

Endoscopic Septoplasty: Surgical Outcome in Aden, Yemen

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Abstract

Objective: To describe the characteristics of the patients and to evaluate the endoscopic septoplasty outcome and complications.

Methods: A retrospective review of medical charts of patients presenting to the ENT Units of two private hospitals (Alshifa and Alsaïdi hospital) in Aden, Yemen during the period January 2016 to December 2019 and who underwent endoscopic septoplasty.

Results: The total study patients were 117 and the sex distribution of patients were (59.0%) males and (41.0%) females. The mean age of the patients was 25.4 ± 7.9 years.

Nasal obstruction was the most common presenting symptom, being found in (56.4%) patients followed by headache in (13.7%) patients, obstruction and discharge in (12.8%) and the last one snoring in (3.4%) patients.

The type of deviated nasal septum (DNS) was cartilage with bone in patients (49.6%), followed by bony in (22.2%), spur in (17.1%) patients and cartilage in (11.1%) patients.

The associated conditions were hypertrophy inferior turbinate in (46.1%) patients followed by obstruction of osteomeatal complex (OMC) in (17.1%) patients, concha bullosa in (12.8%) patients and antrochoanal polyp in (2.6%) patients.

The type of operations were septoplasty alone in (44.4%) patients followed by septoplasty with inferior turbinectomy in (19.7%) patients, septoplasty with functional endoscopic sinus surgery in (17.1%) patients, septoplasty with concho-plasty in (16.2%) patients and septoplasty with removal of polyp in (2.6%) patients.

Eight patients (6.8%) developed postoperative complications: perforation in 4 (3.4%) patients, bleeding in 2 (1.7%) patients, and synchia in 2 (1.7%) patients.

Conclusion: Endoscopic septoplasty is an effective technique that can be performed safely.

Key words: septal deviation, nasal obstruction, endoscopic septoplasty

Introduction

Septal deviations are the most common cause of nasal obstruction, representing a common complaint in rhinologic practice. Since its introduction, procedures for correction of nasal septal deformities have undergone several modifications, from radical septal resection, to possible preservation of septal framework and nasal mucosa. Frequently, septal deformities can be associated with lateral wall diseases or may be the cause of them. A significantly deviated nasal septum has been implicated in epistaxis, sinusitis, obstructive sleep apnoea and headaches attributable to contact point with structures of lateral nasal wall [1].

For this reason, correction of septal deformities cannot be separated from treatment of disorders of the lateral wall when present.

Thus, endoscopic septoplasty is a useful technique for treating symptomatic deformities, but also for improving intraoperative surgical access to lateral nasal wall surgeries (e.g. dacryocystorhinostomy, functional endoscopic sinus surgery) [2,3].

Since the first description by Lanza et al. in 1991, the use of the endoscope for the correction of septal deformities is increasingly more frequent [4].

Also, since 1991, surgeons have performed endoscopic septoplasties not only to treat symptomatic nasal obstruction, but also to improve surgical access to the middle meatus as an adjunct to endoscopic sinus surgery (ESS) [5,6].

Endoscopic septoplasty is now an attractive alternative to traditional headlight approach for septoplasty.

Bothra et al [7] showed better results and fewer complications with endoscopic septoplasty compared to conventional approaches, as endoscopy gave better illumination and improved access to high deviations and spurs.

The same opinion in favour of endoscopic septoplasty was expressed later by several authors who compared the two techniques [8]. Gulati et al [9] found that an endoscopic approach to septoplasty simplifies identification of the pathology due to better illumination, improved accessibility to remote areas and magnification, while allowing for limited incision and elevation of flaps without compromising adequate exposure of the pathological site.

Objectives

To describe the characteristics of the patients and to evaluate the endoscopic septoplasty: outcome and complications.

Materials and Methods

A retrospective chart review was performed in patients presenting to the ENT Units of two private hospitals (Alshifa and Alsaïdi hospital) in Aden during the period January 2016 to December 2019.

The material consisted of 117 medical records from patients aged 16–55 years and they were 69 males and 48 females. The patients were complaining of nasal obstruction as the chief complaint. On examination, they had a septal deviation with inferior turbinate hypertrophy, obstruction of osteomeatal complex (OMC), concha bullosa and antrochoanal polyp which was documented by preoperative CT scan of the nose and paranasal sinuses. Endoscopic septoplasty under general anesthesia was carried out for all the patients using zero degree 4mm lens.

The obtained information included sex, age, symptoms, type of DNS, the associated conditions, the type of operations, the postoperative complications and the result of follow-up examinations of the patients at one month and three months postoperatively.

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) software package version 17.

Descriptive statistical parameters were calculated. Descriptive statistics as number, percentage, mean, and standard deviation were used for data analysis. A $p < 0.05$ was defined as statistically significant.

Results

The total study patients were 117 and the sex distributions of patients were 69 (59.0%) males and 48 (41.0%) females, as shown in Figure 1.

The male to female ratio was 1.4:1. The mean age of the patients was 25.4 ± 7.9 years (range between 16 to 55 years). Also the age group 16 – 25 years represented 72 (61.6%) cases, followed by 26 – 35 years with 33 (28.2 %) cases in all patients and also in female and male patients, and the difference between values of gender related to age groups is statistically not significant ($p > 0.005$), (Table 1, Figure 2).

Nasal obstruction was the most common presenting symptom, being found in 66 (56.4%) patients followed by headache in 16 (13.7%) patients, obstruction and discharge in 15 (12.8%) patients, recurrent sore throat in 11(9.4%) patients, epistaxis in 5(4.3%) patients and finally snoring in 4 (3.4%) patients.

The difference between values of gender related to symptoms is statistically not significant ($p > 0.005$), as shown in Table 1 and Figure 2.

Figure 1: Distribution of patients related to sex

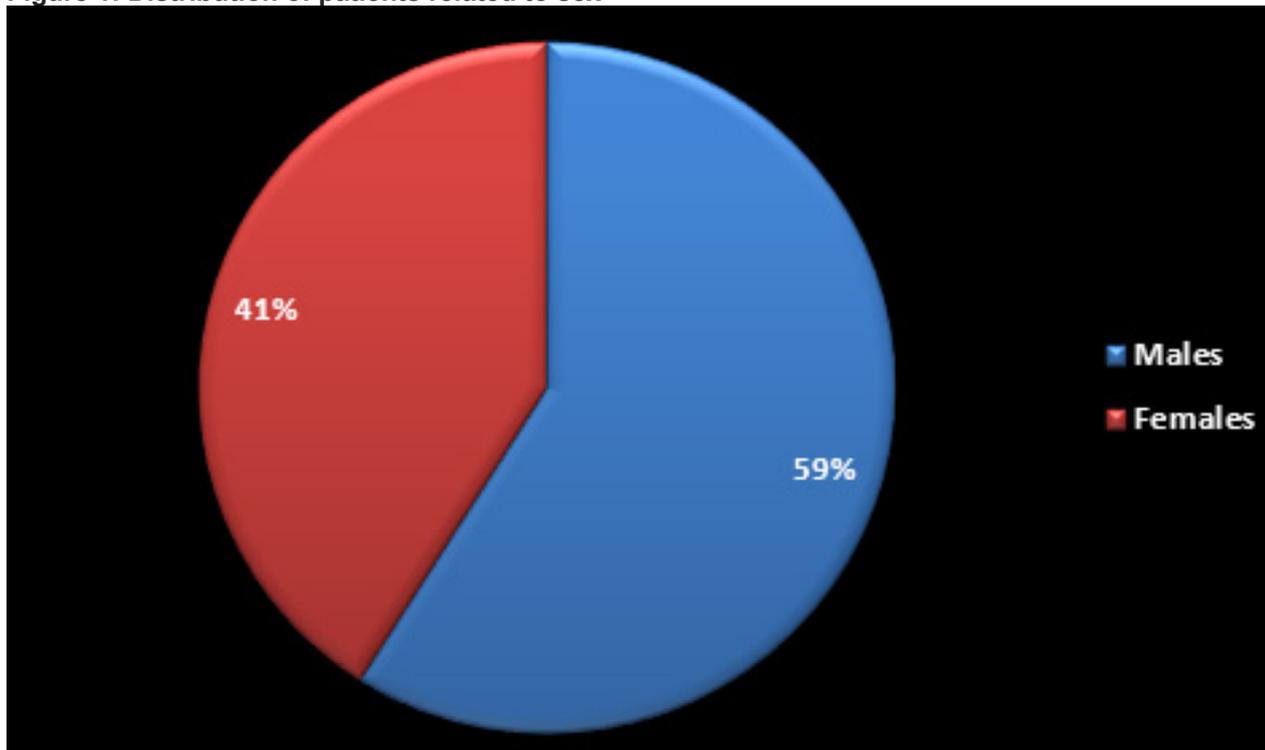


Table 1: Characteristics of the study patients (n=117)

Variables	Sex				Total n=117 No (%)		P
	Females n=48		Males n=69				
	No	(%)	No	(%)	No	(%)	
<i>Age groups (years):</i>							
16–25	26	(22.2)	46	(39.3)	72	(61.5)	P > 0.05
26–35	19	(16.2)	14	(12.0)	33	(28.2)	
36–45	03	(2.6)	07	(6.0)	10	(8.6)	
46–55	00	(0.0)	02	(1.7)	02	(1.7)	
<i>Symptoms:</i>							
Nasal obstruction	29	(24.8)	37	(31.6)	66	(56.4)	P > 0.05
Headache	06	(5.1)	10	(8.6)	16	(13.7)	
Obstruction & discharge	06	(5.1)	09	(7.7)	15	(12.8)	
Recurrent sore throat	03	(2.6)	08	(6.8)	11	(9.4)	
Epistaxis	03	(2.6)	02	(1.7)	5	(4.3)	
Snoring	01	(0.8)	03	(2.6)	4	(3.4)	
<i>Mean age (years):</i>	25.4 ± 7.9						
<i>Range (years):</i>	16–55						
<i>Male to female ratio:</i>	1.4 : 1						

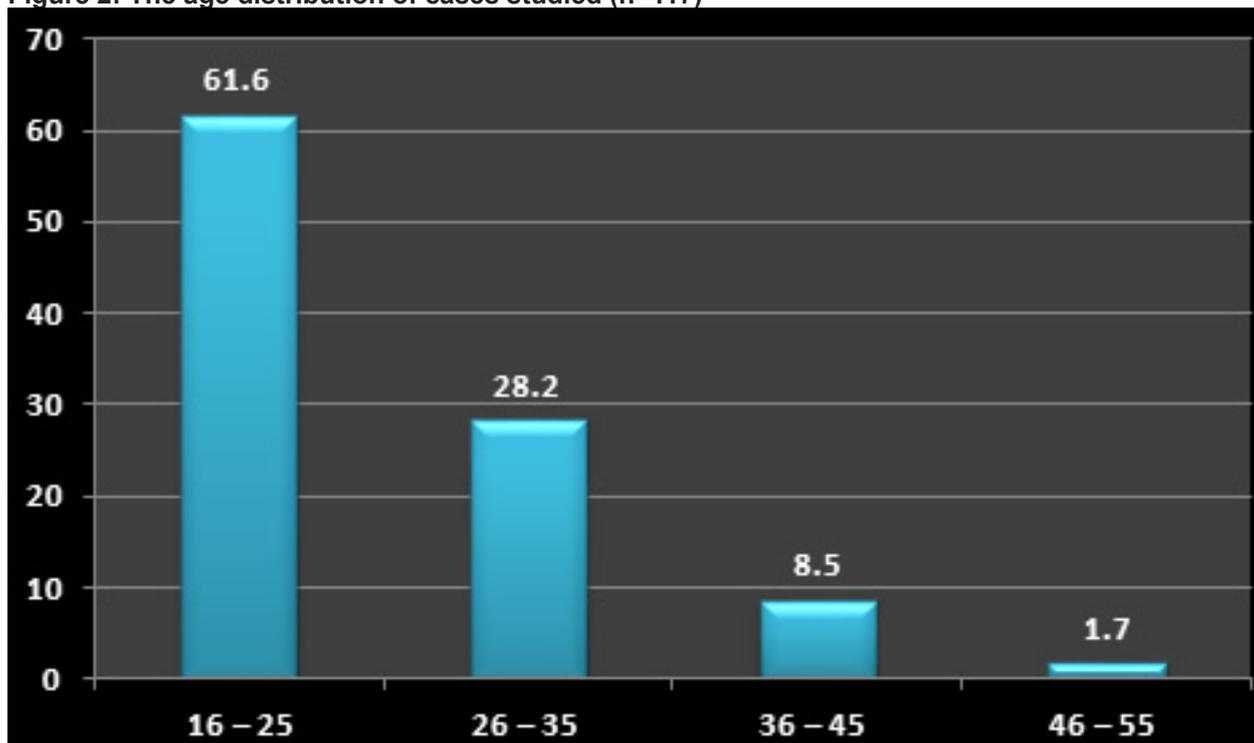
Figure 2: The age distribution of cases studied (n=117)

Table 2 shows that the type of DNS were cartilage with bone in 58 patients (49.6%), followed by bony in 26 (22.2%), spur in 20 patients (17.1%) and cartilage in 13 patients (11.1%).

The associated conditions were hypertrophy inferior turbinate in 54 patients (46.1%) followed by obstruction of osteomeatal complex (OMC) in 20 patients (17.1%), concha bullosa in 15 patients (12.8%) and antrochoanal polyp in 3 patients (2.6%).

The type of operations were septoplasty alone in 52 (44.4%) patients followed by septoplasty with inferior turbinectomy in 23 (19.7%) patients, septoplasty with functional endoscopic sinus surgery in 20 (17.1%) patients, septoplasty with conchoplasty in 19 (16.2%) and septoplasty with removal of polyp in 3 (2.6%), as shown in Table 2 and Figure 3.

Eight patients (6.8%) developed postoperative complications: perforation in 4 (3.4%) patients, bleeding in 2 (1.7%) patients, and synchia in 2 (1.7%) patients.

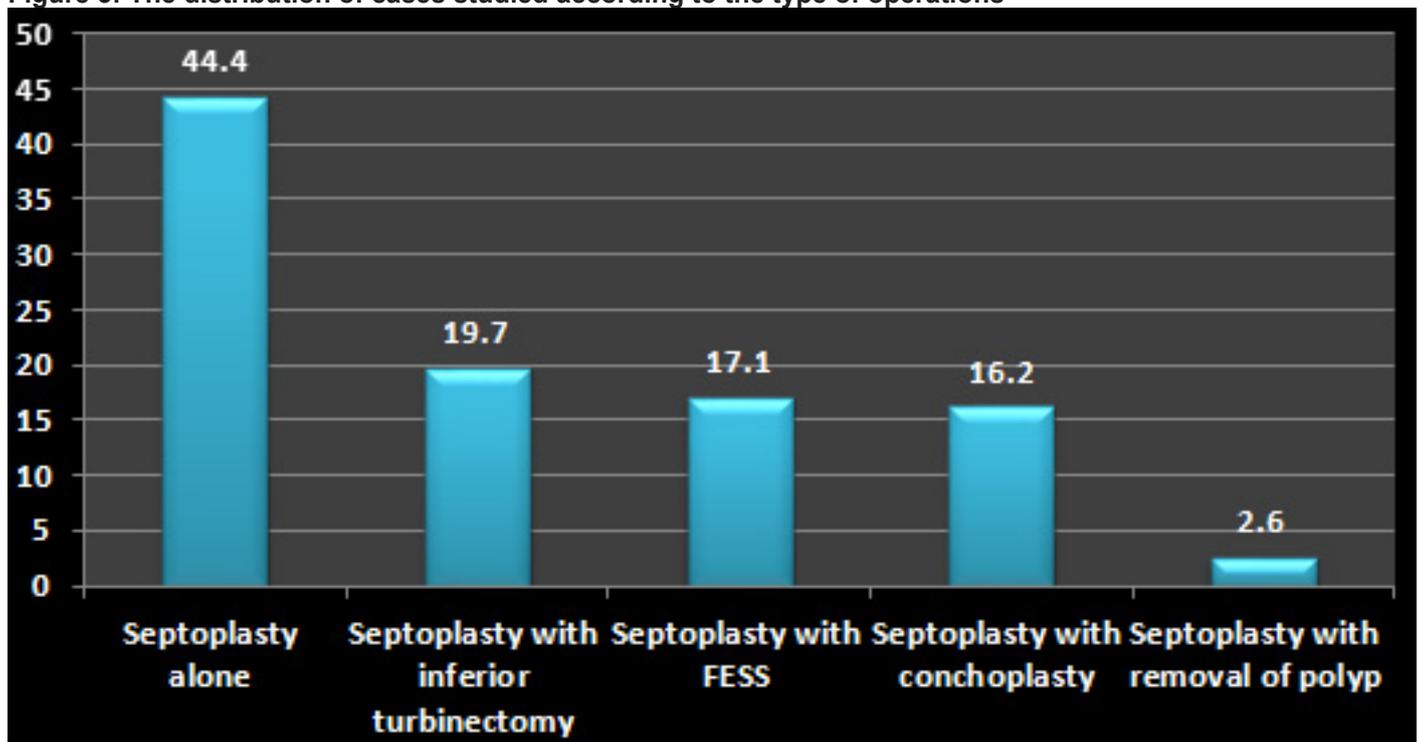
Table 2: Clinical characteristics, management and outcome (n=117)

Variables	No	%
<i>Type of DNS:</i>		
Cartilage with bone	58	49.6
Bony	26	22.2
Spur	20	17.1
Cartilage	13	11.1
<i>Associated condition:</i>		
Hypertrophy inferior turbinate	54	46.1
Obstruction of OMC	20	17.1
Concha bullosa	15	12.8
Antrochoanal polyp	03	2.6
No	25	21.4
<i>Type of operation:</i>		
Septoplasty alone	52	44.4
Septoplasty with inferior turbinectomy	23	19.7
Septoplasty with FESS	20	17.1
Septoplasty with conchoplasty	19	16.2
Septoplasty with removal of polyp	03	2.6
<i>Post-operative complications:</i>		
Perforation	4	3.4
Bleeding	2	1.7
Nasal synchia	2	1.7
Nil	109	93.2

Type of DNS = Type of deviated nasal septum;

Obstruction of OMC = obstruction of osteomeatal complex;

Septoplasty and FESS = Septoplasty and functional endoscopic sinus surgery

Figure 3: The distribution of cases studied according to the type of operations

Discussion

Septoplasty is a commonly performed surgical procedure aimed at relieving nasal airway obstruction, often in conjunction with other nasal and sinus procedures, such as cosmetic rhinoplasty and functional endoscopic sinus surgery (FESS) [10]. Other indications include rhinologic headache, which is due to irritation caused by the contact of the septum with the lateral nasal wall, and chronic sinusitis secondary to septal deviation. The rationale for developing an endoscopic technique from a traditional "headlight" approach comes 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 [11].

In our study patients the sex distribution was males 69 (59.0%) while females were 48 (41.0%) with males to females ratio 1.4 : 1.

Mohammad et al [12] conducted a descriptive study on 200 patients to assess the complications of septoplasty and submucosal resection of septum, in which 162 patients (81%) were males and 38 patients (19%) were females with a ratio of 4.26:1.

In many other studies, male patients were more common than female patients [13,14,15]. This can be attributed to more exposure to trauma in males or random assignment of patients. Similar to the existing literature, our study also had more male patients compared to female patients.

In the current study the mean age of the patients was 25.4 ± 7.9 years (range between 16 to 55 years). It shows also, the age group 16 – 25 years represented 72 (61.6%) cases, followed by 26 – 35 years with 33 (28.2 %) cases. Similar findings to ours were reported by others [15,16,17].

We found in our study that the nasal obstruction was the most common presenting symptom, being found in (56.4%) patients followed by headache in (13.7%) patients, obstruction and discharge in (12.8%) and the last one snoring in (3.4%) patients.

Nasal obstruction is the most common symptom in ENT practice and septum deviation is the most common cause of nasal obstruction. The evaluation of septal deviation causing nasal obstruction depends heavily on physical examination and imaging. The most common presenting symptoms were nasal obstruction (55 patients, 78.6%), headache (42, 60%) and posterior nasal discharge (34, 48.6%), which improved significantly postoperatively [17]. Baig et al [15] reported in their study that the most common symptoms were nasal obstruction (82%) and headache (45%).

In the present study the type of DNS were cartilage with bone in 58 patients (49.6%), followed by bony in 26 (22.2%), spur in 20 patients (17.1%) and cartilage in 13 patients (11.1%).

Nasal septum, divides the nasal cavity into two halves, consists anteriorly of quadrilateral cartilage and posteriorly bony part; consisting of perpendicular plate of ethmoid and vomer. Along the floor there is crest of maxilla and crest of palatine bones [18]. Nasal septum also supports the external osseo-cartilagenous structures, thus the shape of the nose, "where goes the septum, there goes the external nose"[19]. The aetiology of the nasal septal deformity is varied. It may be congenital, developmental, and traumatic etc [18,20,21]. The nasal septal deformity or DNS has many classifications. It may be anterior or posterior; superior or inferior and may take the form of C or S shaped deformity, with either unilateral or bilateral nasal obstruction [22].

The assessment of septal deformity depends upon the site and severity of the deformity. It may be mild producing no symptoms or it may be severe, causing severe unilateral or bilateral nasal obstruction, thus disturbing the routine life of the patient.

The associated conditions were hypertrophy inferior turbinate in 54 patients (46.1%) followed by obstruction of osteomeatal complex (OMC) in 20 patients (17.1%), concha bullosa in 15 patients (12.8%) and antrochoanal polyp in 3 patients (2.6%).

In the present study the type of operations were septoplasty alone in (44.4%) patients followed by septoplasty with inferior turbinectomy in (19.7%) patients, septoplasty with functional endoscopic sinus surgery (FESS) (middle meatal antrostomy and anterior ethmoidectomy) in (17.1%) patients, septoplasty with conchoplasty in (16.2%) and septoplasty with removal of polyp in (2.6%) patients.

Shreeya et al [23] reported in their study from India that the most common operative procedure done was septoplasty in (62.6 %), FESS with septoplasty in (18.3 %) cases, septorhinoplasty in (9.9 %) cases and DCR with septoplasty in (9.2 %) cases.

We found in our study that out of 117 study patients 8 patients (6.8%) developed postoperative complications: perforation in 4 (3.4%) patients, bleeding in 2 (1.7%) patients, and synchia in 2 (1.7%) patients.

Dąbrowska-Bień et al [24] reported in their study that among the 5,639 study patients, different types of complications were noted in 193 patients (3.42%). The most frequent complication was excessive bleeding (3.3%), which required additional packing with absorbable hemostatic mesh (e.g. Surgicel). Septal perforation was observed in (2.3%) of the patients undergoing surgery.

Kulkarni et al [25] mentioned that in endoscopic septoplasty, there is a negligible to nil complication rate and it is excellent and precise in correcting septal deviations posterior to the mobile septum. However; Hwang et al [6] in their retrospective study of 111 patients undergoing endoscopic septoplasty, reported haematoma in 0.9 %, asymptomatic perforation in 0.9 %, and synechia

formation in 4.5 % patients. In a retrospective study of 116 patients, Chung et al [26] described transient dental pain/hyperaesthesia in 4.3 %, asymptomatic septal perforation in 3.4 %, synechiae formation in 2.6 %, epistaxis 0.9 %, septal haematoma in 0.9 %, and persistent septal deviation requiring revision septoplasty in 0.9 % patients. Complication rate in the study by Gupta [27] was found to be 2.08 % for endoscopic septoplasty.

However, in our study we reported only four patients with asymptomatic small posterior perforation that did not affect the condition of patient and did not need revision surgery and two patients with bleeding after removal of pack that required repacking of the nose for 24 hours, and another two patients presented with nasal synechiae after one month that required adenolysis.

Our present study revealed that, after the end of the 3-month follow up period, there were no recorded postoperative complications apart from small posterior asymptomatic perforations in four patients. This finding is in full agreement with other published study reports [13,14,23].

Conclusion

- 1-Use of endoscopy in septoplasty gives better visualization and improves access to posterior and high deviated nasal septum.
- 2-Endoscopy enables the surgeon to localize and remove the septal spurs under direct visualization by performing incision over them, thus minimizing trauma to mucosal flaps.
- 3-Allows detecting the other pathology associated with deviated nasal septum and deals with it in the same setting.
- 4- Causes less trauma to the mucosal flaps and lateral nasal wall thus reducing the postoperative complications and improves the symptoms of the patients.

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