

## ORIGINAL RESEARCH

## Effectiveness Of Functional Endoscopic Sinus Surgery In Management Of Ethmoid Polyps

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**ABSTRACT**

**Background:** To assess efficacy of functional endoscopic sinus surgery in management of ethmoid polyps.

**Materials and Methods:** Ninety- two adult patients age ranged 18- 45 years of either gender was selected and FESS was planned under general anesthesia which comprises of anterior ethmoidectomy, posterior ethmoidectomy, middle meatus antrostomy and clearance of frontal recess. Naso-endoscopy was done post operatively on recall visits at 1st week, 2nd weeks, 1st month, 3rd month, 6th month and one year.

**Results:** Out of 92 patients, males were 52 and females were 40. Pre- operative rhinorrhea score was 3.84 and post- operative score was 2.10, nasal hyperreactivity score was 0.92 and 0.60 pre- operatively and post- operatively respectively, nasal congestion score was 3.54 pre- operatively and 2.12 post- operatively. Anosmia score was 2.34 pre- operatively and 1.15 post- operatively. A significant difference was observed ( $P < 0.05$ ). Common complications recorded in patients undergoing FESS were CSF leak in 2, synechia in 3 cases and ocular problem in 1 patient. A significant difference was observed ( $P < 0.05$ ).

**Conclusion:** Functional endoscopic sinus surgery effectively treated the cases of ethmoid polyps. Only few complications such as CSF leak, synechia and ocular problem were observed.

**Keywords:** Functional endoscopic sinus surgery, ethmoid polyps.

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**INTRODUCTION**

Nasal polyps are common tear-drop shaped growths that form in nose or paranasal sinuses. These can develop in all paranasal sinuses but the region of middle meatus and osteo-meatal complex is most favored.<sup>[1]</sup> These are often linked to allergies and long- term infections especially fungal sinusitis. Most people with nasal polyps have rhinorrhoea, sneezing, anosmia/hyposmia and post-nasal drip.<sup>[2]</sup> There may be associated deviated nasal septum (DNS), enlarged turbinates or atopies. Generally topical nasal steroid drops with oral antihistamine are highly effective in relieving symptoms. Sometimes short-term systemic steroid courses are also prescribed. However, in refractory and uncontrolled cases surgery is the last resort to improve quality of life.<sup>[3]</sup>

Functional endoscopic sinus surgery (FESS) is a minimally invasive technique that uses an endoscope to improve ventilation and drainage in addition to polyp removal.<sup>[4]</sup> The extent of surgery varies according to the extent of disease and surgeon's individual practice. This technique has been used for more than a decade in treating sino-nasal conditions.<sup>[5]</sup> Advantages

are claimed over conventional surgery: permitting a better view of the surgical field, a more precise and thorough clearance of the inflammatory change, fewer complications and lower recurrence rates.<sup>[6,7]</sup> Considering this, we assessed effectiveness of endoscopic sinus surgery in management of ethmoid polyps.

## MATERIALS & METHODS

Ninety- two adult patients age ranged 18- 45 years of either gender was selected in the study. Ethical clearance from institutional ethical & review board was taken. All enrolled patients were informed regarding the study and their written consent was obtained.

Baseline characteristics was entered in case record file. A thorough ENT examination was carried by an expert ENT surgeon. CT scan of naso- ethmoid region was done. FESS was planned under general anesthesia which comprises of anterior ethmoidectomy, posterior ethmoidectomy, middle meatus antrostomy and clearance of frontal recess. All patients were prescribed nasal steroid drops, oral antihistamines and antibiotics post operatively. Naso- endoscopy was done post operatively on recall visits at 1st week, 2nd week, 1st month, 3rd month, 6th month and 1 year. The severity of each symptom was assessed based on 4-point semiquantitative scale: 0, no symptoms; 1, moderate symptoms; 2, mild symptoms that slightly interfere with daily activities or sleep; and 3, severe symptoms that severely interfere with daily activities or sleep. Statistical analysis was done with Mann Whitney U test. Level of significance was <0.05.

## RESULTS

**Table I Distribution of patients**

<b>Total- 92</b>		
<b>Gender</b>	<b>Males</b>	<b>Females</b>
Number	52	40

Out of 92 patients, males were 52 and females were 40 (Table I).

**Table II Assessment of symptoms**

<b>Parameters</b>	<b>Pre- operative</b>	<b>Post- operative</b>	<b>P value</b>
Rhinorrhea	3.84	2.10	0.05
Nasal hyperreactivity	0.92	0.60	0.04
Nasal congestion	3.54	2.12	0.02
Anosmia	2.34	1.16	0.01

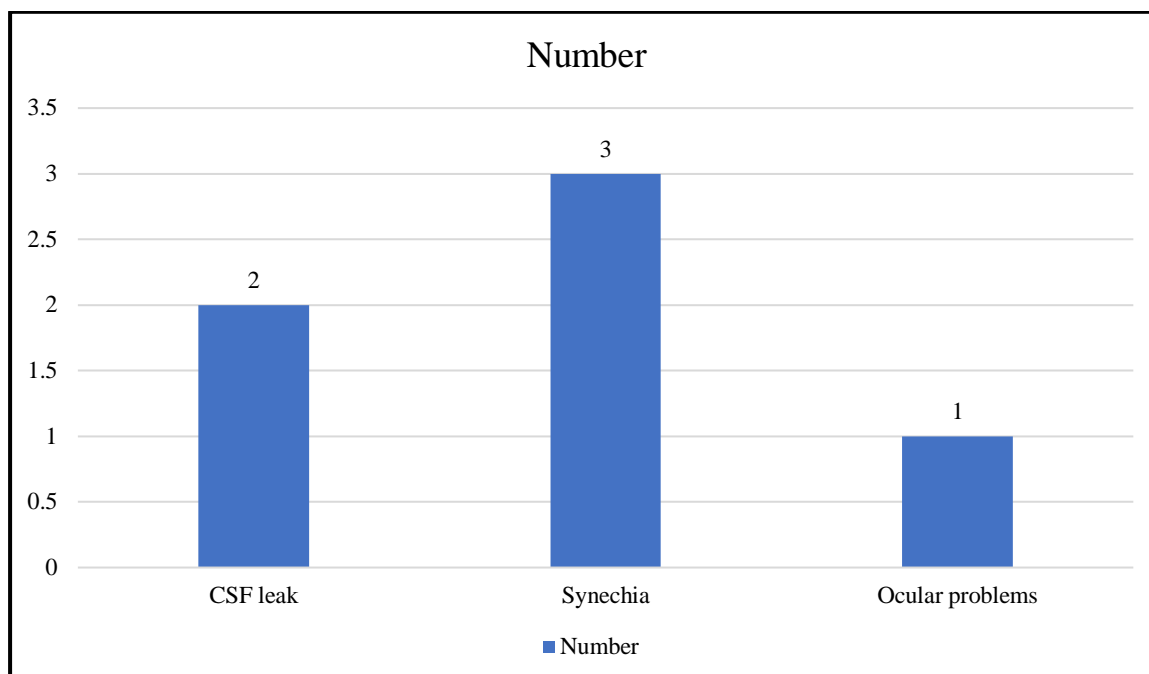
Pre- operative rhinorrhea score was 3.84 and post- operative score was 2.10, nasal hyperreactivity score was 0.92 and 0.60 pre- operatively and post- operatively respectively, nasal congestion score was 3.54 pre- operatively and 2.12 post- operatively. Anosmia score was 2.34 pre- operatively and 1.15 post- operatively. A significant difference was observed ( $P < 0.05$ ) (Table II).

**Table III Assessment of complications of FESS procedure**

<b>Complications</b>	<b>Number</b>	<b>P value</b>
CSF leak	2	<0.05
Synechia	3	

Ocular problems	1	
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Common complications recorded in patients undergoing FESS were CSF leak in 2, synechia in 3 cases and ocular problem in 1 patient. A significant difference was observed ( $P < 0.05$ ) (Table III, graph I).



**Graph I Assessment of complications of FESS procedure**

## DISCUSSION

Nasal polyp growths are round, soft, semi-translucent, pale or yellow glistening structures that originate from any part of the nasal mucosa or paranasal sinuses. Polyp development has been linked to chronic inflammation, allergy, autonomic nervous system dysfunction and genetic predisposition.<sup>[8]</sup> Polyposis is defined as a specific form of chronic rhinosinusitis characterized by bilateral and multifocal polyps. The primary form, with most eosinophil inflammatory cells infiltrating the polyps, is the most frequent.<sup>[9,10]</sup> It can be isolated or associated with asthma (20%-40%) and aspirin intolerance. Its incidence is increasing, reaching approximately 4% of the general population. Conventional polypectomy has lost its charm due to high rate of recurrence. Surgical treatment comprises of polypectomy which has a high recurrence rate, intranasal ethmoidectomy –a blind procedure and external ethmoidectomy with its inherent complication of external scar.<sup>[11]</sup> Nowadays FESS has emerged as a treatment of choice for nasal polyposis and chronic rhino sinusitis that is not responsive to aggressive medical treatment.<sup>8</sup> All these shortcomings are overcome by FESS, which is fast becoming the surgical treatment of choice for nasal polyp disease.<sup>[12,13]</sup> We assessed effectiveness of endoscopic sinus surgery in management of ethmoid polyps.

Our results showed that out of 92 patients, males were 52 and females were 40. Gohar et al<sup>[14]</sup> described the efficacy of Functional Endoscopic Sinus Surgery (FESS) in 116 patients of both sexes of age group from 18 to 60 years. 15 (12.9%) had recurrent nasal polyposis while 101 (87.1%) had primary nasal polyposis. Patients were assessed clinically. Preoperative nasal endoscopy and CT scan of nose and paranasal sinuses were performed in every patient to assess the extent of disease and evaluate the surgical anatomy. Clinical signs of nasal polyposis were evaluated by nasal endoscopy at each follow up visit. There were 116 patients with documented

diagnosis of nasal polyposis. Among these, 75 (64.7%) were male and 41 (35.3%) were female patients. Mean age of presentation in males was 39.1 years and that of females was 36.7 years. Only 15 patients (12.9%) developed recurrent disease within a year.

Our results revealed that pre- operative rhinorrhea score was 3.84 and post- operative score was 2.10, nasal hyperreactivity score was 0.92 and 0.60 pre- operatively and post- operatively respectively, nasal congestion score was 3.54 pre- operatively and 2.12 post- operatively. Anosmia score was 2.34 pre- operatively and 1.15 post- operatively. Gulati et al<sup>[15]</sup> found that bilateral polypoidal mucosa in anterior ethmoidal cells was found in all 30 patients. Posterior ethmoidal air cells were involved in 23 subjects bilaterally and in 3 subjects unilaterally. Mucoïd discharge in maxillary antrum was seen in 14 patients, pus in 4 patients, polyps and hypertrophic mucosa in 4 patients each. Sphenoid involvement in the form of polypoidal mucosa was seen in 4 patients bilaterally and in 2 patients unilaterally. Cheesy material along with polyps which on histopathological examination indicated aspergillosis was found in 2 patients. Anatomical variations in the form of accessory ostium (7 patients), bilateral concha bullosa (6 patients), bilateral paradoxical middle turbinate (5 patients) and polypoidal degeneration of both middle turbinates (5 cases) were noted.

Our results showed that common complications recorded in patients undergoing FESS were CSF leak in 2, synechia in 3 cases and ocular problem in 1 patient. Senior et al<sup>[16]</sup> have demonstrated improvement of symptoms in 91.6% cases with FESS with a mean follow up time of 7.8 years. Bolger WE et al<sup>[17]</sup> have reported that FESS is a very beneficial surgical procedure in improving mucociliary transport by decreasing inflammation, oedema and polyp formation. Mayne et al<sup>[18]</sup> found that global functional score changes from 8.65 to 3.11 for ethmoidectomy and from 8.15 to 4.2 for polypectomy; GAS, from 5.95 to 1.83 for ethmoidectomy and from 6.57 to 3.58 for polypectomy. The global functional score and GAS were significantly improved 3 years after these techniques were performed. Congestion, pain, and GAS were improved to a significantly greater extent in the ethmoidectomy group. The subsequent operation rate for symptomatic polyp recurrence was comparable (9.1% vs 8.0%), with fewer local complications in the polypectomy group.

## CONCLUSION

Functional endoscopic sinus surgery effectively treated the cases of ethmoid polyps. Only few complications such as CSF leak, synechia and ocular problem were observed.

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