

**STUDY OF INDICATION, COMPLICATION AND FUNCTIONAL OUTCOME IN ENDOSCOPIC SEPTOPLASTY**Ritesh Shelkar<sup>1</sup>, Vipin Ekhar<sup>2</sup>, Adharsh Anand<sup>3</sup>, Sachin Rane<sup>4</sup>, Rachana Gangwani<sup>5</sup>, Kanchan Lanjewar<sup>6</sup>**HOW TO CITE THIS ARTICLE:**

Ritesh Shelkar, Vipin Ekhar, Adharsh Anand, Sachin Rane, Rachana Gangwani, Kanchan Lanjewar. "Study of Indication, Complication and Functional outcome in Endoscopic Septoplasty". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 13, March 31; Page: 3455-3459, DOI: 10.14260/jemds/2014/2305

**ABSTRACT:** Introduction of nasal endoscope has revolutionized the field of rhinology. Endoscopic septoplasty is a minimally invasive technique that helps us to correct the deformity of the septum under excellent direct visualization using an endoscope. **AIMS:** Studied indication, technique result and complication of endoscopic septoplasty. **METHODS AND MATERIAL:** It was a prospective study carried out at our institute from August 2011 to December 2013 **RESULTS:** 57 patients having nasal obstruction were selected for the study. In present study 24(42.1%) patients had only cartilagenous deviation, 9(15.7%) patients had bony deviation, 15(26.3%) had both bony and cartilage deviation, while 12(21%) had spur and 5(8.7%) had caudal dislocation. Minor complications were seen during study, no major occurred during endoscopic septoplasty or post- operative period. In 40(70%) cases endoscopic septoplasty was performed as primary procedure and in 9(15.7%) cases performed as conjugation with FESS, also in 8(14%) patients septoplasty performed prior to endonasal DCR for good assess to lateral nasal. **CONCLUSIONS:** Endoscopic septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery. It reduces the complication, hospital stay and has fast recovery of the patients postoperatively. It facilitates accurate identification of the pathology, and it is associated with significant reduction in patient's morbidity in the postoperative period.

**KEYWORDS:** Endoscopic septoplasty, Septal deviation, Septal spur.

**INTRODUCTION:** Septoplasty is the surgical procedure for the correction of a deviated nasal septum. In 1947 Cottle described first conventional septoplasty<sup>1,2</sup>. It can be performed under local or general anesthesia using either a fiberoptic or a standard headlight. It is a conservative surgery in which only the deviated part of the septum is removed leaving behind as much cartilage and bone as possible.

Introduction of nasal endoscope has revolutionized the field of rhinology. Now a day we emphasize on preservation of normal anatomical structures, and removal or correction of the pathology only. Radical removal of cartilage, septal bone along with maxillary crest changed to conservative modern technique of septoplasty with the help of nasal endoscope<sup>1,2</sup>. In 1991 Lanza D C et al<sup>3</sup> described endoscopic correction of septal deformity. Endoscopic septoplasty is a minimally invasive technique that helps us to correct the deformity of the septum under excellent direct visualization using an endoscope<sup>4</sup>. Indications for septoplasty are broad, and include correction of septal deviation resulting in nasal obstruction, the need for improved access during endoscopic sinus surgery (ESS) or endoscopic dacrocysto-rhinostomy, and treatment of facial pain/headaches associated with septal spurs contacting the lateral nasal wall.

Early reports of endoscopic septoplasty describe several advantages associated with the technique. For example, the technique makes it easier for surgeons to see tissue planes. Also, because the technique is minimally invasive, it offers a better way to treat isolated septal spurs. Furthermore,

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the technique gives surgeons improved access to a deviation that is posterior to a septal perforation. The endoscopic approach also makes it possible for many people to simultaneously observe the procedure on a monitor, making the technique useful in a teaching setting. Nasal endoscopy is a valuable tool for initial assessment of the relationship of the septum to the middle turbinate, which allows the surgeon to judge whether or not the position of the septum will limit access during ESS.

**MATERIALS AND METHOD:** It was a prospective study conducted in Indira Gandhi Government Medical College, Nagpur during a period from August 2011 to December 2013. All patients presenting to ENT OPD with complaints of nasal obstruction due to septal deviation, caudal dislocation, septal spur, also patient who required septal correction for FESS and access to osteomeatal complex; similarly patients in whom, it was difficult to access the lateral nasal wall during endoscopic DCR due to deviated septum were included in the study. Exclusion criteria included patients with age less than 15 years, acute rhinitis, allergic rhinitis, gross external nasal deformity and traumatic deviations with fractures of nasal bones & cartilage.

Technique of endoscopic septoplasty included pre-surgical endoscopic assessment with detailed history, routine ENT examination, investigation. Informed Consent for endoscopic septoplasty was taken; 0 degree nasal endoscope (4mm) was used. Patients were operated either under sedation with local anesthesia or general anesthesia. Under direct endoscopic visualization tape gauge soaked with topical xylomethazoline/oxymethazoline with 4% lignocaine used for nasal decongestion, and kept in both nasal cavity for 10 minutes.

After that 2% lingo cane with 1:100000 adrenalin injected in subpericondrial and subperiosteal plane along the septum and over palatine and maxillary crest. Killian's incision or Freer's incision was taken depending on the type of cartilagenous deviation and in case of only bony deviation incision taken just prior to the deviation. Vertical incision made from cranial to caudal direction. A Cottle elevator was then used to develop a submucoperichondrial plane. Further dissection in a posterior direction was performed using the Freer's elevator.

When elevating the mucosa over spurs, care was taken to prevent mucosal tears due to thinning of the mucosa. The septal cartilage was then sharply scored and incised, leaving at least 1 cm of caudal and dorsal septum for nasal tip support. A submucoperichondrial plane was then developed on the opposite side of the septum. The Ballenger swell knife was used to incise the septum in an anterior to posterior manner. The Lucs forceps are then used to remove all deviated portions of the bone and cartilage in a twisting motion. Adequacy of surgical correction was assessed by repositioning of septal flap and inspection of the nasal cavity bilaterally, if there was any residual deformity, it was corrected. The 0 degree endoscope was used throughout the procedure, and placed between the mucosal flaps or within the nasal cavity to ensure correction of all septal deformities.

The mucosal flaps were then reapproximated; a 4-0 Vicryl rapid suture is used to reapproximate the flaps in a quilting fashion. Post operatively patients were kept on injectable antibiotics and injectable anti-inflammatory drugs for 2 days along with combination of nasal decongestant with antihistamines orally. Packed was removed after 48 hours and patients discharged on oral medication and to be seen in the clinic after one week, 1 month then after 6 months.

**RESULTS:** A total 57 patients underwent endoscopic septoplasty during the study period, the youngest patients were 15 years old and the oldest was 59 years, the majority of patients were

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between the ages of 21-30 years. In this study there were 33 males and 24 females with a ratio 1:0.7. Nasal obstruction was the most common presenting complaint found in 45 patients, nasal discharge in being second most common complaint in 12 patients, followed by headache in 9, sneezing in 8 and post nasal drip in 4 patients. Patient's undergoing Endonasal DCR did not have any nasal complaints. In present study 24(42.1%) patients had only cartilagenous deviation, 9(15.7%) patients had bony deviation, 15(26.3%) had both bony and cartilage deviation, while 12(21%) had spur and 5(8.7%) had caudal dislocation.

In 8 patients more than one type of septal deformity was encountered. In 40(70%) cases endoscopic septoplasty was performed as primary procedure and in 9(15.7%) cases performed as conjugation with FESS, also in 8(14%) patients septoplasty performed prior to endonasal DCR for good assess to lateral nasal was. Mucosal flap tear was the most common complication encountered after endoscopic septoplasty which occurred in 4(7%) and was due to sharp spur, synechiae in 3(5.2%), hemorrhage seen in 1(1.7%), septal perforation in 1(1.7%). In our study no major complication in any patents noted. Symptoms improved significantly postoperatively. The complication rate in our study was 15.7% (n=9).

**DISCUSSION:** Septoplasty is procedure done to relieve a nasal obstruction and improved aeration of sinuses due to septal deviation; it's often done along with other nasal surgeries like septorhinoplasty, endoscopic sinus surgeries, endonasal dacryocystorhinostomy.

Endoscopy helps the surgeon to localize the exact site of deviation(bony or cartilage), its helps to minimize the trauma due to direct vision, the main purpose of endoscopic septoplasty are direct visualization, good exposure, resection of only deviated portion, minimize complication. It has the advantage of a targeted approach to the specific septal problem, without the need for exposing excessive bone and cartilage. Time required to complete the surgery is reduced as compared to conventional septoplasty and sub mucus resection. A direct approach results in limited dissection and quicker postoperative healing.

Brennan H G et al<sup>5</sup> noted that to obtain good results in septal surgery, there should be good exposure; safe elevation of flaps; and resection of the deviated part of the septum only. These could be obtained only by endoscopic septoplasty which has the advantage of a targeted approach to the specific septal problem, without the need for exposing excessive bone and cartilage, thereby improving healing time and decreasing tissue trauma.

The most common age group who were operated belongs to 2nd & 3rd decades. This was in concordance with the study of Jain L et al<sup>6</sup>. Jain L et al<sup>6</sup> stated that traditional technique of septoplasty had difficulty to evaluate the exact pathology, especially in the posterior part of septum, and poor visualization. On the other hand, the nasal endoscopic technique allows precise preoperative identification of the septal pathology and associated lateral nasal wall abnormalities.

Jain L et al<sup>6</sup> stated that early reports of endoscopic septoplasty described several advantages associated with the technique, e.g., it makes easier for surgeons to see the tissue planes and it offers a better way to treat isolated septal spurs. Additionally, the endoscopic approach makes it possible for others to simultaneously observe the procedure on a monitor, making the approach useful in a teaching hospital. In Jain L et al<sup>6</sup> study one patient (5%) had a mucosal tear in the flap in Endoscopic Septoplasty.

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Nawaiseh S and Al- Khtoum N<sup>7</sup> reported hemorrhage in 1.6%. Hwang PH et al<sup>8</sup> in his study reported septal perforation in 0.9%, and synechia formation in 4.5% patients.

Lanza DC et al<sup>3</sup> added that the rationale for developing an endoscopic technique from a traditional "headlight" approach came from the fact that during common nasal procedures, the surgeon's view is obstructed due to the narrowing caused by septal spurs or septal deviations. So, endoscopy usually enables the ENT surgeon to localize deviations, spurs and to remove them under direct vision, thus minimizing surgical trauma.

The present study revealed that, after the end of the 6 months follow up period, there were no recorded postoperative complications among all patients. This finding is in full agreement with those of Park DH et al<sup>9</sup> who observed that endoscopic septoplasty has much fewer complications compared with the conventional headlight septoplasty.

They reported that the incidence of synechia is significantly less in patients who underwent endoscopic septoplasty compared with those who underwent traditional septoplasty. Similarly, the complication rates after endoscopic septoplasty were reported by Hwang PH et al<sup>8</sup> to be 5% and by Gupta N et al<sup>10</sup> to be 2.08%.

Paradis J and Rotenberg BW<sup>11</sup> stated that the endoscopic approach for septoplasty is superior to the traditional approach for the correction of septal deviation. Moreover, Sautter NB and Smith TL<sup>12</sup> concluded that nasal endoscopy is an excellent tool for outpatient surveillance following septoplasty during the initial postoperative healing period and beyond.

**CONCLUSION:** Endoscopic septoplasty is an effective technique that can be performed safely alone or in combination with endoscopic sinus surgery. It reduces the complication, hospital stay and has fast recovery of the patients postoperatively. It facilitates accurate identification of the pathology, and it is associated with significant reduction in patient's morbidity in the postoperative period.

Endoscopic septoplasty is a useful technique well suited to ESS. It provides optimal illumination and visualization of tissue planes, and allows the surgeon to more accurately assess nasal anatomy without the distortion of a nasal speculum. Through the use of a monitor, the technique enables many observers to watch the procedure, which is useful in a teaching setting. Endoscopic septoplasty does not significantly lengthen operative time compared with traditional septoplasty techniques. Regular postoperative nasal endoscopy is a useful tool to ensure optimal healing following surgery.

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Date of Submission: 05/03/2014.  
Date of Peer Review: 06/03/2014.  
Date of Acceptance: 13/03/2014.  
Date of Publishing: 28/03/2014.