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Original Article

Functional Endoscopic Sinus Surgery & Conventional Sinus Surgery in Inflammatory Sinonasal Diseases

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Abstract

Background*: Functional endoscopic sinus surgery is a minimally invasive technique used to restore sinus ventilation and normal function. The most suitable candidates for this procedure have recurrent acute or chronic infective sinusitis, and an improvement in symptoms of up to 90 per cent may be expected following the procedure.*

Objective: *The study has been designed to compare the clinical outcome of functional endoscopic sinus surgery and conventional surgery in the management of inflammatory sinonasal diseases.*

Study design*: This was a prospective study. A combine of both quantitative and qualitative methods was used in conducting the study.*

Method: *Here, a survey method was used to obtain quantitative data from the patients and complication of the operation was observed to obtain qualitative data. Data was collected from a sample that was determined through a semi-purposive method.*

Results: *In the series 9% had synaechia during post operative period and it was 3.3% for FESS and 26.7% for conventional surgery. FESS procedure shows better relief of obstruction, better pain relief and quicker relief of clot than Conventional surgery. In FESS, 56.7% patients reported complete recovery and 43.3% were found symptoms free while in conventional surgery only very few of the patients reported complete recovery. and rest of the patients (93.3%) were symptoms free.*

Conclusion: *The study had shown significant benefits from FESS over conventional surgery.*

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Introduction

Inflammatory sinonasal diseases are common and well recognized clinical syndrome affecting patient of all ages and gender. Medical treatment is first choice of management. Surgical treatment usually done in those cases who are refractory to medical treatment. Cases of chronic sinus infection, nasal polyps, headache, nasal stuffiness and post nasal discharge are quite common. Severe nasal obstruction was perceived within sixty percent of the study populations before surgery. Twenty percent

suffered from moderate type of nasal obstruction and rest of them had mild nasal obstruction before operation. Concerning pre-operative nasal discharge, 60% reported about moderate type of nasal discharge before surgery and a very few of them complained of severe nasal discharge. However 38% had mild type of nasal discharge. Before surgery nearly 57% patients were suffering from moderate type of anosmia and one-fourth had severe anosmia. However, 18.3% had mild anosmia before surgery. Among the patients 65% had the symptoms of moderate headache before surgery and 25% patients were suffering from severe headache. Mild headache was reported by 10% patients before surgery.

A recent, new and revolutionary method known as Nasal Endoscopy and Functional Endoscopic Sinus Surgery (FESS) is now available, both for early and precise diagnosis and treatment. The old myth that sinus infections are not curable needs to be changed now with the availability of endoscopic sinus surgery. Hardly there is any cavity in the body, which had remained unexplored in the present era of endoscopies. The hidden areas inside nose can be precisely visualized, assessed and effectively treated with the help of nasal telescopes. The state of art of new technology of endoscopic sinus surgery is very significant contribution in the recent times to cure sinusitis and nasal polyps & sinus headaches[1] .The aim of the endoscopic sinus surgery is to clear the polyps and diseased ethmoid cells to re-establish ventilation and drainage of the frontal, sphenoid and maxillary sinuses through their enlarged passages. The polyps from nasal cavity and from all the involved sinuses can be removed endoscopically. Endoscopic surgery is performed under Local Anaesthesia or General Anaesthesia. Many anatomical variations in the nasal cavity will predispose to recurrence of disease in the sinuses e.g. concha bullosa, deviated nasal septum, enlarged uncinate process etc. In these cases Endoscopic Sinus Surgery becomes essential. Throughout history, results form paranasal sinus surgery have been far from satisfactory. This is because of the impossibility of re-establishing anatomophysiological normality when using an external approach and in the case of endonasal surgery, because of the great difficulty in doing it with an adequate light[2]. The theoretic principles of FESS, and the detailed diagnostic and anatomic information about the ostiomeatal complex may be beneficially applied to the general management of patient with sinusitis. Thus principles have application both in the medical management of patients and in nonedoscopic surgical techniques[3].The concepts of FESS differ considerably from those of the more traditional technique. Functional techniques in contrast, stress the crucial role of sinus obstruction in the pathogenesis of sinusitis[4]. The restoration of ventilation and the re-establishment of mucociliary clearance are considered key to the resolution of disease and maintenance of healthy sinus mucosa[5]. The surgery is therefore aimed at the removal of obstruction within the ostiomeatal complex. The aim of the study, is to establish the clinical and medical results achieved with the use of FESS and comparing them with the results from traditional surgical procedures in the management of inflammatory sinonasal diseases.

Methods

This comparative study was carried out at the Department of Otolaryngology and Head

Neck surgery of Dhaka Medical College Hospital, Dhaka between the period of November 2007 to October 2008. After obtaining approval from the Hospital Ethical Committee, a total of 60 patients having chronic sinusitis, antrochoanal and ethmoidal polyp were admitted for FEES and conventional surgery, matching the inclusion & exclusion criteria.

The data was recorded in a predesigned questionnaire in terms of demographic and clinical variables. Each of the patient admitted in the Hospital for FESS and conventional surgery and was followed up at 1st post-operative day, at 7th postoperative day and subsequently patient was followed up at 1st month, 3rdmonth and 6th month. During each visit they were subjected to routine ENT examination such as intranasal examination. But special attention was given on important symptoms like crust, clot, orbital complication, nasal obstruction, CSF leakage etc. The subjective and objective evaluations were carried out by asking the patients whether the symptoms are present or not.

The data was analysed using Statistical Package for Social Science version 12 (SPSS 12.0). Mean and standard deviation for continuous variables was computed. Proportion & percentages were computed for categorical variables and a chi square test of significance was applied. A p-value of <0.05 was taken to be statistically significant.

Results

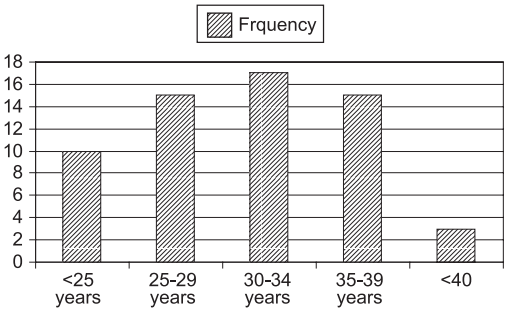

Fig.-1: *Age distribution of the respondents*

Table- I
Type of operation vs. Age of patients

Age	Type of Operation		Total
	FESS	Conventional Surgery	
< 25 Years	3 (30.0%)	7 (70.0%)	10 (100.0%)
25 - 29 Years	11 (73.3%)	4 (26.7%)	15 (100.0%)
30 - 34 Years	10 (58.8%)	7 (41.2%)	17 (100.0%)
35 - 39 years	5 (33.3%)	10 (66.7%)	15 (100.0%)
>=40	1 (33.3%)	2 (66.7%)	3 (100.0%)
Total	30 (50.0%)	30 (50.0%)	60 (100.0%)

Symptomatic relief of symptoms after both type of surgery were observed among the patients but analytical data shows better relief of symptoms after FESS.

Table- II

Symptomatic relief of symptoms after both type of surgery

Symptoms	Respondents		Total	
	FESS	Conventional surgery	No	%
Nasal obstruction:				
Mild	12	17	29	48.3
Moderate	4	3	7	11.7
Absent	14	10	24	40.0
Total	30	30	60	100.0
Nasal discharge:				
Mild	18	24	42	70.0
Moderate	4	2	6	10.0
Absent	8	4	12	20.0
Total	30	30	60	100.0
Anosmia:				
Mild	7	14	21	35.0
Moderate	9	14	23	38.3
Absent	14	2	16	26.7
Total	30	30	60	100.0
Headache:				
Mild	14	12	26	43.3
Moderate	0	6	6	10.0
Absent	16	12	28	46.7
Total	30	30	60	100.0

In the study subjects 35% patients operation were done under local anesthesia and 65% had to give general anesthesia. Comparative picture of both type of surgery in terms of post-operative Hemorrhage, adhesion, relief of nasal obstruction ,pain, crust and clot are shown in table 3, 4 & 5.

Table-III

Distribution of patient according to post-operative Haemorrhage

Name of Operation	Haemorrhage		Total
	Present	Absent	
FESS	2 (6.7%)	28 (93.3%)	30 (100.0%)
Conventional Surgery	8 (26.7%)	22 (73.3%)	30 (100.0%)
Total	10 (16.7%)	50 (83.3%)	60 (100.0%)

Chi-Square=2.3 df =1 P=.129

Table- IV

Distribution of patients on the finding of post operative adhesion

Name of Operation	Adhesion (synaechia)		Total
	Present	Absent	
FESS	1 (3.3%)	29 (96.7%)	30 (100.0%)
Conventional Surgery	8 (26.7%)	22 (73.3%)	30 (100.0%)
Total	9 (15.0%)	51 (85.0%)	60 (100.0%)

Chi-Square=3.2 df=1 P=.071

Table-V

Outcome of operation

Outcome of operation	Name of Operation		Total
	FESS	Conventional Surgery	
Complete recovery	17 (56.7%)	2 (6.7%)	19 (100.0%)
Symptom free	13 (43.3%)	28 (93.3%)	41 (100.0%)
Total	30 (50.0%)	30 (50.0%)	60 (100.0%)

Chi-Square=17.30 df=1 P=.001

Discussion

Functional endoscopic sinus surgery is a minimally invasive technique used to restore sinus ventilation and normal function. The most suitable candidates for this procedure have recurrent acute or chronic infective sinusitis, and an improvement in symptoms of up to 90 percent may be expected following the procedure. Fiberoptic telescopes are used for diagnosis and during the procedure, computed tomography is used to assess the anatomy and identify diseased areas. Functional endoscopic sinus surgery should be reserved for use in patients in whom medical treatment has failed. The procedure can be performed under general or local anaesthesia on an outpatient basis, and patients usually experience minimal discomfort. The complication rate for this procedure is lower than that for conventional sinus surgery.

The results after FESS are good, with most studies reporting an 80 to 90 percent rate of success[6-9]. Good results also have been obtained in patients who have had previous sinus surgery.

The procedure is considered successful if the majority of the patient's symptoms are resolved. Nasal obstruction and facial pain are most likely to be relieved, although postnasal drip often remains a challenge. The technique has been compared with the Caldwell-Luc procedure and although both methods were found to be effective, there was a strong patient preference for FESS[10]. Moreover when looking at our sample we noticed ,Post-operative period, only 6.7% patient complained of haemorrhage post operatively and majority (93.3%) had no haemorrhage in FESS. However in conventional surgery nearly 17.0% patient had haemorrhage at post operative period but 83.3% did not complain about haemorrhage. In the study subjects, out of 60, 9% had synechia during post operative period and it

was 3.3% for FESS and 26.7% for conventional surgery. FESS procedure shows better relief of the obstruction than Conventional surgery. In the post operative period out of 30 patients 21 reported relief of nasal obstruction following FESS however in Conventional surgery group only 7 experienced the relief. By 2nd follow up all the patients in FESS group achieved relief of nasal obstruction, in Conventional surgery 5 patient still reported the obstruction. The study finding demonstrates clear superiority of FESS over Conventional surgery in terms of relief of nasal obstruction. Relief of pain among patient had FESS and Conventional surgery was compared in the line diagram. Following conventional surgery pain relief shows gradual declination. The proportion of patient reporting pain was considerably high in post operative period (27) and at 1st follow-up (21). Substantial Pain relief was not achieved until 2nd follow-up onward. In FESS procedure shows better relief of pain than Conventional surgery. Patient reporting sharply declined at post operative period. Only 8 out of 30 patients in FESS group reported pain at post operative period. By second follow-up the curve reached the baseline. The study finding demonstrates clear superiority of FESS over Conventional surgery in terms of relief of Pain. In the post operative period out of 30 patients 17 has crust following FESS; however in Conventional surgery group 28 had crust. Although by 2nd follow up all the patients in both the groups crust disappeared, in FESS the relief was sharp. The study finding demonstrates quicker relief of crust in FESS than Conventional surgery. In the post operative period out of 30 patients only 4 has clot following FESS; however in Conventional surgery group 16 had clot. Although by 2nd follow up all the patients in both the groups clot disappeared, in FESS the relief was sharper. The study finding demonstrates quicker relief of clot in FESS than Conventional surgery. In FESS, 56.7% patients reported complete recovery and 43.3% were found symptoms free. While in conventional surgery only very few of the patients reported complete recovery and rest of the patients (93.3%) were symptoms free.

Conclusion

FESS and conventional surgery both are effective treatment for inflammatory sinonasal diseases which fails to respond to adequate medical treatment. This study reveal that FESS procedure had better relief of nasal obstruction, pain, crust and clot than conventional surgery. In the study, recurrence of the diseases was seen very few in FESS than conventional surgery. For the relief of subjective symptoms there appears to be a remarkable trend in favour of FESS. FESS as currently practiced is a safe surgical procedure. More randomized controlled trials comparing FESS with other treatments, with long term follow-up are required.

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