

Determination of complications of Functional Endoscopic Sinus Surgery (FESS)

Dr. Manoj Kumar¹, Dr. Manish Gulati²

¹Associate professor, Department of ENT, Prasad Institute of Medical Sciences Lucknow, U.P., India;

²Assistant professor, Department of ENT, Mayo Institute of Medical Sciences Barabanki, U.P., India

Corresponding author

Dr. Manish Gulati

Assistant professor, Department of ENT, Mayo Institute of Medical Sciences Barabanki, U.P., India

ABSTRACT:

Background: Functional Endoscopic Sinus Surgery (FESS) is the removal of tissue obstructing the Osteo Metal Complex. The present study was conducted to determine complications of FESS.

Materials & Methods: 82 adult patients of chronic rhino sinusitis selected for FESS of both genders were examined with anterior and posterior rhinoscopy. Lanza Kennedy criteria is used to grade nasal endoscopy findings looking at the presence of secretion, oedema and polyps. The complications were recorded post operatively.

Results: Age group 15-24 years had 25 males and 18 females, 25-34 years had 12 and 12 females and 35-45 years had 11 males and 4 females. Common complaints was nasal obstruction in 71, nasal discharge in 15, post nasal drip in 22, headache in 64, halitosis in 10, anosmia & hyposmia in 8 and earache/ ear fullness in 4 patients. Common complications were synechia seen in 45, lower lid ecchymosis in 12, bleeding nose in 10 and orbital subcutaneous emphysema in 4 patients. The difference was significant ($P < 0.05$).

Conclusion: Common complications of FESS were synechia, lower lid ecchymosis, bleeding nose and orbital subcutaneous emphysema.

Key words: bleeding nose, orbital subcutaneous emphysema, FESS

Introduction

Functional Endoscopic Sinus Surgery (FESS) is the removal of tissue obstructing the Osteo Metal Complex (OMC) and the facilitation of drainage while conserving the normal non-obstructing anatomy and mucous membrane.¹ The rigid fiberoptic nasal telescope provides superb intra-operative visualization of the OMC, allowing the surgery to be focused precisely on the key areas. The image can be projected onto a television monitor through a small camera attached to the eyepiece of the endoscope. Microdebriders remove the pathologic tissue while preserving normal mucosa.²

Over the past 20 years, endoscopic sinus surgery has been widely used as a safe and effective treatment for Para Nasal Sinus (PNS) disorders. Powered instrumentation and stereotactic image-guided surgery have improved efficiency and safety of this procedure.³ Endoscopic approaches to benign tumors of the nose, sinuses, anterior cranial fossa and the orbit are now becoming widely established. The combination of suction with powered dissection has revolutionized endoscopic sinus surgery. However, the potential for complications has shadowed the procedure.⁴ Endoscopic sinus surgery presented a series of complications in the

late 1980s and early 1990s. However, new technology of instrumentation has produced undisputable advances. The powered cutting instrument is thought to be safe around the skull base and lamina papyracea because it cannot grasp the intact bone, however, this sense of safety is undermined by the fact that the instrument can grasp and cut free edges of the bone.⁵The present study was conducted to determine complications of FESS.

Materials & Methods

The present study comprised of 82 adult patients of chronic rhino sinusitis selected for FESS of both genders. All were enrolled and their written consent was obtained.

Data such as name, age, gender etc. was recorded. All patients were examined with anterior and posterior rhinoscopy. Lanza Kennedy criteria is used to grade nasal endoscopy findings looking at the presence of secretion, oedema and polyps. All the patients were operated upon under general anaesthesia by the classical Messerklinger technique. All patients were kept under regular follow up for period of 3 to 6 months, postoperatively. Patient's symptoms were recorded during each visit, so were the complications recorded if any occur intra / post operatively. Results of the study were assessed statistically. P value less than 0.05 was considered significant.

Results

Table I Distribution of patients

Age group (Years)	Male	Female	P value
15-24	25	18	0.04
25-34	12	12	
35-45	11	4	
Total	48	34	

Table I shows that age group 15-24 years had 25 males and 18 females, 25-34 years had 12 and 12 females and 35-45 years had 11 males and 4 females. The difference was significant ($P < 0.05$).

Table II Complaints of patients

Complaint	Number	P value
Nasal obstruction	71	0.01
Nasal discharge	15	
Post nasal drip	22	
Headache	64	
Halitosis	10	
Anosmia & Hyposmia	8	
Earache/ ear fullness	4	

Table II, graph I shows that common complaints was nasal obstruction in 71, nasal discharge in 15, post nasal drip in 22, headache in 64, halitosis in 10, anosmia & hyposmia in 8 and earache/ ear fullness in 4 patients. The difference was significant ($P < 0.05$).

Graph IComplaints of patients

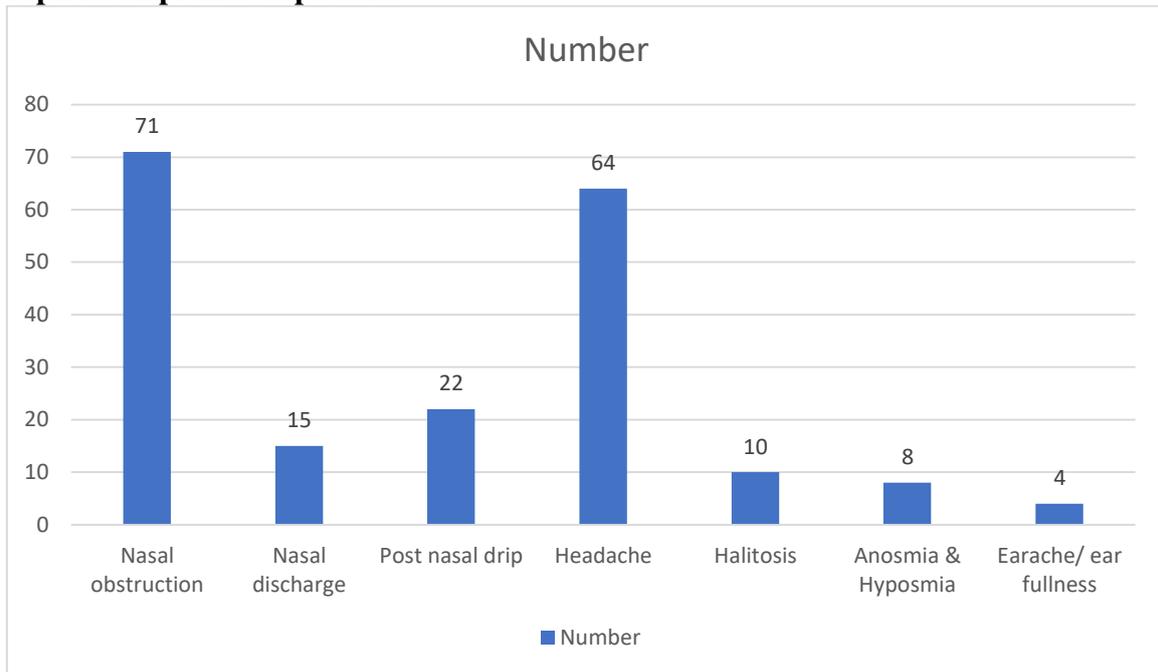
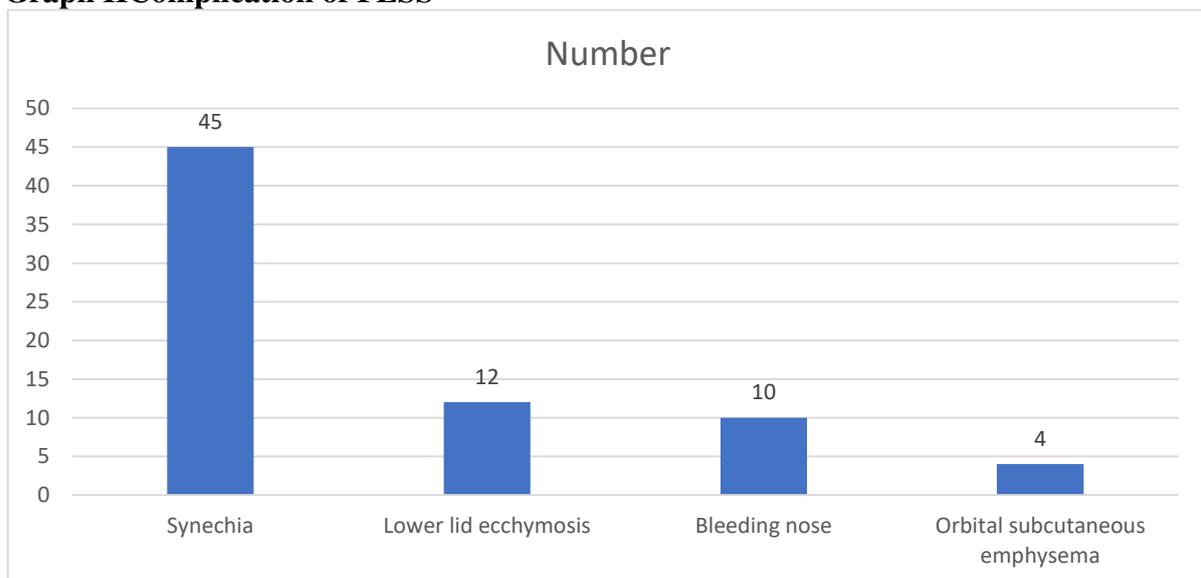


Table III Complication of FESS

Complication	Number	P value
Synechia	45	0.02
Lower lid ecchymosis	12	
Bleeding nose	10	
Orbital subcutaneous emphysema	4	

Table III, graph II shows that common complications were synechia seen in 45, lower lid ecchymosis in 12, bleeding nose in 10 and orbital subcutaneous emphysema in 4 patients. The difference was significant ($P < 0.05$).

Graph IIComplication of FESS



Discussion

Functional Endoscopic Sinus Surgery (FESS) is a highly sophisticated type of surgery, which has revolutionized the surgical management of chronic sinus diseases. In the ophthalmic field, FESS plays a crucial role in the management of a few conditions, but not without risks.⁶ The field of FESS was not only limited to the domain of Otolaryngology. Its indications in ophthalmology, orbit endoscopy in particular, became clearer but often at a great risk.⁷ The ophthalmic indications for FESS include orbital decompression of thyroid orbitopathy, lacrimal obstruction, Optic Nerve (ON) decompression, traumatic loss of vision, and pituitary tumor surgery.⁸ The relationship between ophthalmology and otolaryngology has been exploited in conditions such as silent sinus syndrome, lacrimal duct problems, optic nerve decompression, and orbital decompression, drainage of subperiosteal abscess, orbital trauma, tumor surgery, and complications of endoscopic sinus surgery.⁹ The present study was conducted to determine complications of FESS.

In present study, age group 15-24 years had 25 males and 18 females, 25-34 years had 12 and 12 females and 35-45 years had 11 males and 4 females. Kennedy et al¹⁰ represents a long-term follow-up (average, 7.8 years) of 72 patients (60%). Of patients responding to a question about overall symptoms, 98.4% (n = 66) reported improvement compared with before surgery. There was a trend toward continued subjective improvement in symptom scores with longer follow-up, but the changes did not reach statistical significance. Thirteen patients (18%) required subsequent surgical procedures. Preoperative stage, prior surgery, and other factors that might affect outcome were evaluated. The study demonstrates that excellent subjective results following FESS can be maintained in the long term with appropriate postoperative management. The study also validates the concept that patients in whom the cavity can be normalized following surgery are unlikely to require further surgery.

We found that common complaints were nasal obstruction in 71, nasal discharge in 15, post nasal drip in 22, headache in 64, halitosis in 10, anosmia & hyposmia in 8 and earache/ ear fullness in 4 patients. Siedeket al¹¹ determined symptoms, surgical extent, complications and outcome of operated children. For assessment of outcome, symptom- and quality of life-related questionnaires were sent out to all patients. 115 children had a FESS procedure due to CRS, 77 were boys and 38 girls. The response rate of the questionnaires was 64% (73 of 115); the mean follow up of these was 5.4 (+/-1.8) years. 76% of the patients reported an improvement of their chief symptoms and 71% of their general quality of life. The overall quality of life had improved significantly ($p < 0.01$) on VAS. In CRS patients nasal obstruction was completely relieved in 62.3%, facial pain in 65.5% and postnasal drip in 72.5%. Improvement of primary nasal symptoms (PNS) of CRS in patients with CF, asthma or allergies as well as in youngsters who had started or continued to smoke 35 out of 73 (48%) was significantly less.

We observed that common complications were synechia seen in 45, lower lid ecchymosis in 12, bleeding nose in 10 and orbital subcutaneous emphysema in 4 patients. Danielideset al¹² conducted a study in which all the patients were pre-operatively evaluated clinically, radiologically as well as endoscopically. Diagnostic nasal endoscopy revealed various pathological abnormalities in the middle meatus and anterior ethmoid region. Even after complete pre-operative evaluation, initially patients were managed medically according to their symptoms and were observed for 6 weeks. All 80 patients underwent for functional endoscopic sinus surgery, using the Messerklinger's approach. The overall result revealed that 85.49% patients considered themselves asymptomatic or improved following surgery. No major complication directly related to FESS occurred in this series. The important findings were osteomeatal complex obstruction seen in 88.75%, polyp in nose in 46.25% of cases. Radiological evaluation done by coronal section (axial & sagittal if needed) CT scanning

revealed the maxillary sinus most common site of mucosal involvement 76.25%% followed by anterior ethmoid sinus in 53.75% cases. Frontal and sphenoid sinuses were involved in 26.25% and 15% cases respectively.

Conclusion

Authors found that common complications of FESS were synechia, lower lid ecchymosis, bleeding nose and orbital subcutaneous emphysema.

References

1. Rice Dale H, Steven D. Schaefer Endoscopic Paranasal Sinus Surgery , Second Edition Lipincourt New York 1995.
2. Bhattacharyya N. Influence of polyps on outcomes after endoscopic sinus surgery. *Laryngoscope*. 2007 Oct; 117(10):1834-8.
3. Nair Satish. Endoscopic Sinus Surgery in Chronic Rhinosinusitis and Nasal Polyposis: A Comparative Study. *Indian J Otolaryngol Head Neck Surg*. 2011 Jan; 63(1):50-5.
4. Kiran A. Deshmukh, Pallavi K. Deshmukh, Yatiraj Singi, V.S. Patil and Shivaji S. Patil Role of endoscopic surgery in management of nasal polyps. *Al Ameen J Med Sci* 2013; 6(4):364-368.
5. Chopra H1, Khurana AS, Munjal M, Dua K. Role of F.E.S.S. In Chronic Sinusitis. *Indian J Otolaryngol Head Neck Surg*. 2006 Apr; 58(2):137-40.
6. Ehab Taha Yaseen, Ali Abed. Functional Endoscopic Sinus Surgery: Experience with Fifty Patients Suffering From Chronic Rhinosinusitis, A descriptive study. *Iraqi J. Comm. Med.*, 2013 July. (3):267-272.
7. Abdullah Al-Mujaini, Upender Wali, Mazin Alkhabori. Functional Endoscopic Sinus Surgery: Indications and Complications in the Ophthalmic Field *OMJ*. 2009; 24:70-80.
8. Emma C Cashman, Peter J MacMahon, David Smyth. Computed tomography scans of paranasal sinuses before functional endoscopic sinus surgery. *World J Radiol*. 2011; 3(8): 199-204.
9. Y. Bajaj, CGadepalli, T Reddy, Functional Endoscopic Sinus Surgery: Review Of 266 Patients. *The Internet Journal of Otorhinolaryngology*. 2006; 6; 1-2.
10. Kennedy DW, Senior BA, Tanabodee J, Kroger H, Hassab M, Lanza D: Long-term results of functional endoscopic sinus surgery. *Laryngoscope* 1998; 108(2):151-57.
11. Siedek V, Stelter K, Betz CS, Berghaus A, Leunig A. Functional endoscopic sinus surgery- a retrospective analysis of 115 children and adolescents with chronic rhinosinusitis. *International journal of pediatric otorhinolaryngology*. 2009 May 1; 73(5):741-5.
12. Danielides V, Katotomichelakis M, Baiatsouras D, Riga M, Simopoulou M, Kantas E, Nikoietos N. Evaluation of prognostic factors for olfaction in nasal polyposis treated by endoscopic sinus surgery. *Rhinology*. 2009 Jun 1; 47(2):172.