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Outcome of Functional Endoscopic Sinus Surgery in Patients with Chronic Rhinosinusitis not Responding to Medical Therapy

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ABSTRACT

Background: chronic rhinosinusitis (CRS) is common chronic condition and is treated with antibiotics, nasal irrigation and steroids. Patients who do not respond to medical therapy are subjected to functional endoscopic sinus surgery. The objective of the study is to assess the clinical improvement after functional endoscopic sinus surgery among the patients of chronic rhinosinusitis (CRS) who failed medical management. **Methods:** A Prospective longitudinal study conducted within a period of 1 year. Patient with CRS who failed with medical management were subjected functional endoscopic sinus surgery (FESS). Pre –operative symptoms score and endoscopic score were assessed and compared with that of post- operative scores at the end of 6 weeks and 12 weeks. **Results:** Fifty-two patients who completed three months of follow up were included in the study. The mean preoperative VAS symptoms score was 5.7 and was 2.23 after FESS and difference was significant (P <0.01). There was significant improvement of the endoscopic score (ES) after FESS, the mean ES preoperatively was 4.038 and it improved to1.31 at 6 weeks and 0.75 in the 12 postoperative weeks. Post-operative adhesion was the most common complication and occurred in 15% of patients. **Conclusions:** FESS is a safe procedure. Patients with CRS who don't respond to medical therapy should undergo this safe surgical procedure FESS with good outcome.

Keywords: chronic rhinosinusitis; functional endoscopic sinus surgery; outcome.

INTRODUCTION

Chronic rhino-sinusitis (CRS) is one of the commonest chronic disease entity involving nose and paranasal sinuses. It ranks second in all chronic condition in USA affecting about 31 million American people in a year.[1,2] CRS is considered as a medical condition and treatment starts with a course of antibiotics, nasal irrigation and steroids. Patients who don't respond to medical management are advised for surgical procedure, and functional endoscopic sinus surgery (FESS) is the only surgical method currently available. There is an ongoing debate regarding the effective management of CRS by medical or surgical method, and no conclusion is drawn yet as patients are mostly assessed subjectively.[3]

Continuous improvement in visualization, instrumentation, and technology within endoscopic sinus surgery have allowed surgeons to operate safely and effectively by decreasing operative time, blood loss, and postoperative scarring.[4-6] In this study we are aiming to find subjective and objective clinical improvement in CRS patients not responding to medical therapy after intervention with FESS.

METHOD

It was a prospective longitudinal study conducted in the department of ENT & HNS, BPKIHS from 1st June 2015 to 31st May 2016 within a period of 1 year. The objective of the study was to assess the clinical improvement in patients who failed medical therapy in chronic rhino sinusitis after FESS. Ethical clearance was taken from the institutional review board prior to the study. Patients with chronic rhino sinusitis who failed with medical management were included in the study. Patients under 16 years of age, and cases of revision surgery were excluded.

Patients who did not respond to medical treatment with oral antibiotics, topical and or systemic steroid and nasal irrigation at the end of 12 weeks of therapy were planned for surgery. Before surgery endoscopic evaluation was done and graded according to Lund and Mackay endoscopic score and clinical outcome of the patients were assessed according to Lund and Mackay questionnaire and each symptoms were graded on visual analog scale (VAS).[7] Computed tomography of nose and para-nasal sinuses was done prior to the surgery to the exact extent of disease and any anatomical variation that will be helpful during

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surgery. Endoscopic sinus surgery was performed in all patients by the faculties under general anesthesia. Complication during surgery or later was noted subsequently. Patients were discharged as per protocol of the department.

Patients were followed on day 7 for assessment and nasal cleansing. Subsequent follow up was done on 6 weeks and 3 month or as per need after assessment of patient during the surgery or first follow ups. During each follow up endoscopic evaluation was done and graded according to Lund and Mackay questionnaire and clinical outcome of the patient were assessed according to Lund and Mackay questionnaire and each symptoms were graded on VAS.

RESULTS

Total 52 patients who failed medical management and underwent functional endoscopic sinus surgery and completed the follow up of 3 months were included in the study. Out of 52 patients 32(62%) were male and 20(38%) were female. The mean age of presentation was (33.06 ± 13.2) years and range from 16 to 73 years. The duration of symptoms ranges from 6 months to 10 years with median duration of presentation of 27.62 months (SD 26.2). Majority of patients had polyp at the time of presentation. In 30(57.6%) of subjects polyps were visible by either anterior rhinos copy or rigid endoscopy. Before FESS nasal blockage was the most common symptoms every patients presented had nasal obstruction except one (Figure 1) and most severe symptoms with VAS score of 5.88.

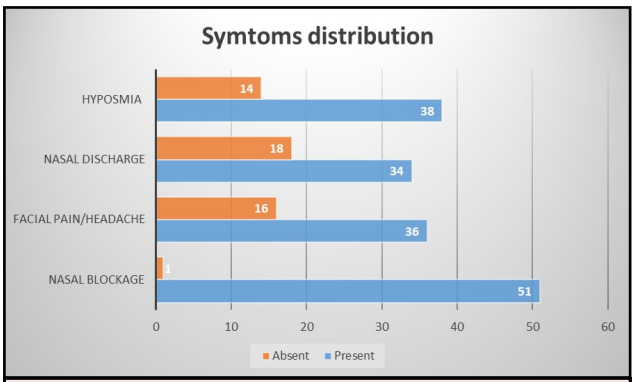

Figure 1. Symptoms distribution.

The postoperative mean VAS score for all the symptoms student t-test showed a statistically significant and sustainable improvement after surgery at 6 and 12 weeks (P<0. here was overall improvement of VAS was from 5.70 to 2.23 and most improved symptom was the nasal discharge (Figure 2).

Improvement of each symptom was when the VAS was reduced to 3 or less. Overall symptom improved among 41(78.8) out of 52 patients with 11 patients still complained of some discomfort.

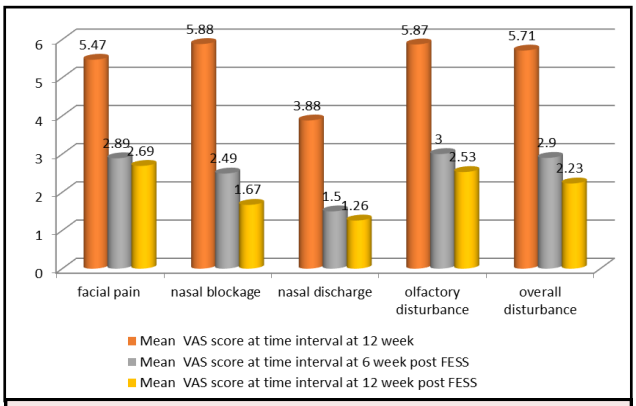

Figure 2. Symptoms score improvement as VAS.

About 94% with nasal discharge had improvement after Functional endoscopic sinus surgery (Table 1).

Table 1. Symptoms Improvement after FESS.

Symptoms	No. of patients improved /total	Improvement (%)
Overall discomfort	41/52	78.8
Headache/facial pain	29/36	80
Nasal discharge	32/34	94.1
Hyposmia	31/38	81.5
Nasal obstruction	42/51	82.3

Student t-test showed significant improvement of the endoscopic score (ES) after FESS, endoscopic score (ES) included the summation of nasal polyp, discharge. The mean ES preoperatively was 4.038 and it improved to1.31 at 6 weeks and 0.75 in the 12 postoperative weeks (Table 2).

Table 2. Pre-op and post-op mean endoscopic score

	Mean	N	Std. Dev.	95% CI	P value
ES pre FESS	4.0385	52	1.66	2.745-	0.00
ES after 6weeks	1.31	52	1.36	3.832	
ES after 12weeks	.7500	52	1.20	2.144- 3.317	0.00

Post op adhesion (15%) and peri-orbital oedema (9.6%) wee the more frequent complications. There was recurrence of polyp in 9.6% patients within a follow up period of 12 weeks.

DISCUSSION

Chronic rhino sinusitis is a common clinical entity and its prevalence ranges from 1.1 to 16%.[8,9] The prevalence of nasal polyp among patients of CRS varies, a large cohort of 803 studies by Bhattacharya and Smith TL had nasal polyps ranging from 19%-36%.[10–12] Our study had a higher (52%) case of polyp which might have been due to inclusion of patients with failed medical therapy, and being the only tertiary care center in eastern Nepal we receive cases from other center where there aren't facilities of FESS and patients with nasal polyposis were frequently referred to our center.

We found statistically significant improvement after FESS in patients not responding to the

medical therapy both subjectively (VAS score) and objectively (nasal endoscopy). There was improvement of mean VAS in overall discomfort from 5.71 to 2.23, improvement in headache/facial pain from 5.47 to 2.69, nasal discharge from 3.88 to 1.26, hyposmia from 5.87 to 2.53 and nasal blockage from 5.88 to 1.67. There was overall improvement in 78.8% patients. Similarly improvement in facial pain/headache was 80%, nasal discharge in 94.1%, hyposmia in 81.5% and nasal blockage in 82.3%. These results are similar to various other studies. Mishra DK in his study in western Nepal found improvement in nasal obstruction among 93.7% cases, improvement in nasal discharge was 89.91% and improvement in headache was 93.1% with overall improvement of 87.7%.[13] The endoscopic score in our study had significant improvement at 6 and 12 postoperative week compared to preoperative score. The preoperative endoscopic score was 4.038±1.66 and was reduced to 1.31±1.36 at 6th and 0.75±1.2 at 12th postoperative week.

In the present study 33(63%) patients were non-smoker and 19(37%) were smokers. The postoperative VAS was lower, 2.02 among non-smokers than the smoker group with mean VAS of 2.52. The outcome was not statistically significant but the results demonstrates a better outcome of FESS among non- smoker. There is less favorable outcomes among smokers as smoking impairs ciliary function and impairs wound healing, affects the drainage.[14]

In our study about 20 % patient developed minor complication like adhesion, periorbital oedema and post-operative hemorrhage. Post adhesion was the most common complication occurring in 12% of the cases. We had one patient with major intraoperative hemorrhage. Our complications rate were similar to other study, Dursum et al in their study reported overall complication rate of 20.24% -minor and 0.24% major (CSF leak) complications among 415 patients. Study by Abdul Aziz reported a rate of 12% of minor complication and 0.5% of CSF leak. A systematic review in EPOS 2012 about the safety and efficacy of FESS found the major complication ranged from 0%-1.5% and minor complications from 1.1% to 20.8 %.[15]

Time constraint was a major limitation of our study. The study period was of one year duration and we could follow the patients for relatively short period of three months, we had small sample size. Our study was not randomized and as already mentioned lacked control group. This can be explained by the fact that performing a randomized, controlled trial for a surgical procedure is difficult as in surgical procedures, blinding involves subjecting a control group to the risks of anesthesia in addition to "sham surgery".

CONCLUSIONS

FESS is a safe procedure. Patients with CRS who don't respond to medical therapy should undergo this safe surgical procedure FESS with good outcome.

Conflict of interest: None

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