Endoscopic septoplasty

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Septal deviation is a common clinical finding in patients reporting *nasal obstruction*. Septal deviation has also been implicated as a contributing factor in
- the *development of rhinosinusitis*,
- *contact point headaches*,

May *impair visualization* during endoscopic sinus surgery (ESS).

**Septoplasty** remains one of the most common rhinologic surgical procedures (340,000 procedures in the US/year).
Introduction

- Until the 1960s, submucous septal resection as promoted by Freer and Killian was standard practice in Western Europe
  - With this a more or less straight septum was obtained in the areas where the septal skeleton was resected.
  - Two strips of cartilage were left behind, one to maintain the dorsum and the other to keep the tip and columella in place.
- Complications:
  - Scar formation – saddling and retraction of the columella
  - Septal perforations
- Limitations:
  - Correction of pathology in the dorsal, caudal, inferior and posterior parts of the septum was not possible
Introduction

- **1991 Stammberger[1]**
  - the application of endoscopic techniques for the correction of septal deformities.

- **Giles et al. [2]**
  - evaluated the role of endoscopic septoplasty as an adjunct to functional endoscopic sinus surgery.

- **Park et al. [3]**
  - concluded that they could visualize the nasal septum under magnification on a video monitor and operate with precision

- **Hwang et al. [4]** stated that endoscopic septoplasty is helpful in:
  - correction of posterior septal deformities,
  - revision cases
  - as an effective teaching tool.

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Endoscopic septoplasty is a fast developing concept and gaining popularity as it:

- provides a *direct – targeted approach* to the septal anatomic deformity,
- allowing a *minimally invasive procedure*
- *limited septal mucosal flap dissection* and removal of a small cartilaginous and/or bony deformity
Indications for Endoscopic Septoplasty

- To improve surgical access to the middle/superior meatus
  - as an adjunct to endoscopic DCR & endoscopic sinus surgery
Indications for Endoscopic Septoplasty

- To remove isolated septal spurs.
Indications for Endoscopic Septoplasty

- **To remove isolated septal spurs.**
  - In a study by Sindhwani & Wright, [1]
    - 54% patients with complaints of nasal obstruction and facial pain were cured
    - 38% showed improvement
    - 8% patients were not benefited.
  - In a study by Harley et al. [2]
    - Patients with nasal obstruction and headache were selected and significant improvement was observed in endoscopic group as compared to conventional group.

Indications for Endoscopic Septoplasty

- Septoplasty during Endoscopic Sinus Surgery for Chronic Rhinosinusitis

- Septal deviation is known to be the most common reason for
  - OMC dysfunction,
  - nasal obstruction,
  - nasal mucociliary clearance alteration
Indications for Endoscopic Septoplasty

- Septoplasty during Endoscopic Sinus Surgery for Chronic Rhinosinusitis

  - *Septoplasty only* in the treatment of patients with CRS and septal deviation revealed *similar results* subjectively with *septoplasty and ESS* => *septoplasty alone* can be adequate for treatment of CRS with septal deviation. [1]

- Sun et al. [2] found that 47% of the patients with septal deviation had *ipsilateral or bilateral OMC* disease with *severity correlated to the angle of deviation.*

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Indications for Endoscopic Septoplasty

- **Revision septoplasty**
  - The ability to **reduce mucosal elevation** by placing the incision in the immediate vicinity of an isolated septal deflection - a **very important advantage in revision septoplasties**
    - In this situation **the flaps are frequently adherent** form extensive prior submucosal dissection & cartilage resection.
    - **Elevation in these areas is difficult** & may compromise flaps viability.
    - 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**.
Indications for Endoscopic Septoplasty

- To solve nasal obstruction
- Limited indication
- Usually, for complex septal deformities – Cottle’s approaches are used
Indications for Endoscopic Septoplasty

- Resection of the posterior part of nasal septum
  - Pathway for trans-sphenoidal access of clival/pituitary surgery
Endoscopic Septoplasty: The Open Book Method

Freer’s elevator used to elevate flaps.

Vertical incision (1st incision) anterior to the most prominent part of deviation and flaps are raised.
2nd incision: horizontal over deviated part.

Flaps are lifted up like open book.
Endoscopic Septoplasty: The Open Book Method

Deviated septum is exposed.

Deviated septum/ bony crest is removed.
Endoscopic Septoplasty: The Open Book Method

Flaps are replaced by opposing the edges.

Flaps replaced over the defect.
Creasta film
Advantages of Endoscopic vs. Standard Headlight Technique

- It facilitates accurate identification of the pathology due to
  - *better illumination*,
  - *improved accessibility* to remote areas and
  - *magnification*.

- Endoscopic septoplasty is associated with *significant reduction in patients morbidity* in both peroperative and post operative period (with pack and after pack re-oval) due to:
  - *limited extent of flap dissection*,
  - *not using Killian nasal speculum* which by pressure can cause per-operative discomfort,
  - *limited manipulation and resection of septal framework* thus obviating the need for a tight pack and requiring packing for a lesser duration.
  - Use of light pack after endoscopic septoplasty leads to *lesser incidence of pressure headache, vacuum headache and watering of eyes*.
Advantages of Endoscopic vs. Standard Headlight Technique

- It allows *better understanding of the lateral wall pathology* associated with the septal deformity.

- It allows *limited incision and elevation* of the flaps.

- It *facilitates realignment* by limited and precise resection of the pathological areas and/or by precise repair, by strategically placed wedge resections/shaving of cartilage.

- It effectively *relieves the contact areas* and thus the *contact headache* by allowing intraoperative assessment.
Advantages of Endoscopic vs. Standard Headlight Technique

- **ENT surgeons** have always been notoriously known as **selfish surgeons** because the **assistant is not able to watch the surgical steps**.

- **Endoscopic septoplasty** can be a valuable teaching tool
  - with help of video monitors the learning opportunities have increased.
Complications

- Hematomas
- Sinechia
- Septal perforations

Significant lower rate in endoscopic septoplasty [1, 2]

References:
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.