

ENDOSCOPIC SEPTOPLASTY

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ABSTRACT: Endoscopic septoplasty is a minimally invasive technique that helps us to correct deformity of septum under excellent visualization. Lanza et al & Stammberger initially described the application of endoscopic technique for the correction of septal deformity in 1991. A retrospective study was carried out of all the cases that underwent endoscopic septoplasty at Dr. Shroff's Charity Eye hospital from March 1998 to March 2000. 78 consecutive septoplasty patients were identified in two years. Out of these 48 septoplasties (52%) were performed with endoscopic technique. A large percentage of cases 48(41%) were those where septoplasty was performed in conjunction with endoscopic dacryo cysto rhinostomy. In 8 cases (16%) it was performed alone as a primary procedure. 4 deviations were broadly based deflections (12%), 10 of septal deformities were spurs (20%), in 4 cases more than one type septal deformities were encountered. Thus we feel that endoscopic septoplasty is a fast developing concept & gaining popularity with increasing trend towards sinus endoscopic surgeries. Furthermore in complex deformities, better correction is possible with the help of endoscope. Since we can clearly see the posterior deviations.

Key words: Endoscopic Septoplasty, Dacryo cysto rhinostomy, Endoscopic Sinus Surgery (ESS)

Endoscopic Septoplasty is a fast developing concept & gaining popularity with increasing trend towards sinus endoscopic surgeries. This has led to an increase in number of indications of limited septoplasty, which obviates need of traditional head light approach. The primary advantage of the technique is ability to decrease morbidity and post operative swelling in isolated septal deviation by limiting the dissection to the area of deviation. This enables us to reduce the extent of sub perichondrial dissection especially in patients who have undergone prior septal cartilage resection. The concept of using an endoscope is important in cases requiring limited septoplasty i.e. those with isolated spurs or ridges & require their removal before ESS.

By definition limited septoplasty is repair of a specific & confined septal deviation directly opposite the surgical area for FESS namely middle turbinate, maxillary & ethmoid ostia. Endoscope helps to facilitate adequate visualization and to allow room for endoscopic instrumentation. We present our experience with endoscopic septoplasty in a series of 48 patients, their surgical indication technique & results.

INTRODUCTION

Endoscopic septoplasty is a minimally invasive technique that helps us to correct deformity of septum under excellent visualization. Lanza et al & Stammberger initially described

the application of endoscopic techniques to the correction of septal deformity in 1991. Lanza et al described a detailed endoscopic approach to the treatment of isolated septal spurs. Endoscopic septoplasty cases in our study included both types of cases i.e. those with obstructive symptoms with more complex septal deformities and others where aim of the surgery was to improve surgical access to the middle meatus as an adjunct to endoscopic DCR & endoscopic sinus surgery. When compared with standard head light technique endoscopic septoplasty provides important advantages which include adequate visualization, room for instrumentation during FESS, access to Para nasal sinuses and for other surgeries like trans septal approach to the sphenoid sinus, visualization & stoppage of post nasal bleeds. But before introduction of FESS majority of septoplasties were done for nasal airway obstruction (Cantrell et al 1997). Recently introduced into the rhino logic literature is the concept of limited septoplasty. Examples include the cases where deviated nasal septum was revealed by nasal endoscopy.

Clinical experience has shown that patient with massive nasal septal deviation or septal spurs may have no symptoms at all or may have symptoms on opposite side i.e. the side with the allegedly better airway. We have followed Stammberger's philosophy in selecting cases for septal surgery. We are reluctant to perform routine septal surgery for the diseases of

the lateral wall of nose or related Para nasal sinuses. We perform septoplasty only in extreme cases with clear-cut indication. If a septal spur or ridge is severe enough to hamper entry of endoscope and other instruments indicates an isolated removal of spur. Complete septoplasty is not required in such cases. The spur is injected with local anesthetic agent, incised and is dissected free. In most cases isolated spurs can be removed easily with a chisel or osteotome.

METHODS

A retrospective review was performed to identify all patients who underwent endoscopic septoplasty at Dr. Shroff's Charity Eye & ENT Hospital from March 98 to March 2000.

78 consecutive septoplasty patients were identified in two years. Out of these septoplasties 48(52%) were performed with endoscopic techniques. Endoscopic septoplasty patients were reviewed for surgical indication, intraoperative findings & postoperative complications. Most of these cases were those posted for endoscopic DCR and limited septoplasty was done in these cases to gain an access to the lacrimal sac area.

Radiological findings: Computed Tomography (CT) scan or clinical observation reveals an isolated spur or limited deviation in the nasal septum causing airway obstruction. Impingement on middle meatus or obstruction of the view and access to the surgical area of the sinus procedure [Figure 1]

Procedures

The procedure can be done with patient under either local anesthesia or general anesthesia.

The septum is injected with 1% xylocaine in 1: 20,000 epinephrine.

The 0 – degree scope is brought into place and the deviation is brought into view. The incision caudal to the deviation is made roughly parallel to it [Figure 1]. There are various

schools of thought regarding site, side & positioning of incision. If septoplasty is to be done to gain an access with endoscopic sinus surgery, sinus surgery is performed first on the non-obstructed. Septoplasty is done with the septoplasty incision on the side where sinus surgery is complete. After correction of septal deviation, sinus surgery can be performed in an unobstructed field on the previously narrowed side.

This helps avoiding contamination of the endoscopic during the second sinus procedure by any bleeding from septoplasty. One should be cautious about producing a laceration or tear for the risk of bleeding on the side where sinus surgery is yet to be performed (Hawang et al).

According to the other school of thought incision for septoplasty is best made contra lateral to the side of maximal deviation. For a broadly deviated septum a standard Kilian or hemi transfixion incision is used. For more posterior isolated deformities, the incision may be placed more posterior in immediate vicinity of the deformity. It thus avoids lifting up of extraneous flap. We have used following kinds of incision

- Caudal to the most deviated portion of the septum
- On less deviated side of Septum
- At the spur inferiorly (in cases with isolated spur)
- Modified incision technique by Lanza et al

Lanza et al described an ipsilateral incision placed parallel to the floor of the nose on the apex of spur [Figure 4]. Flaps are then elevated with cottle's elevator to expose underlying bone or cartilaginous spur. An osteotome is then seated against the base of the spur and is used to remove the bone protrusion.

We have done limited Septoplasties using incision on the side of deviation especially in cases posted for endoscopic DCR. The part of Septum abutting the middle turbinate is removed via ipsilateral incision to gain an access to lacrimal sac area. Generally if infiltration is good there is no bleeding following Septoplasty and it does not hamper lacrimal sac surgery.



Figure 1: Incision over the deviated portion of the septum



Figure 2: Raising the mucoperichondrial flap

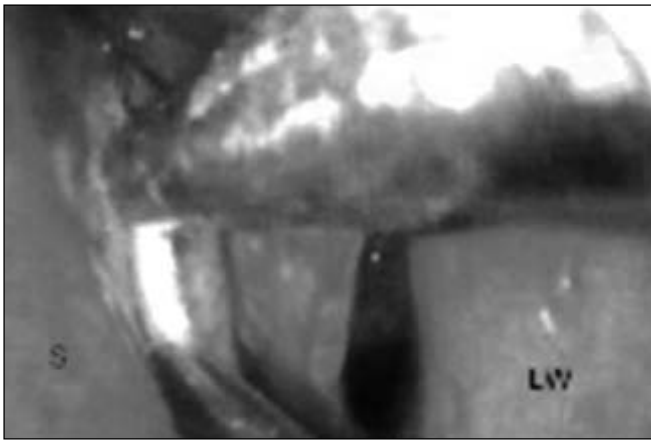


Figure 3: Raising the flaps on opposite side

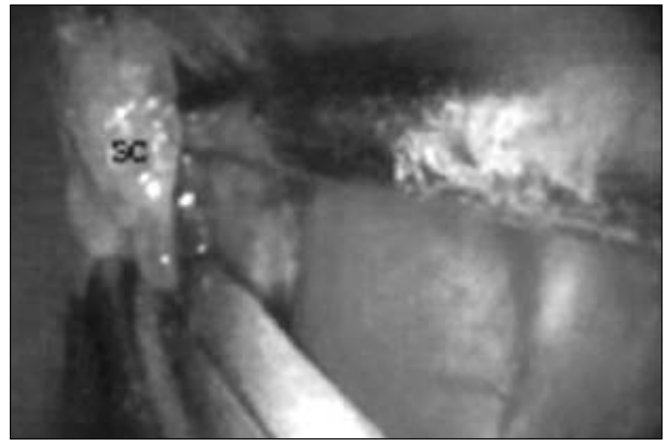


Figure 4: Incising the septal cartilage

Mucoperichondrial flap elevation is performed with a Cottle's elevator under direct endoscopic visualization with a 0-degree endoscope. A suction elevator may be used as an alternative dissecting instrument to clear any blood from the field of view during flap elevation [Figure 2].

The septal cartilage is then incised several millimeters posterior to the mucosal incision. The Contra lateral mucosal flap is elevated [Figure 3]. Flap elevation is continued bilaterally until the complete extent of septal deformity has been dissected. The deviated portion of Septum is thus removed, using endoscopic scissors [Figure 4 &5].

RESULTS

We reviewed 48 consecutive endoscopic Septoplasties. 20 out of 48(41%) were performed in conjunction of endoscopic dacryo cystorhinostomy. In 8 cases (16%) endoscopic septoplasty was performed alone as a primary procedure.

4 deviations were broadly based deflections (12%). Whereas 10 of septal deformities were spurs (20%) in 4 cases (8%) more than 1 type of septal deformities were encountered. Complications included bleeding in one case postoperatively. Soframycin packing was done as a remedial measure and was removed the next day.

DISCUSSION

In cases of symptomatic septal deviation septoplasty is done to relieve the obstruction and to give symptomatic relief to the patient. If the deformity is gross than conventional septoplasty becomes necessary, as wider exposure is possible through caudal incision. Thus it becomes easy to approach the deviated portions through the same incision. The role of endoscopic septoplasty in such complex deformities is limited. But it definitely is an adjunct to the conventional technique as it is easy to assess the status of the septum during surgery and thus better correction of the deformity is possible. But

septoplasty is often a necessary compliment to ESS for gaining an access to the operating site and also for better cleaning of nasal cavity in postoperative period. At times a minimal septal deformity gets ignored due to the effect of aggressive decongestion & vasoconstriction. But once the effect of decongestant is over this deflection poses problems by obstructing endoscopic access during postoperative care.

The traditional approach to septoplasty involves headlight illumination and visualization through a nasal speculum. With conventional approach the visualization is impaired & it may predispose to nasal mucosal trauma, which can compromise endoscopic visualization during sinus surgery.

The Endoscopic approach to septoplasty provides several advantages over the standard head light technique (Hawang 99). Endoscopic septoplasty provides a significantly improved field of view particularly in more posterior deviations. Endoscope can be passed easily under septal mucosal flaps, minimal lifting of flap is required to gain excellent visualization. Incision can be performed more posterior in the nose immediately anterior to the area of deviation; the

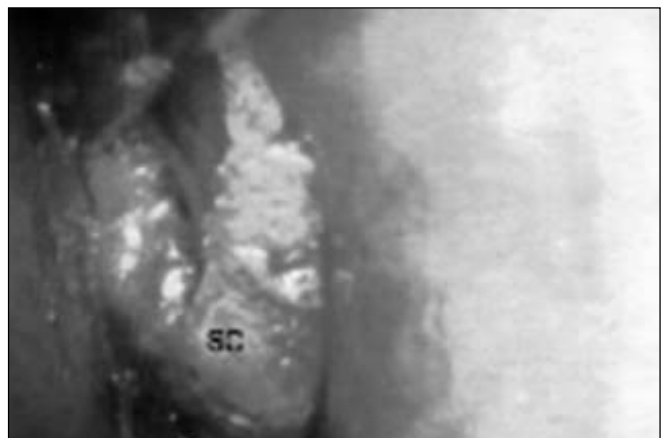


Figure 5: Removing the piece of cartilage

extent of mucosal elevation anteriorly in the nose is minimized. Postoperative edema is therefore reduced. Furthermore unlike nasal examination with a speculum endoscopic evaluation of the nasal airway permits visualization without physical distortion of the nasal anatomy. The improvement in critical areas of obstruction such as nasal valve region can be better assessed during surgery.

The instruments used in endoscopic septoplasty are similar to those for ESS, and thus few additional instruments are required. This allows for smooth integration of the septoplasty into the sinus portion of the procedure. Awkward exchanges between headlight & endoscope are avoided. Because surgical instrument can be more precisely placed, manipulated & surgical maneuvers such as placement of the closure quilting sutures are also facilitated (Hawang et al 1999).

The ability to reduce mucosal elevation by placing the incision in the immediate vicinity of an isolated septal deflection becomes a very important advantage in revision septoplasties. In this situation the flaps are frequently adherent from extensive prior submucosal dissection & cartilage resection. Elevation in these areas is difficult at best & may compromise flaps viability. It may also result in inadvertent septal mucosal tears by endoscopically placing the incision immediately anterior to the area of residual deviation. Thus the need to elevate flaps in an area with no underlying cartilage is

minimized or eliminated. This becomes a crucial advantage in-patient with preexisting septal perforation.

ENT surgeries have always been notoriously known as selfish surgery because the assistant is not able to watch the surgical steps. Thus endoscopic septoplasty can be a valuable teaching tool with help of video monitors the learning opportunities have increased.

CONCLUSIONS

Endoscopic septoplasty is increasingly becoming more common as an adjunct to ESS, Endoscopic septoplasty offers an alternative to traditional headlight technique with superior visualization. Also endoscopic septoplasty is an excellent teaching tool when used in conjunction with video monitors.

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