International Journal of Basic and Applied Medical Sciences ISSN: 2277-2103 (Online)
An Online International Journal Available at http://www.cibtech.org/jms.htm
2013 Vol. 3 (2) May-August, pp.204-207/Reddy
Research Article

IMPORTANCE OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY (FESS) IN NASAL AND PARA-NASAL SINUS PROBLEMS

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ABSTRACT
The present study shows that Functional Endoscopic Sinus Surgery (FESS) is superior to conventional para-nasal sinus surgery. 40 patients were taken up for the study. The study reveals that the success rate is 85.6% and complication rates are minimum. Follow up in this study is short and patients do not turn up because of improvement in symptoms.

Key Words: *Function Endoscopic Sinus Surgery (FESS), Para-nasal Sinus*

INTRODUCTION
The healing time required after an endoscopy surgery is usually three months. In a series of over 4,000 cases, Stammberger and Wolf (1988) reported only two cases of CSF Rhinnorhea, no intracranial complications and no ophthalmic problems.

Wignad (1990) in 220 cases of undergoing complete ethmoidectomy mainly for polyposis reported CSF leak in 2(0.9%) and 1 case of orbital haematoma. As regards to improvement is concerned chronic rhino-sinusitis 51% cases improved, nasal polyposis 48% and 87% patients improved from nasal discharge and nasal blockage.

Kennedy (1985) shows results regarding long term effects of surgery. The results demonstrate that excellent clinical results, more than 98% patients improved and it can be maintained at nearly 8 years following surgery, even in patients with multiple prior surgeries and extensive disease. Data suggests that smoking at the time of original surgery is detrimental to long term outcome. Recision surgery (FESS) particularly polypectomy, raises the possibility that incomplete prior surgery might increase the potential for continued inflammation and subsequent disease recurrence.

Dr.Shankar B.Medekeri (1999) suggested that diagnostic FESS is useful in detecting the hidden malignancies in nasal cavity and para-nasal sinuses. The Results suggests that out of 100 patients attending his clinic with nasal and para-nasal sinus symptoms in which the routine anterior rhinoscopic examination did not reveal many abnormalities. While diagnostic FESS showed normal findings in 35 cases, OMC complex disease (polyposis) in 25 cases, paradoxical M.T. in 12 cases, concha bullosa in 6 cases etc. It is observed that chronic sinusitis is associated with anatomical variations and pathological abnormalities in the region of Osteo-meatal area. Kamel (1989) studied 158 diseased maxillary sinuses and prove the same point. The study also suggests that the enthonoid sinuses are usually the key to the problem involving sinusitis.

MATERIALS AND METHODS
Patients attending the out-patients and presenting with symptoms suggestive of chronic sinusitis / polyposis are screened for the need of functional endoscopic sinus surgery.

Each patient's history was documented in a proforma. The points included were the history of blockage of nose, recurrent attacks of cold, headaches, epistaxis and sneezing. Further details regarding the kind of nasal discharge (anterior or posterior), allergic symptoms occurring constantly or intermittently and history of previous medical or surgical treatment were noted in each case.

Each patient underwent an anterior and a posterior rhinoscopic examination. A deviated nasal septum, polyposis, hypertrophied turbinates both inferior and middle and pus in the middle meatus or a mass in the nasal cavity, were the findings amongst others, which were specifically looked for.

X-rays of the para-nasal sinuses – Caldwel's view for the frontal and ethmoid sinuses and water's view for the maxillary sinus were obtained, after a course of antibiotics and local and systemic decongestants.

Patients with persistent symptoms or persistent haziness in one or both of the sinuses after a course of antibiotics and decongestants were selected as candidates for this study.

Forty patients with chronic recurrent resistant sinusitis or polyps underwent FESS from April, 1997 to June, 1999 and were included in this study. Most of the procedures were performed under local anesthesia. But for few of cases, general anesthesia was also used. Both the nostrils were pre-operatively packed lightly with a roller pack soaked in 4% xylocaine and ephedrine solution. Intra operatively cotton pledgets soaked in the above solution were inserted into the middle meatus to maintain anaesthesia.

The osteo-meatal complex area was injected with 2% xylocaine with 1:1 lakh adrenaline. The endoscopic examination was performed in most patients with 4mm 0^o telescope, which is wide angled and with 4 mm 30 ^{o} in some patients. All the examinations were performed using Messerklinger technique. An antroscopy was performed in those patients in whom the ostium of the maxillary sinus could not be visualized. In about 26 cases uncinectomies were performed. Anterior and middle ethmoidal cells were exenterated and when indicated posterior ethmoidectomy was performed. The ostium of the maxillary sinus was widened using angled and back biting forceps (ostrum reverse cutting forceps) for most of the cases of chronic maxillary sinusitis and also for cases of rhinitis caseosa Canine fossa approach was also done in 2 cases to view the antrum of the maxillary sinus. By way of widening of medial wall of the maxillary sinus, after doing uncinectomy, maxillary sinus, its different walls inspected and diseased portions, antral polyp / cyst removed or scooped adequately.

Whenever, concha bullosa of the middle turbinate was present, it was removed. In few cases, we have done diagnostic nasal endoscopy and biopsy. It is interesting to note here, that at times, some patient had to undergo 2-3 procedures together (like uncinectomy and polypectomy and widening of maxillary sinus Medialwall and ostium etc).

Post operatively, gel foam soaked with betadine was kept in the middle meatus or light anterior nasal packing was done, depending on the intra-operative bleeding. Patients attended first follow-up clinic after 7 days. Patients were followed up for a period varying from two months to fourteen months.

RESULTS AND DISCUSSION

Following are the operations done on these 40 patients and the procedures are tabled as follows: (Table 1)

Table 1: Operative Procedures

S. No.	Surgical Procedure	No. of Procedures done
1.	Uncinectomy and Ethmoidectomy with ethmoid polypectomy	26
2.	Widening of the maxillary ostium and medial wall	19
3.	Antrostomy and antroscopy	09
4.	Antro-choanal polypectomy	06
5.	Diagnostic endoscopy	06
6.	Concha bullosa removal	04
7.	Partial turbinectomy	04
8.	**Others**	
a)	Adhesiolysis clearance	01
b)	Previous polypectomy done (revision)	01
c)	Excision	
d)	NPC biopsy	01
e)	Bulla ethmoidalis removal	01

At times, the same patient had to undergo more than 1 or 2 procedures, as different findings were present on the operative table.

All 40 patients underwent FESS out of which 12 were unilateral and the rest bilateral. In 2 cases septoplasty wad advised, on follow-up and re-sinoscopy at a later date. In 4 cases each concha-bullosa was excised and partial turbinectomy done (i.e., by medially fracturing the middle turbinate, the lateral part of middle turbinate was partially removed, to widen the middle meatus).

In 19 cases, maxillary ostium had to be widened anteriorly, with the help of Ostrum's reverse cutting forceps. Antrostomy and antroscopy was done in 9 cases.

Patients are followed up with respect to symptomatic and clinical improvement which was graded as per table 2.

Table 2: Follow-up Rate

Sl.No.	No. of attacks of sinusitis/polyp recurrence on follow up	Prognosis	No. of cases	Percentage
1.	No attack	Good	17	48.00
2.	1-2 attacks	Fair	13	37.00
3.	More than 2 attacks	Bad	05	14.20

And some patients are followed-up by re-sinoscopy during the period of 2-14 months. Considering three were lost to follow-up and two were advised septoplasty, 35 patients are eventually evaluated on follow-up.

Of the 35 cases, 17 did not complain of any symptoms of sinusitis / polyps following surgery. 13 suffered from 1-2 bouts of sinusitis following surgery, 5 patients did not find much improvement while 2 patients had persistent symptoms.

There are several ways to estimate the treatment success when dealing with sino-nasal disease. One is to examine the sino-nasal 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 off symptoms.

In present study success rate is found to be of 85.6% out of which 48.5% had complete relief of sinusitis, while 37.1% patients had suffered from 1-2 attacks of sinusitis in the post – operative period. Overall 30 patients (good and fair results) were successfully treated.

Five cases i.e. 14.2% did not show any improvement. This chronicity inspite of medical management, removal of the infected tissue and surgical correction of anatomical abnormalities, may represent the increased secretions from mucosa which either secretes an abnormally thick mucus or mucus which cannot be cleared because of non-existent, poorly functioning cilia or chronic pathogenic bacteria. One more important reason could have been due to an inaccurate assumption by the surgeon that signs and symptoms noted clinically could be relieved by sinus surgery.

Previous reports of success for traditional management of sino-nasal disease indicate success for chronic sinusitis and polyposis ranging from 44-83% (i.e., clear improvement to very good symptom free improvement).

Complication rate in the present study is very low. Synechiae formation and hemorrhage were the commonly seen complications of the surgery. During surgery, bleeding is one of the commonest complications (which was treated by pack, suction, xylocaine and adrenaline patties and waiting for few minutes with thorough suction, even if not controlled, abandon the procedure and do it at a later date).

In one case lamina papyracia was accidentally breached (which was tested by pushing the eye ball medially where by lamina moves and this is a yellowish glistening thin bone, and orbital fat floats in saline). Hemorrhage was controlled as explained above. Adhesiolysis was done at a later date for synechiae. Hemorrhage, CSF leak and blindness were considered as major complications and orbital

haematoma, synechiae, closure of natural ostiae, orbital emphysema and tooth pain as minor complications.

Although a success rate of 85.6% is encouraging with follow-up ranging from 2-14 months in our study. Many patients do not turn-up for the follow-up, investigations or re-admission. It may be because of rapid improvement of symptoms and signs. Therefore, follow-up scopy findings are not fully representative. However, follow-up for patients with sino-nasal disease should continue for a longer time to truly assess the surgical effectiveness.

Following conclusions are drawn from the present study:

1. The study shows that FESS is superior to (success rate 80-90%) conventional para-nasal sinus surgeries (44-83%).
2. The present series met with a success rate of 85.6% (48.5% good, 37.1% fair results).
3. Endoscopy can be carried out for those patients of chronic sinusitis who do not respond to medical line of treatment for better result and prognosis.
4. Follow up in this study is short, and patients do not turn up because of improvement in symptoms. Therefore, more definitive statements about the results cannot be made.
5. By nasal endoscopy, maximum mucosa preservation and minimal tissue destruction is possible.

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