ORIGINAL ARTICLE

Follow up Assessment of 60 Cases of Endoscopic Nasal Surgery

TAHIR RASHID, MIRZA M SARWAR , SAMI MUMTAZ
Dept of Ear, Nose, Throat, Head and Neck Surgery, FJMC/Sir Ganga Ram Hospital Lahore, Pakistan.
Correspondence to: Tahir Rashid, 107 Q Model Town, Lahore.tahir1964@hotmail.com.

ABSTRACT
Endoscopic sinus surgery has emerged as a mainstay in the surgical management of chronic sinus disease and nasal polyps. A prospective study of 60 patients who underwent endoscopic sinus surgery was undertaken at the department of Ear Nose Throat Head and Neck Surgery, Fatimah Jinnah Medical College /Sir Ganga Ram Hospital, Lahore, during the period of Jan 2012- March 2014. All patients underwent detailed history and examination including CT scans. Following parameters were studied indications for surgery, post operative complications and follow up outcomes.

INTRODUCTION
Open surgery on maxillary sinus was started in 18th century. The Caldwell- Luc procedure was described by George Caldwell (1893) and Henry Luc in 1897. Functional endoscopic sinus surgery (FESS), can be attributed to Messerklinger and Stammberger in the early 1980s and 1990s respectively[1]. Advances in technology like fiberoptic endoscopes, CT scanning, microdibridor, high definition cameras, monitors and tiny articulating instruments have revolutionized the sinus treatment. In recent years intra operative correlation with real time CT imaging has allowed the use of endoscopic nasal and sinus surgery for wider range of procedures e.g. skull base malignancies and trans sphenoidal approaches to pituitary gland[2].

Chronic Rhinosinusitis and other inflammatory conditions affect sinus mucosa leading to oedema of the mucosa in the region of osteomeatal complex thus causing obstruction. This obstruction leads to a defect in mucociliary clearance, resulting in stagnation of secretions and subsequent development of culture medium facilitating the development of infection. When chronic leads to irreversible changes in sinus mucosa which will require surgical clearance[3].Now a days surgical method of choice to achieve this objective is FESS by which disease is removed from the key areas of ethmoid and middle meatus. It re-establishes the ventilation of the sinuses and improvess mucociliary clearance.

MATERIALS AND METHOD
60 patients aged between 9-70 years who had undergone endoscopic sinus surgery were studied. Diagnostic criteria for inclusion were chronic sinusitis refractory to medical treatment and gross nasal polyposis based on clinical history, endoscopic evaluation and computerized tomography (CT) findings.

Surgery was performed under general anaesthesia except for 1 cardiac patient with (EF) ejection fraction of 15 %. The extent of surgery was determined by the extent of disease ranging from polypectomy, uncinectomy, anterior ethmoidectomy, posterior ethmoidectomy, sphenoidotomy, clearance of frontal recess, enlargement of maxillary ostia and medial maxilletomy.

All patients were reviewed following surgery regularly for endoscopic evaluation and cleaning of the cavities.Initial follow up was fortnightly for two months then every two months for 9 months.58 patients were available for follow up, 2 patients underwent revision surgery during this period for recurrence of polyps.

RESULTS
60 selected patients were in the range of 9-70 years. 42 were male and 18 females. Most common presenting complaint was nasal obstruction followed by headache or facial pain, anterior nasal discharge, postnasal drip, disturbance of sense of smell, proptosis and swelling over maxillary antrum.(table1).

All patients had undergone an endoscopic procedure. Post operative diagnosis consisted of 43 cases of gross nasal polyposis (72%), 10 cases of chronic rhinosinusitis (17%), 2 cases each of antrochoanal polyps and inverted papillomas(3%) & (3%) respectively. 1 case each of big concha bulbosa ,cemento- ossifying fibroma of maxillary sinus and small angiofibroma (collectively 5 %). (Table 2)

Table 1: Presenting complaints of patients (n=60).

Presenting complaints of the patients.	No. of patients	%age
Nasal obstruction	55	91%
Headache or facial pain	44	73%
Anerior nasal discharge	42	70%
Posterior nasal drip	40	63%
Disturbance of sence of smell	12	20%
Proptosis	5	8%
Swelling over maxilla	1	2%

Table 2: Final diagnosis of 60 patients after endoscopic procedure.

Diagnosis	No. of patients	Percentage
Nasal Polyps	43	72%
Chronic Rhinosinusitis	10	17%
Antrochoanal Polyps	2	3%
Inverted Papillomas	2	3%
Concha Bullosa	1	**5% collectively**
Cemento Ossifying Fibroma	1	
Angiofibroma	1	

Table 3: CT scan findings of the patients.

Unilateral			Bilateral			
Diagnosis	**Patients**	**%age**	**patients**	**%age**	**Total**	**%age**
Nasal Polypi	14	23%	33	55%	47	78%
Hazy Sinusis						
Maxillary	16	27%	36	60%	52	87%
Frontal	18	30%	34	57%	52	87%
Ant Ethmoids	16	27%	36	60%	52	87%
Post Ethmoids	16	27%	36	60%	52	87%
DNS					17	28%
Choncha Bullosa	12	20%	3	5%	15	25%

CT scan FESS protocol was done for all patients. Most common finding was the presence of nasal polyps, followed by opaque maxillary sinuses, ethmoid, frontal and sphenoid sinus, choncha bulbosa, deflected nasal septum and choncha bullosa.

Table 4: Complications following endoscopic nasal surgery (n=60).

Major		Minor	
CSF Leakage	0	Bleeding	5
Blindness	0	Ecchymosis of eyelid	3
Diplopia	1	Orbital emphysema	2
Meningitis	0	Synechiae	12

Surgery carried out according to the severity of the disease. Functional approach was applied to chronic rhinosinusitis (CRS) patients while endoscopic ethmoidectomies, sphenoidotomies, clearance of frontal recess, septoplasties and medial maxillectomy were done according to the extent and nature of disease.

Minor complications like bleeding and lid ecchymosis was found in few patients while no major complication like CSF leakage and blindness seen in any patient. During follow up one patient complained of diplopia which resolved by the end of three months. 12 patients had nasal synachae which were lysed under local anaesthesia. Two patients had recurrent nasal polyps.

Table 5: Histopathological diagnosis and fungal culture results.

Histopathological&fungal examinations	No. of patients	%age
Inflamed nasal polyps	47	78.3%
Antrchoanal Polyp	2	3.3%
Inverted Papilloma	2	3.3%
Angiofibroma	1	1.6%
Cemento-ossifying fibroma of the maxillary sinus	1	1.6%
Aspergillosis	10	16.6%
Mucormycosis	2	3.3%

Histopathology and fungal cultures were done in all casses. We have found 47 casses of inflammed nasal polyps ,10 of aspergillosis, 2 cases of mucormycosis, 2 cases of inverted papilloma, 1 case of cemento- ossifying fibroma of maxillary sinus and one angiofibroma.

At the end of 9 months follow up 92 % of the patients said sensation of blockage has improved of whom 25 % regarded the symptoms cured.Facial pain and headache improved in 88 %

(with 28 % cured). Overall improvement in preoperative symptoms shown in table 1 was 85 %.

DISCUSSION

As the pathophysiological principles of Endoscopic sinus surgery is based on the promise that the symptoms in chronic rhinosinusitis arise largely as a result of blockage of the osteomeatal complex (OMC), which Mackay and Lund have described as an outflow tract for the maxillary, ethmoid and frontal sinuses.[4].The classical indication for FESS is chronic rhinosinusitis (CRS) but also include nasal polyposis, antrochoanal polyps, CSF leak repair, orbital decompression, choanal atresia, optic nerve decompression, control of epistaxis, nasal masses and dacryocystorhinostomy. Most of our patients were of nasal polyposis which is different from other studies of Valrie J Lund and Hemant in which CRS was the main indication[5,6].

Overall results compare favourable with other large series. Wigand 220 patients suffering from nasal polyposis showed 82% improvement in pre operative symptoms as compared to our's 85% ,(82% regarded their disease has healed/ improved)[7] .Stammberger reported similar subjective results in a group of 500 patients with rhinosinusitis of various forms, overall evaluation was very good or good in 85%, moderate to fair in 10 % and unchanged or poor in 5 % of the patients. This overall improvement in symptoms of nasal obstruction and headache is similar to our improved percentage of 85%.[8]. For most patients statistically significant improvement occur in the post operative endosopic score and quality of life measures.[9]

Routine histopathology (HP) of specimen is still questionable if it should be performed or not. Patients who have a high degree of suspicion for (pre) malignancy, HP examination of material removed is indictaed.[10]

Complication rate could not be compared with other studies as it is dependant upon number of patients undergoing surgery, learning curve of the surgeons, provision of modern equipment(microdebrider and CT navigator). 20 % synachae formation in our analysis of 60 cases is less than the first 85 cases of Frisch et al (35.9%)[11].

During 9 months follow up smokers were advised to stop smoking and all patients to use INCS (Intranasal corticosteroids) to reduce the recurrence of polyps.Two patients had recurrence of polyps but we could not find any relation in smoker. Das et al claimed no significant difference in improvement between smoker and non smoker in 4 years follow up[12],.but use of INCS showed significant decrease in polyp recurrence in the first year post operatively[13]. Difficulties always exist while comparing the results of different parts of the world because of the differences of environment, lack of modern equipment, learning curve of the surgeons etc etc. More review articles are needed to get better insight of endoscopic nasal surgeries.

CONCLUSION

Endoscopic examination and CT scan has become a basic tool in the diagnosis and surgical plan of nasal pathologies in the osteomeatal complex and other hidden areas of the nose.FESS restores the mucocilliary clearance mechanism, improves ventilation of the sinuses, removes the polypoidal mucosa without much destruction of the normal mucosa. These advantages improves the patients quality of life and reduces the rate of complications as compared to traditional sinus surgeries. Post operative use of intranasal corticosteroids showed significant decrease in polyp recurrence in the first year follow up.

REFERENCES

1. Stammberger H, Posawetz W. Functional Endoscopic Sinus Surgery. Philadelphia; Decker, 1991.
2. Emma c cashman, peter J MacMahom, and david Smyth. World J Radiol. Aug 28,2011; 3(8): 199-204.
3. Norlander T, WrstrinK, Stierna P (1994): The inflammatory response of the sinus and nasal mucosa during sinusitis : Implications for research and therapy. Acta Otolaryngology StockhX 515:38.
4. Hellmich S. Surgical treatment of sinusitis. Acta Otorhinolaryngol Belg. 1983;37:624-634.
5. Valerie J Lund ,Ian S MacKay.Outcome Assessment of endoscopic sinus surgery.Journal of the Royal Society of Medicine Vol 87,feb 1994.
6. Hemant Chopra, A.S. Khurrana, Manish Munjal, Kapil Due.Indian Journal of Otolaryngology and Head and Neck Surgery Vol. 58, No 2,April-June 2006.137-140.
7. Wigand ME. Endoscopic Surgery of the Paranasal Sinuses and Anterior Skull Base. Stuttgart, New York: Thieme, 1990
8. Stammberger H, Posawetz W. Functional Endoscopic Sinus Surgery; concept,indications and resultsof the Messerklinger technique. Eur Arch Otolaryngol 1990;247: 63-76.
9. Mace JC, Michael YL, Carleson NE, Litvack JR, Smith TL Arch Otolaryngol Head Neck Surg. 2010 Apr; 136(4); 340-6.
10. Van Der Boer C, Brutel G, de Vries N, Eur Arch Otorhinolaryngol 2010 Mar;267(3); 381-4.
11. Frisch T, Arnadal H, Fons M (1995): Outcome for the first 85 patients treated with the functional endoscopic sinus surgery technique. Rhinology. 3 3 (4):236-9.
12. Das S, Khichi SS, Perakis H, Woodard T, Kountakis SE, Laryngoscope 2009 Nov;119911): 2284-7.
13. Fandino M, Macdonald KI, Lee J, Witterick J, Am J Rhinol Allergy 2013 Sep-oct;27(5): e146-57.