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Conventional Sinus Surgery Vs Fess

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Abstract:
Objectives: *This study of Conventional sinus surgery vs FESS was done in the Department of ENT, Government General Hospital, Guntur from 2011 to 2015 to compare conventional sinus surgery with FESS.*
Materials and methods: *The present clinical study has been carried out from 2011 – 2015 after getting informed consent from the patients. This study was conducted in 100 patients of nasal polyposis aged between 10 – 60 years, 50 patients undergoing conventional sinus surgeries and 50 patients undergoing FESS at Government General Hospital, Guntur.*
Inclusion criteria: *All patients with nasal polyposis from aged 10 – 60 years of both the sexes.*
Exclusion criteria: *patients with chronic sinusitis, patients with bronchial asthma, patients with allergy to any of the drugs and pregnant patients.*
A prospective randamised controlled study was done. Patients were randomly assigned to either of the groups. Group A underwent conventional sinus surgery and Group B underwent FESS.
At preoperative visit a detailed history of the patient was taken, a through clinical examination was conducted and necessary investigations are done.
Results: *A total of 100 cases were selected for the comparative study, conventional nasal surgery was done in 50 cases, of which 22 are male patients and 28 are female patients, while FESS is done in 50 cases, of which male patients are 19 cases and female are 31 cases respectively. The results were obtained in terms of incidence of age and sex, symptoms, radiological findings, operative procedures and postoperative outcome.*
Conclusion: *Functional endoscopic sinus surgery has provided a safe and efficient method for dealing with different sinonasal diseases when compared to conventional sinus surgical procedures.*
Keywords*: DNE (Diagnostic Nasal Endoscopy), CT PNS (Computed Tomography of Para Nasal Sinuses), FESS (Functional Endoscopic Sinus Surgery).*

I. Introduction:

Conventional surgery of the sinuses is aimed at removing the chronically inflamed and irreversibly damaged mucosa. Similarly, the external surgical approaches to the ethmoid and frontal sinuses were designed to be "radical operations" in which the disease was completely cleared. these procedures left scars and caused significant bruising and discomfort. the caldwell-luc procedure also caused numb teeth. these "conventional procedures," as well as the sinus washout, concentrate on the secondarily infected sinus while ignoring the important primary pathology within the nose.

The rationale behind FESS is that localized pathology in the osteomeatal complex blocks the ostia and leads to inflammation in the dependent sinuses. The surgical interventions of the procedure are designed to remove the osteomeatal blockage and restore normal sinus ventilation and mucociliary function. FESS, like all minimally invasive surgery, is designed to combine an excellent outcome with minimal patient discomfort. As mentioned, the main advantage of FESS compared with traditional techniques is that it is less invasive, resulting in minimal postoperative discomfort. Scars and damage to the nerve supply of the teeth are also avoided. The use of the endoscope permits a better view of the surgical field, and this is probably responsible for the lower rate of complications. In FESS, the focal point of the surgery is the osteomeatal complex. The procedure may be performed with local anesthesia, with or without sedation. FESS is suitable for outpatient surgery.

The conventional operations antral wash and inferior meatal antrostomy does not establish the normal physiological ventilation and drainage to the larger sinuses. It is established that the mucosal cilia beat towards the natural ostium. The intra nasal antrostomy in inferior meatus only provide the ventilation, no mucus will drain through it as the cilia will beat towards the natural ostium.so the pathology in the maxillary sinus mucosa cannot revert to normal, as the block at the natural ostium is not removed. The problem persists and recurs again, and failure rate will be high. The **FUNCTIONAL ENDOSCOPIC SINUS SURGERY** is a mucosal conservation surgery which removes the nasal polyps completely by direct visualization through the telescope. This procedure removes precisely the diseased mucosa and preserves normal functioning mucosa. The FESS

removes the pathology in the narrow clefts of the anterior ethmoid, ethmoid infundibulum and ethmoid bulla. The widening of the natural ostium by middle meatal antrostomy and joining the accessory ostium with anterior or posterior fontanelles will assist the pathological secretions gaining entry into the nose. The main aim in FESS is to establish normal transport of mucus through the natural ostia by removing the obstruction caused by the polyps, concha bullosa, paradoxical middle turbinate, over pneumatized bulla, haller cells and the pre chambers which are responsible for causing obstruction to the large sinuses. It will establish the ventilation and drainage through the physiological natural ostia in all the para nasal sinuses.

II. Material And Methods

The present clinical study has been carried out from 2011 – 2015 after getting informed consent from the patients. This study was conducted in 100 patients of nasal polyposis aged between 10 – 60 years, 50 patients undergoing conventional sinus surgeries and 50 patients undergoing FESS at Government General Hospital, Guntur.

INCLUSION CRITERIA: All patients with nasal polyposis from age 10-59 years of both sexes.

EXCLUSION CRITERIA: Patients with chronic sinusitis, Bronchial asthma, drug allergy and pregnant patients

A prospective randomized controlled study was done. Patients were randomly assigned to either of the following groups.

Group A: underwent conventional sinus surgery

Group B: underwent functional endoscopic sinus surgery

Both groups were matched demographically.

At preoperative visit, a detailed history of patient was taken. A thorough clinical examination was conducted and necessary investigations are done and reviewed if necessary.

***Method of* Collection of *data*: Cases selected for study were subjected to detailed history, clinical and radiological examination. They are assessed and followed subjectively and objectively by diagnostic nasal endoscopic examination.**

Patients who are not undergoing surgery will be given medical management.

The procedure of Conventional nasal surgery and FESS were explained to the patient to make the patient relax and cooperate with the surgeon while doing the procedure. The operated patients are followed up for a period of six months for identification of any remnant of disease which decreases the chances of revision surgery. Post-operatively symptomatic improvement, complications are evaluated and the outcome of FESS in the management of sinonasal disease was shown.

III. Results

Types of surgery

Type of surgery	Male patients	Female patients
Conventional sinus surgery	22	28
Functional endoscopic sinus surgery	19	31

Age incidence of nasal polyposis

Age group	No of cases of nasal polyposis
10-19 years	17
20-29 years	22
30-39 years	23
40-49 years	21
50-59 years	17

Gender differentiation of incidence of nasal polyposis

Age group	Male patients	Female patients
10-19 years	9	8
20-29 years	7	15
30-39 years	10	13
40-49 years	9	12
50-59 years	7	10

Surgery types in different sexes

Type of surgery	Male patients	Female patients
Conventional sinus surgery	22	28
FESS	19	31
Total cases	41	59

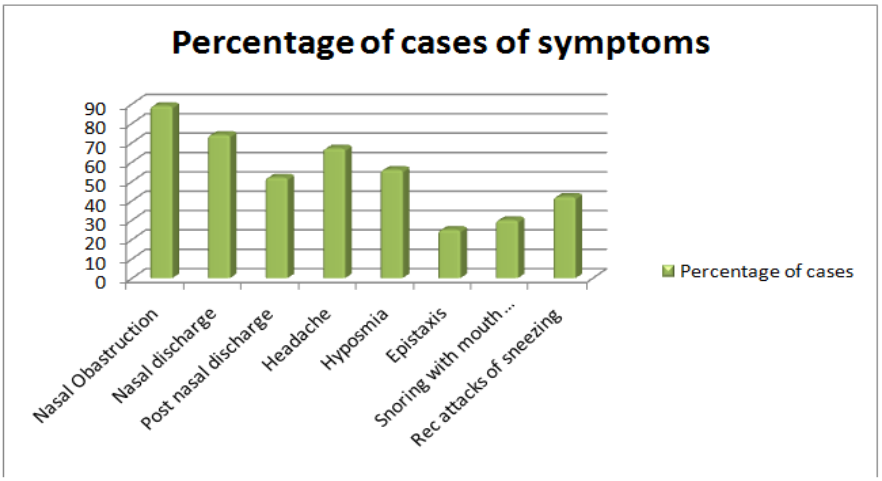
X ray findings in Nasal Polyposis patients

Xray findings	Total no. of cases
U/L Maxillary haziness	36
B/L Maxillary haziness	61
Ethmoid haziness	53

CT scan findings in Nasal polyposis patients

CT scan findings	No. of cases
Pan Sinusitis	29
Fungal infection	5
Erosion of Lamina Papyraceae	5
Disease of maxillary and Ethmoid cells	13
Soft tissue mass in the nasal cavity	42
Sphenoid sinus fluid	6

Type of surgery	No. of cases
Caldwell luc approach	19
Polypectomy for maxillary polyps	12
Polypectomy for Ethmoid polyps	19
Total cases	50



Symptoms	Percentage of cases
Nasal Obstruction	89%
Nasal discharge	74%
Headache	67%
Hyposmia	56%
Postnasal drip	52%
Epistaxis	25%
Snoring with mouth breathing	30%
Recurrent attacks of sneezing	42%

Total Number of cases posted for Conventional nasal surgery

Recurrences after conventional sinus surgery	No. of cases
Recurrent polyps	5
Paradoxical middle turbinate	2
Ethmoid bulla	2
Total cases	9

Total number of cases posted for FESS

Recurrences after FESS	No. of cases
Synechae between middle turbinate and lateral nasal wall	4
Fibrotic adhesions between infundibulum and ethmoid cells	2
Polypoidal changes in ethmoid area	2

Recurrences after Conventional sinus surgery

Type of FESS	No. of cases
1}Uncinectomy +MMA	50
2}Uncinectomy+MMA +Ethmoidbullectomy	26
3}Uncinectomy+MMA+Ethmoidbullectomy+PosteriorEthmoidectomy	12
4}Uncinectomy+MMA+Ethmoidbullectomy+ Posteriorethmoidectomy+Sphenoidsinusotomy	4

Recurrences after FESS

Complications after Conventional nasal surgery

Complications after conventional sinus surgery	No. of cases
Infraorbital neuralgia	4
Closed/Reduced Opening of MMA	7
Recurrence of polyps	5
Synechae	8

Post operative complications of FESS

Complications after FESS	No. of cases
Synechaie	4
Stenosis of MMA	2
Orbital hematoma	2

Post operative symptomatic relief -- Conventional sinus surgery{18 months}

Relief of symptoms after Conventional surgery{18 months}	Total cases	Relieved cases	Percentage
Nasal obstruction	45	34	75.5%
Nasal discharge	40	30	75%
Headache	30	21	70%
Hyposmia	30	24	80%
Post nasal discharge	25	19	76%

Post operative symptomatic relief –FESS{18 months}

Relief of symptoms after FESS{18 months}	Total cases	Relieved cases	Percentage
Nasal obstruction	45	43	95.5%
Nasal discharge	40	30	75%
Headache	30	28	93.3%
Hyposmia	30	26	86.6%
Postnasal discharge	25	21	84%

Post operative symptomatic relief after conventional nasal surgery{12months}

Relief of symptoms	Total cases	Relieved cases	Percentage
Nasal obstruction	45	32	71.2%
Nasal discharge	40	30	75%
Headache	30	21	70%
Hyposmia	30	20	66.7%
Postnasal drip	25	19	76%

Post operative symptomatic relief after FESS {12months}

Relief of symptoms	Total cases	Relieved cases	Percentage
Nasal obstruction	45	42	93.3%
Nasal discharge	40	32	80%
Headache	30	27	90%
Hyposmia	30	24	80%
Post nasal drip	25	21	84%

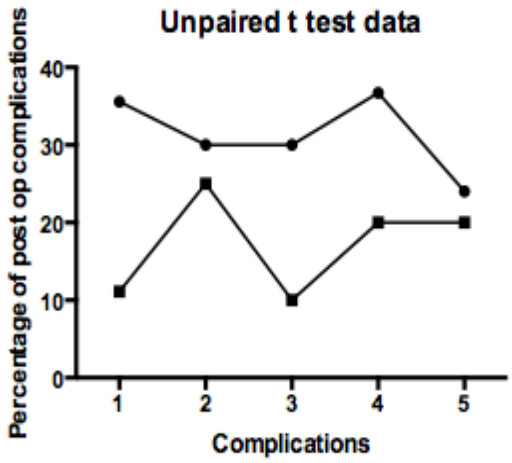
Post operative symptomatic relief after Conventional nasal surgery{6 months}

Relief of symptoms	Total cases	Relieved cases	Percentage
Nasal obstruction	45	29	64.4%
Nasal discharge	40	28	70%
Headache	30	21	70%
Hyposmia	30	19	63.3%
Postnasal discharge	25	19	76

Post operative symptomatic relief after FESS{6 months}

Relief of symptoms	Total cases	Relieved cases	Percentage
Nasal obstruction	45	40	88.9%
Nasal discharge	40	26	65%
Headache	30	27	90%
Hyposmia	30	24	80%
Postnasal discharge	25	20	80%

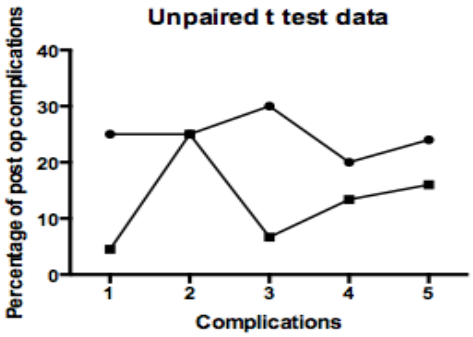
Comparatative study between Conventional sinus surgery and FESS depending on Postoperative symptom relief after 6,12 and 18 months.As the symptomatic relief is good in FESS after 6, 12 and 18 months post operative period, FESS is considered as effective approach for nasal polyposis. As p value is statistically significant(p less than 0.05),FESS is effective than conventional nasal surgery.



After 12 months post operative period, the symptomatic relief is better in post operative cases of FESS

As p value is 0.0258, it is considered as statistically significant, FESS is considered as better option for nasal Polyposis.

After 18 months of post operative period, symptoms relieved better in post op FESS patients P value is 0.0181, it is considered as statistically significant. FESS is the best surgical procedures for nasal polyposis, better and effective than conventional sinus surgery.



IV. Discussion:

The outpatient department of ENT in Government general hospital, Guntur registered 52,658 cases of Ear, Nose and Throat problems from November 2013 to April 2015. 100 cases of nasal polyps were taken in this study, out of which 25 cases were intranasal polyps, 39 cases were antrochoanal polyps and 36 cases were ethmoid polyps. Of these 100 cases of nasal polyposis, 36 cases are unilateral and 64 cases are bilateral. Of 100 cases, 50 cases were subjected to conventional sinus surgery and 50 cases to functional endoscopic sinus surgery.

In a total of 100 cases selected for the comparative study, conventional nasal surgery is done in 50 cases, of which 22 are male patients and 28 are female patients, while FESS is done in 50 cases, of which male patients are 19 and female are 31 respectively. The most common age of incidence for nasal polyposis is 20 to 49 years. Patients in the age group of 20-29 years include 7 male patients and 15 female patients, 30-39 years include 10 male patients and 13 female patients, and 40-49 yrs age group includes 9 males and 12 females. In 100 cases of nasal polyposis, 36 cases have unilateral nasal polyposis and 64 cases have bilateral nasal polyposis. When these patients are subjected to Xray paranasal sinuses, 36 cases show unilateral maxillary haziness and 61 cases show bilateral maxillary haziness and 53 cases show ethmoid haziness. On CT scan, 29 patients showed pan sinusitis, fungal infection in 5 cases, erosion of lamina papyraceae in 5 cases, disease extending to maxillary and ethmoid cells in 13 cases, soft tissue mass in nasal cavity in 42 cases and sphenoid sinus fluid in 6 cases .In total of 100 cases subjected to study , most common symptom is nasal obstruction seen in 89 cases followed by nasal discharge in 74 cases, headache in 67 cases. Hyposmia is seen in 56 cases, post nasal drip in 52 cases, sneezing attacks in 42 cases and snoring with mouth breathing in 30 cases. There were 55 males and 45 females with age ranging from 10 years to 59 years. The main symptoms of these patients are nasal obstruction in 89 cases, nasal discharge in 74 cases. The nasal discharge was thick mucoid or mucopurulent. Besides these symptoms the other associated symptoms were post nasal drip in 52 cases, headache in 67 cases and hyposmia in 56 cases, occasionally self limiting epistaxis in 25 cases. Mouth breathing with snoring was complained by 30 patients. 42 patients had recurrent attacks of sneezing mainly during winter season. The common symptom in nasal polyposis is nasal obstruction 89% next common symptom is nasal discharge seen in 74%. 50 cases of nasal polyps are removed with the conventional nasal surgical procedures. There are 19 cases of Caldwell luc operation done for antrochoanal polyps. Simple polypectomy was done for 12 cases of maxillary polyps and 19 cases of ethmoid polyps. 50 cases were done by functional endoscopic sinus surgery. Uncinectomy was performed in all the cases. 18 polyps were seen arising from accessory ostium from posterior fontanella, 6 polyps were from natural ostium. Polyps were removed and middle meatal antrostomy was done in all the 50 cases. The ethmoid bulla is removed along with the ethmoid polyps in 26 cases. Posterior ethmoid disease was cleared in 12 cases. Sphenoid sinusotomy was done in 4 cases. Conventional sinus surgery had its own recurrences seen as recurrent polyps in 5 cases, due to paradoxical middle turbinate in 2 cases and polypoidal changes in ethmoid bulla area in 2 cases. Recurrences after FESS are due to synechae between middle turbinate and lateral nasal wall in 4 cases, fibrotic adhesions between ethmoid infundibulum and ethmoid cells in 2 cases, polypoidal changes in ethmoid area in 2 cases.

In this study endoscopic surgery has enhanced the visualization of lesion and precise excision without any external incisions . The use of the endoscope permitted detection of the site of polyp, clearing the disease from ethmoidal, sphenoidal sinuses without any residual disease as demonstrated by post-operative regular endoscopic examination and post-operative CT scan. The endoscopic examination showed recurrence of polyps in 5 cases, they were removed, paradoxical middle turbinate seen in 2 cases were resected. In 2 cases middle meatal obstruction caused by large ethmoidal bulla is removed by doing bullectomy. Ethmoid bulla removal and middle meatal antrostomy cleared the obstruction in the middle meatus. FESS was supplemented by conventional surgery in 4 cases at the time of operation. All the 4 cases were subjected to Caldwell luc operation as the maxillary antrum is completely filled with the polypoid mucosa and as it cannot be removed through the middle meatal antrostomy. 8 patients were subjected to revision FESS in whom there was no response after 6 months of primary FESS. Fibrotic adhesions between the infundibulum and ethmoid cells around the maxillary ostium were removed in 2 cases. 2 cases showing polypoid mucosal changes in ethmoid area were removed. In 4 cases the revision FESS was done for recurrence of symptoms, nasal obstruction and nasal discharge. On clinical examination there was synechiae between middle turbinate and lateral nasal wall, and post nasal drip. Revision FESS showed patent maxillary ostium on both sides. Mucosal thickening in the antrum was removed on both sides. Postoperative silastic sheet was kept for 2 weeks to prevent synechiae. Conventional nasal surgery was done in 2 cases who underwent FESS one year before as they have the recurrence of symptoms. One case was recurrent maxillary polyp, in which the maxillary antrum was completely filled with necrotic mucosa was removed by Caldwell luc operation. The complications observed in the conventional nasal surgery such as Caldwell luc are infra orbital neuralgia, seen in 4 cases, inferior meatal antrostomy was found closed or reduced to less than 0.5 mm in 7 cases. Recurrence of polyp is seen in 5 cases, synechiae was seen in 8 cases. The complications observed in the FESS are synechiae in 4 cases and stenosis of middle meatal antrostomy in 2 cases. Orbital hematoma was seen in 2 cases. The symptom response after conventional nasal surgery like nasal obstruction was relieved in 36 cases out of 45 patients, nasal discharge was subsided in 36 cases out of 45 patients, headache was reduced in 23 cases out of 30 cases, post nasal discharge in 19 cases out of 25 patients and hyposmia in 26 out of 30 cases. The symptoms responded after FESS are nasal obstruction was relieved in 43 cases out of 45 cases, nasal discharge relieved in 34 out of 45 cases, headache subsided in 28 out of 30 cases, post nasal discharge reduced in 21 cases out of 25 cases and hyposmia was reduced in 26 out of 30 cases.

V. Conclusion:

Functional endoscopic sinus surgery has provided a safe and efficient method for dealing with different sinonasal diseases. By Nasal endoscopy, maximum mucosa preservation and minimal tissue destruction is possible. It provides an illuminated and magnified view into the nasal cavity so that sinonasal diseases can be managed with high success for alleviation of symptoms and improvement of disease with negligible morbidity. The endoscope revolutionized the practice of endoscopic nasal surgery. As a result, external sinus surgery is performed rarely today, and more emphasis is placed on functional endoscopy and preservation of normal anatomy. Endoscopic surgery of the nose and paranasal sinuses has provided improved surgical outcomes and has shortened the length of stay in hospital. It has also become a valuable teaching tool. Patients whose cavities returns to normal on endoscopic examination after FESS and postoperative care, were much less likely to require revision surgery. Post operative follow up is as important as surgery and should be tailored to each patient's need.

This study shows that FESS is superior to (success rate of 80%) conventional methods. So we conclude that functional endoscopic sinus surgery (FESS) has provided a safe and efficient method for dealing with different sinonasal diseases and can be performed with high success rate for alleviation of symptoms with negligible morbidity.

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