closure:

Nasal packing and a nasal Merocele pack may be utilized as deemed appropriate by the surgeon to minimize the risk of postoperative bleeding or septal hematoma.

Advantages of our technique:

❖ **No suturing required:** The incisions made over the mucosa do not have any loose ends, even if larger portion of septal cartilage is removed along with the spur, no approximation or suturing is required.

❖ **Easy access to the spur:** The spurs which are impinging into the structures of the lateral wall of nose and have no space for instrumentation, can be easily accessed as horizontal incision is given directly over the spur.

❖ **Natural Support:** The mucosal attachment between the incisions and the careful elevation of the flaps avoids the need for quilting sutures. The natural support provided by the mucosal attachments maintains proper approximation of the flaps and adhere to the septum throughout the healing process.

Preventing Flap Displacement: The non-intersecting nature of the vertical and horizontal incisions prevents the elevated inferior flaps from falling on the floor due to gravity postoperatively while healing, ensuring their continued approximation and alignment.

Figure 1- Vertical incision given behind the mucocutaneous junction

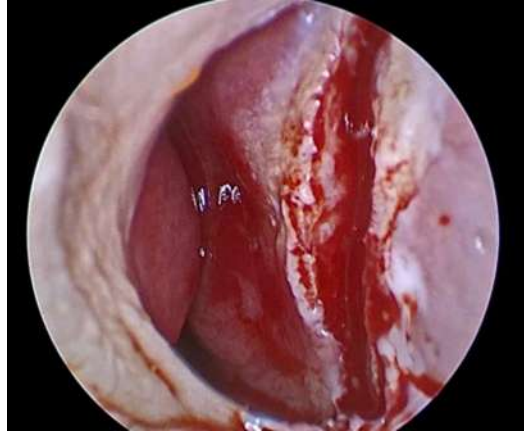


Figure 2- Horizontal incision along the convexity of the spur without joining the first incision

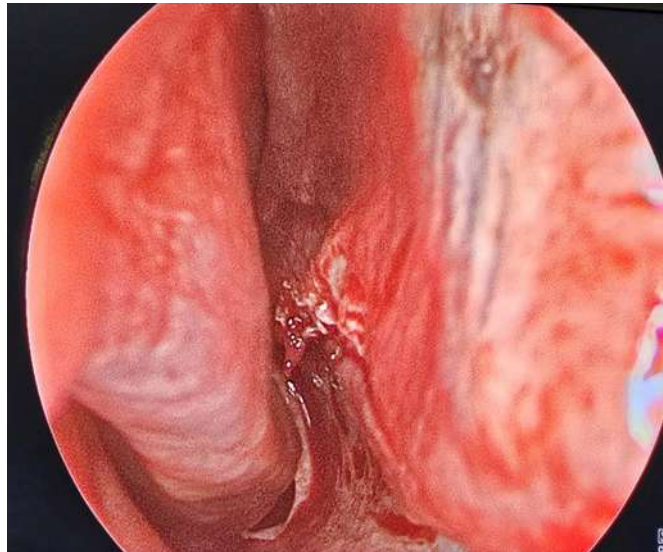
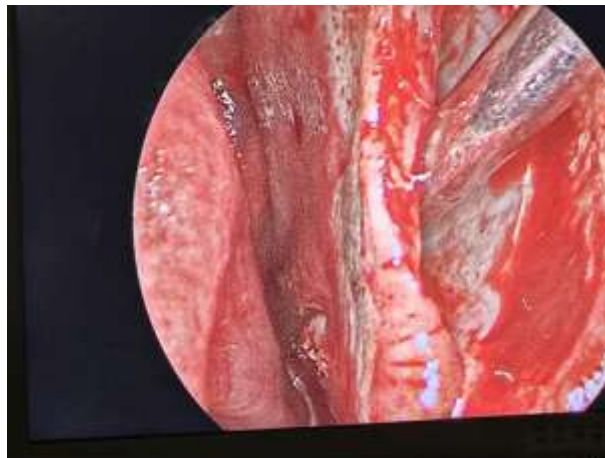


Figure 3- Elevation of mucosal flap



Discussion:

Nasal septum is the most important structure which decides the shape of the nasal osseocartilaginous

framework. “As goes the septum so goes the nose” – a famous quote said by G. Jan Beekhuis (1) is well known to all rhinologists and emphasizes its importance in the aesthetic appearance of the nose. The prevalence of septal spur in Indian population is about 46.8% according to study by Nadwi et al (2). The septal spurs usually occur at the junction of vomer with septal cartilage or the perpendicular plate of the ethmoid bone. Several classification systems have been proposed over the years to describe the deviated nasal septal variations. Baumann et al classification system in 2007 categorized the septal deviations into 6 types- 1. Septal crest with ipsilateral vomeral spur, type 2- cartilaginous deviated nose with ipsilateral subluxation and contralateral vertical septal deviation, type 3- high septal deviation with contralateral septal crest, type 4- caudally inclined septum with contralateral subluxation and same side vertical septal deviation and crest, type 5- septal crest with vomeral spur on both sides and type 6- caudally inclined septum with contralateral subluxation, ipsilateral vertical septal deviation, contralateral septal crest and vomeral spur(3). In our study, we have included patients with septal spurs of types 4-6 in Baumann classification. Septoplasty is the standard surgical procedure done for deviated nasal septum. In recent years, endoscopic septoplasty has completely replaced the conventional method of surgery using headlight. The conventional technique is mainly based on the palpation, and clear visualization of the posterior part of the septum couldn't be possible with a headlight. The use of endoscopes in septoplasty have given the advantage of greater magnification and clear visualization of the surgical field, posterior end of septum could be analyzed clearly, allowing a precise and controlled resection of the deviated parts. In case of septal spurs, the mucosal lining present at the acute angulation is thinned. Even though infiltration is used to facilitate the hydro dissection of the mucosal flap, due to the laxity/thinned out mucosal covering, the operating surgeons frequently encounter the tear of mucosal flap during elevation of the mucoperichondrial and mucoperiosteal flap. This results in some loss of the mucosal lining during the procedure leading to increased bleeding, longer healing period, or sometimes septal perforation if the mucosa on the opposite side is also injured. Several techniques of correction of septal deviations and spur have been evolved since last two decades. Lanza and

Kennedy(4) have described endoscopic septal spur resection (ESSR) method for isolated septal spurs, by giving an incision along the convexity of the spur, elevation of flap and removal. Preparagen et al(5) in 2010, have described an open book method by giving a vertical and horizontal incisions and elevating the flaps like an open book. The technique we have employed is a modification of this open book method, which is by giving vertical and horizontal incisions but not intersecting each other and elevating the flaps separately. The mucosal attachment between the two incisions help to give support to the flaps and keep them well opposed, therefore alleviating the need of quilting sutures.

Under endoscopic guidance, this technique gives easier deflection of the thin mucosal flap over the spur especially inferior to the spur where the conventional method usually results in mucosal loss or tear. And after removal of the spur, the flaps could be repositioned without any defect in the mucosal lining facilitating faster healing, less trauma, and reduced postoperative oedema. In our study, all the patients were examined endoscopically on follow up on days 5 and 10 . We have observed optimal healing response in all the cases within the first followup itself.

Conclusion:

Our modified endoscopic septoplasty technique, which is an adaptation of the open book method, has demonstrated both efficacy and safety in addressing deviated nasal septums. By implementing non-intersecting vertical and horizontal incisions and elevating the flaps individually, we have capitalized on the inherent stability provided by the mucosal attachments between the incisions. This approach not only maintains the structural integrity of the septal cartilage but also ensures proper opposition of the flaps without the necessity for quilting sutures, which can reduce operative time and potential complications associated with additional suturing. The preservation of the mucosal attachments serves a dual purpose: it acts as a natural support for the elevated flaps and promotes better healing by maintaining the blood supply. This technique has less risk of postoperative complications, such as septal hematoma, flap necrosis, and adhesions, which are often associated with more invasive surgical interventions. Our findings suggest that this modified

technique is a valuable addition to the repertoire of otolaryngologists and may offer a superior alternative to traditional methods, especially in cases where preservation of septal support and minimization of surgical trauma are desired. Future studies with larger sample sizes and long-term follow-up will be essential to further validate the advantages of this technique and to establish its role as a standard practice in septal surgery. By simplifying the procedure without compromising the surgical outcomes, we believe that our modified endoscopic septoplasty technique represents a significant advancement in the field of nasal surgery, providing patients with a less invasive option and potentially improving their postoperative recovery and overall satisfaction.

References:

1. G. Jan Beekhuis, Nasal Septoplasty, Otolaryngologic Clinics of North America,

Volume 6, Issue 3, 1973, Pages 693-710, ISSN 0030-6665, [https://doi.org/10.1016/S0030-6665\(20\)32894-2](https://doi.org/10.1016/S0030-6665(20)32894-2).

2. Nadwi SH, Gopalan M, Nath SV, Somaraj S. Sinonasal anatomical variations in patients with chronic rhinosinusitis. *J Evolution Med Dent Sci* 2019;8(11):769–773.
3. Baumann I., Baumann H. A new classification of septal deviations. *Rhinology*. 2007;45(3):220–223.
4. Lanza DC, Rosin DF, Kennedy DW. Endoscopic Septal Spur Resection. *American Journal of Rhinology*. 1993;7(5):213-216. doi:10.2500/105065893781976339
5. Prepageran N, Lingham OR. Endoscopic septoplasty: The open book method. *Indian J Otolaryngol Head Neck Surg*. 2010 Sep;62(3):310-2. doi: 10.1007/s12070-010-0090-9.