# Functional Endoscopic Sinus Surgery: Review Of 266 Patients

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**Citation**

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**Abstract**

Introduction: Functional Endoscopic Sinus Surgery is a method used with success in the treatment of chronic or recurrent sinusitis & nasal polyps.

Objective: This study was conducted to assess the treatment results in patients undergoing Functional Endoscopic Sinus Surgery for chronic sinusitis, with evaluation of prognostic indicators of success and failure.

Method: This study includes 266 patients who underwent Endoscopic Sinus Surgery for chronic sinusitis over a period of 7 years (from Feb.1995 to Feb.2002). The diagnosis of chronic sinusitis was based on ongoing symptomatology for greater than 3 months and the presence of mucosal disease on radiological examination. A retrospective analysis was done looking at patient data, presenting symptoms, CT findings, operative details and outcome at 6 and 12 months follow up.

Results: The most common presenting complaints were olfactory disturbance followed by nasal obstruction and postnasal discharge. There was a positive history of asthma in 25.4 %, allergies in 13% and ASA triad in 3.3 % patients. 41.7% patients had previous nasal surgeries in the past. Positive outcome was obtained in 81.9% at 3 months and 84.7% at 6 months. Revision operations were required in 7.9% patients. Minor complications were seen in 10.5% and major complications in 0.75%. These results are comparable to those in the literature. Factors affecting outcome included asthma, polyposis & pansinusitis.

Complications: Functional Endoscopic Sinus Surgery has good results and little morbidity. Extent of diseases as reflected by polyposis and pan sinusitis are the most important determinants of the outcome.

Study conducted at: Staffordshire General Hospital, Stafford, UK

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## INTRODUCTION

Chronic sinusitis is a common problem encountered by otolaryngologists worldwide. Treatment of chronic sinusitis is initially medical and those refractory to medical treatment are treated surgically. In 1901 Hirschmann [4] first used a modified Nitze cystoscope to examine the sinuses. Speilberg [12] was the first to use an endoscope to examine the maxillary sinus through the inferior meatus. Maltz [6] coined the term sinoscopy and used a specially made endoscope by Wolfe. The development of compact, straight and angled telescopes, plus the pioneering work of Messerklinger [8], Wigand et al. [13], and others [2] sparked an interest in endoscopic sinus surgery. Functional endoscopic sinus surgery continues to gain popularity among otolaryngologists. Numerous courses have been offered and several papers and books have been written about office evaluation, surgical technique and immediate complications. However as experience is gained, it becomes important to look at results and late complications. This paper looks at symptoms, signs, surgical results and complications of 266 patients who underwent functional endoscopic sinus surgery in a district general hospital in UK.

## MATERIALS & METHODS

Two hundred and sixty six underwent clinic endoscopic evaluation and subsequent sinus surgery at the Staffordshire General Hospital, Stafford, UK from Feb 1995 to Feb 2002. A uniform history was documented for each patient,

including the location of facial pain, nasal discharge, allergic symptoms, nasal obstruction, congestion, anosmia, previous medical management and previous surgical interventions. All patients had unsuccessful medical therapy, which was usually intense.

Each patient was examined with nasal speculum and head mirror. Four mm rigid endoscopes were used to examine the overall nasal cavity and meati. Information was recorded on the presence of a deviated nasal septum; the presence of nasal discharge; the character and appearance of middle and inferior turbinates; the appearance of middle meatus and the presence of polyps. Diagnosis of chronic sinusitis was made on the basis of ongoing symptomatology, including nasal congestion/obstruction, facial pain/headaches, and/or olfactory disturbance greater than 3 months duration.

Initially patients were medically managed according to their symptoms and prior management. Patients who had received previous adequate medical management were evaluated with CT of the sinuses. Patients who had not received adequate medical management were started on appropriate regimen. Patient's were seen 6 weeks after medical management, and if they were still symptomatic, a CT scan was performed.

## RESULTS

From Feb 1995 to Feb 2002, 289 patients underwent Functional Endoscopic Sinus Surgery (FESS). 266 case notes were available for review. Of these 266 patients 100 (37.6%) were female and 166 (62.4 %) were male. The commonest presenting complaints were nasal obstruction (81.5%) & loss of sensation of smell (83.1%) followed by post nasal discharge (44.3%), headache (43.2%), sneezing bouts (38.7%), rhinorrhoea (35.7%)and midfacial pain (28.1%). A history of asthma was reported in 26.3% patients.13.5% patients had some allergies. Aspirin sensitivity was present in 3.4% of patients. On examination 51.9% patients had deviated nasal septum, 81.2% had inferior turbinate hypertrophy, 60.9% had polyps & 62% had some pathology in middle meatus. 42.9% had previous nasal surgery. Ethmoids (anterior/posterior or both) were opened in 78.2%, sphenoid in21.1%. Middle meatus antrostomies were done in 78.9% & frontal recess opened in16.5% patients.

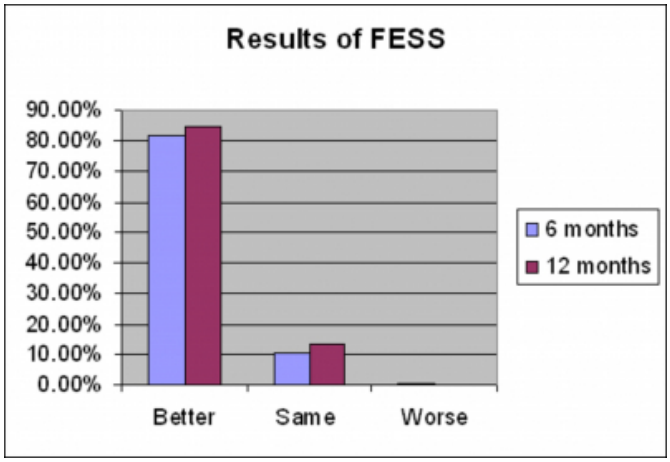
In addition to FESS, septoplasty was performed in15.8%, cautery to inferior turbinates in 20.3% & both septoplasty and cautery to inferior turbinates in 4.5% patients. Postoperatively no packs were put in 48.9% and merocel pack in 18%. We had an overall complication rate of 10.9% of which 6% were immediate & 5.6% were late. We had only 1 major complication i.e. Cerebro Spinal Fluid(CSF) leak in 1 patient (0.37%) which was recognised and dealt with at the time of operation. Minor complication rate was 10.5%. These were adhesions; primary (0.4%), reactionary (3%), secondary haemorrhage (4.1%); black eyes (0.4%); orbital fat prolapse (0.75%) & bradycardia (0.4%). Postoperatively 7.9% patients were given antibiotics, 36.5% decongestant drops & 41.7% steroid sprays.

At 6 months follow up 81.9% patients were better, 10.5% same and 0.4% were worse. 7.14% patients were lost to follow up. 157 out of 266 patients were followed up after 12 months. Rest of the patients had been discharged at 6 monthly follow. At 12 months 84.7% were better & 13.4% were same. Total of 21 out of 266(7.9%) had to undergo revision operations. 12 required 1 revision, 7 required 2 revisions and 2 required 3 revision operations. After revision FESS 13 out of 21(61.9%) were better & 8 out of 21(38%) were same.

Overall outcome was- 81.9% were better, 12% were same & 6% were lost to follow up.

**Figure 1**

Figure 1: Results of FESS




## DISCUSSION

Family practitioners, general physicians, paediatricians, allergists and otolaryngologists see large numbers of patients with symptoms of facial pain, pressure, nasal obstruction and nasal discharge. According to the National centre of Disease Statistics, sinusitis has become the number one chronic illness in the United States, surpassing arthritis [$_5$]. For the majority of patients, sinonasal disease is a nuisance that causes absence from school, work and social functions. However it may exacerbate more serious illnesses such as

asthma or chronic obstructive pulmonary disease, necessitating the use of long term daily steroids or increase in other pulmonary and cardiovascular medications.

There are several ways to estimate treatment success when dealing with sinonasal disease. One is to examine the sinonasal area and see whether it is free of polypoid disease. Another is to determine patient satisfaction through relief of symptoms. Failure is determined by inability to rid patients of symptoms.

The use of the endoscope as a functional tool was pioneered by Messerklinger in1985, and has been popularised as the surgical treatment of choice for uncomplicated chronic inflammatory sinus disease. Much of the available literature concerns the theory, technique and complications of FESS. Both retrospective and prospective outcome analysis have been published with variable experimental designs, results and conclusions. The criteria used for success and failure, patient selection and the precise means and length of follow up are highly variable.

Colclasure et al [1] had 300 patients with success rate of 94% & complications <1%. Ramadan [10] had 337 patients with minor complications rate of 15.1% & major complications of 1.5%. Nass et al [9] reported prospectively on 18 patients finding an 89% success rate postoperatively. Matthews et al [7] in their retrospective analysis of 155 patients determined outcome based on a subjective assessment of symptoms and physical examination. They had 90% success rate with minor complications of 1.5%.

In a prospective analysis of 250 patients Levine [5] found that the success of FESS (80.2%) was independent of preoperative extent of disease, and concluded that patient satisfaction was the best determinant of success. Royal College of Surgeons England audit [3] showed a success rate of 84% for blockage, 75% for pain relief & 96% for discharge after FESS. The overall complications were 1.4%.

Schaefer et al [11] reported an 83% success rate in 100 patients, using clinical improvement, complications and need for further surgery as criteria for outcome.

In our patient group, the criteria for failure included recurrent or residual symptoms or the need for revision surgery within the follow up period for 12 months. All patients who had a diagnosis of chronic sinusitis and underwent FESS were included in the study. Due to the retrospective design of the study, it was not possible to quantify the degree of improvement. We had an overall success rate of 81.9% for 266 patients, major complication rate of 0.37% and minor complication rate of 10.5% which is quite comparable with other studies. 7.9% required revision surgeries & 61.9% were better after revision operations.

## CONCLUSIONS

For both physician and the patient, the diagnosis and management of chronic sinonasal disease is frustrating and challenging. With an appropriate history, nasal endoscopy and proper imaging of the sinuses, a diagnosis can be made and proper treatment initiated. Nasal endoscopy is a method for diagnosing sinonasal symptoms and disease.

Functional endoscopic sinus surgery has provided a safe, efficient method for dealing with identified disease. Surgery can be carried out safely and effectively. Nasal endoscopy provides an illuminated view into the nasal cavity so that chronic sinusitis and sinonasal polyposis can be managed with high success for alleviation of symptoms and improvement of disease with negligible morbidity.

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