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Original Research Article

A Comparative Study on Use of Conventional Method versus Microdebrider Assisted Endoscopic Sinus Surgery in Sinonasal Polyposis

Amirunisa Begum Mohammed[1], S. Muneeruddin Ahmed[2], Dr. M. Mahendra Kumar[3], R. Bhanu Murthy[4]

[1]Post Graduate student in MS (ENT), Viswabharathi Medical College, Kurnool- 518467
[2,3,4]Professors of ENT, Viswabharathi Medical College, Kurnool- 518467

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Corresponding Author: Dr. R. Bhanu Murthy
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Abstract:

Background: Sinonasal Polyposis is a common end stage local manifestation of chronic Allergic disease affecting the Nose and Paranasal sinuses resulting in nasal obstruction and Anosmia. It is due to an IgE mediated Allergic phenomenon resulting in the permanent pathological changes of the Sinonasal mucosa. Functional endoscopic sinus surgery is the most commonly performed surgery for Sinonasal Polyposis. Conventional method using cold steel instruments was in the vogue initially and now after the advent of microdebrider the indications and outcomes have changed for the better. This study attempts to assess the use of conventional method versus microdebrider usage in Sinonasal Polyposis.

Aims Objectives of the study: To assess the uses of endoscopic Sinonasal surgery with conventional method and Microdebrider assisted methods and to assess the intra-operative and postoperative outcomes.

Materials: Out of50 patients divided as two groups based on the type of instruments used for FESS surgery. LM staging of the symptoms, CT scan of PNS and DNE findings were considered to assess the severity of Sinonasal Polyposis. Post-operative and Intra operative variables were observed and analysed.

Observations: Group 'A' out of 26 patients 16 (61.53%) were males and 10(38.46%) females with a male to female ratio of 1.6:1. In Group B there were 15(68.5%) males and 09(37.5%) females with a male to female ratio of 1.66:1.

Conclusions: Age of the patients ranged from 10 to 50 years with the mean age of 33.45±5.60 years. 2. Male to female ratio was 1.6:1. The operative time and surgical field visibility in the microdebrider method was much better with microdebrider than conventional method. Blood loss was also less with microdebrider assisted method. There was statistically considerable difference between microdebrider assisted endoscopic sinus surgery and the conventional method in total VAS scores at 3 months and 6 months postoperatively.

Keywords: Para nasal sinuses, microdebrider, polyposis, Allergy, IgE and FESS.

Introduction

Sinonasal Polyposis is a commonly seen disease in ENT practice. [1]Nasal polyps are formed due to local benign inflammatory and hyperplasic reaction to chronic inflammatory, allergic or Neoplastic aetiology. [2] They present in the form of clinical chronic rhino sinusitis (CRS). It is also termed as chronic rhino sinusitis with nasal Polyposis (CRSwNP). [3]

Sinonasal Polyposis also sometimes caused by aspirin exacerbated respiratory disease (AERD), other systemic vasculitis like diseases, sensitivity and cystic fibrosis of the lung. [4] As Sinonasal Polyposis is one of the local clinical manifestations due to untreated Allergy, surgical clearance of the local disease should be followed by long term medical treatment addressing the Allergic phenomenon. [5] In absence of which local recurrence occurs rapidly. [6] Clinical presentation is easy to diagnose which consists of nasal obstruction, nasal congestion, anosmia, and aegusia, nasal discharge, itching in and around the nose, dental heaviness and facial congestion. [7] The quality of life (QoL) of the individuals with CRSwNP is affected compelling them to seek medical attention. [8] The nasal polyps are divided as localized, diffuse, and systemic. [9] Among them the localized arise due to local inflammatory reaction or neoplastic process.

The diffuse variety results in the CRSwNP with different Etiopathogenesis like T-helper 2 (Th2) cell-driven eosinophilia, immunoglobulin-E (IgE) mediated inflammation, elevated interleukin-5 (IL-5) supplemented by often seen environmental and/or seasonal allergic triggering factors. The

systemic varieties of polyps are usually the neutrophil mediated inflammatory process within the polyps similar to cystic fibrosis of the lung. They show severe nasal polyposis reaction similar to other two varieties with no allergic triggering. These patients have refractory nasal polyposis with genetic/familial tendencies occurring in pre-teen, teen and young adults. [10] In India prevalence rate of Sinonasal Polyposis is 05.68%. In European countries it is 10.9% and in the USA it is 02.1%. Two major symptoms of nasal obstruction and Rhinorrhea are common in nearly 71.28% of the patients with Sinonasal Polyposis. [11] In USA Sinonasal Polyposis is common in the age group of 40 to 60 years whereas in India it is 30 to 40 years. [12] Prevalence of Sinonasal Polyposis in Males in India is 64.51% and in females it is 35.47%. [13] But the severity of the disease is observed in the females. [14]. Patho-physiology of Sinonasal Polyposis depends upon the factors such as aging, anatomical features of the bony structure of nasal and PNS cavities, organism (viruses, bacteria, fungi) involved and genetic and hereditary factors. They cause changes in the ciliary beat of the nasal and PNS mucosa, mucociliary clearance, stagnation of mucus, failed ventilation of the PNS and altered mucus secretion by the nasal glands. [15] There is increased permeability of the These all potentially result in increased permeability of the epithelial basement membrane and distortion in the normal basement membrane under the surface epithelium resulting in impaired osmotic regulation between cells; results in interstitial oedema which in turn causes infiltration of chronic inflammation results. This leads to localized increase in the thickness of the tissue and increase in cell number. [16] It is found that in Sinonasal Polyposis with CRSwNP patients have an impaired innate and adaptive immunity resulting in bacterial colonization with Staphylococcus Aureus in the stagnant areas causing chronic inflammation. [17]

Tissues of the Sino nasal Polyposis with CRSwNP under Histopathological examination showed infiltration with eosinophils, plasma cells, macrophages, tissue oedema, IL-5 and IgE. [18] Clinically the Sino nasal Polyposis with CRSwNP presents with unilateral or bilateral, pale, mobile, smooth, grey, and semi-translucent masses originating from the middle meatus or sphenoethmoid recess. Unilateral "nasal polyps" should always raise the suspicion of an alternate diagnosis. Inflammatory polyps are almost universally bilateral. While there are benign unilateral polyp etiologies such as an antrochoanal polyp, the suspicion for malignancy should be high and a referral to an otolaryngologist is indicated for a biopsy. The microdebrider instrument is a powered and combined with continuous suction operated with electricity. It precisely sucks the polyp tissues into the rotating blades and resects them. In this way it minimizes the unnecessary stripping of the normal tissue as it occurs with conventional method of FESS. (19) The main drawbacks of Microdebrider are that it lacks the tactile feedback to the surgeon. Complications are more common if proper training is not given to the surgeon. (19) The present study was conducted to compare the differences between Microdebrider performed FESS and conventional method FESS.

Results: The operative time as well as the surgical conditions and visibility of the operative field, amount of blood loss were significantly better in the microdebrider group. Post operatively synechiae formation was seen in 05 patients treated with conventional method and in 01 with debrider method. The polyps recurred in 02 patients with conventional method and in none with debrider method. Significant statistical difference was noted in intraoperative and postoperative outcomes between two methods

Conclusions: Microdebrider assisted endoscopic sinus surgery is precise with cutting and suctioning in single instrument and thus has better operative visibility and hence minimises trauma and blood loss during surgery. It also offers better postoperative results when compared with conventional method.

Keywords: Sinonasal polyposis, Microdebrider, Endoscopic Sinus surgery

Methods

Period of Study: September 2022 to September 2023

Type of Study: A prospective randomised controlled study

Institute of Study: Viswabharathi Medical College, Kurnool.

A prospective analytical study was conducted in the Department of ENT, Viswabharathi Medical College, and Kurnool. 50 patients diagnosed with Sinonasal Polyposis were included in the study. An ethics committee of the Institute was informed and prior approval was obtained. An ethics committee approved consent form was used for the study.

Inclusion Criteria: Patients aged between 10 and 50 years were included. Patients of both genders were included. Patients diagnosed with Sinonasal Polyposis based on clinical, CT scan findings were included. Patients who have undergone nasal surgery other than for Sinonasal Polyposis were included. Patients with bilateral nasal polyps presenting with nasal block, nasal discharge and sneezing not operated previously for the same condition were included. Patients with visual analogue score (VAS) of greater than 5 were included. Patients whose CT scan of PNS was showing Lund-Mackay total score of equal to or

more than 8 on each side were included. Patients with bilateral nasal polyps who failed to benefit from conservative medical management were included. Patients who are willing to give informed written consent were included. The exclusion criteria: patients with active sinus infection were excluded. Patients with bleeding disorders, chronic granulomatous diseases of the nose and tumours of the nose were excluded. Patients with recurrent ethmoidal polyps with history of previous surgery were excluded. Patients with unilateral nasal polyposis were excluded. Patients with contraindications to general anaesthesia were excluded. All the patients were elicited of their symptoms and history of Allergy. The demographic data were elicited and analysed. All the patients were subjected to Direct Nasal Examination with a zero degree and 30 degree sinus endoscope. All the patients were subjected to Radiological investigations such as X-Ray PNS, CT scan PNS. All the CT scan films were analysed preoperatively with the help of Radiologist and senior professors. All the patients once diagnosed with Sinonasal Polyposis were started on medical treatment with systemic steroids (Table Methyl Prednisolone 4 mg twice daily for 2 weeks). All the patients were given a course of Antibiotic such as Azithromycin 500 mg once daily for 06 days. All the patients were given a local Steroid nasal spray in combination with local antihistamine Azelastine 02 times daily for 04 weeks. All the patients were given a course of oral decongestant containing phenylephrine HCL two times in a day for 2 weeks. Patients who were not benefited by the above medical treatment were chosen and randomized in to two groups. Random number was obtained from randomization.com software available in the internet. Group 'A' patients were subjected to FESS with microdebrider and Group B patients were operated with conventional method of FESS using cold steel instruments. In Group 'A' 26 patients were included and in Group 'B' 24 patients were included. A visual analogue scale (VAS) was used with scoring from 0 to 10 done on every patient to assess the severity and impact of symptoms for nasal obstruction, nasal discharge, anosmia, aegusia, headache, facial pain and. VAS was ranging from 0 cm for symptoms not troublesome at all to 10 for the worst imaginable level.

Procedure Methodology: The Microdebrider (Serwell OMD-6022) was used for surgery.Cutting blades rpm was set at 5,000 in oscillation mode. Polypectomy, uncinectomy, middle meatal antrostomy, anterior and posterior ethmoidectomy, sphenoidectomy and frontal recess clearance was undertaken according to the extent of the disease. In conventional method Messerklinger method to clear the disease with the help of instruments like curettes, nasal and ethmoid forceps, elevators, suction tubes, speculums were used. The total operative time was calculated from insertion of vasoconstrictor nasal pack to insertion of the soframycin soaked nasal packing in the end of surgery. The nasal pack was removed the next day after surgery. Intravenously Antibiotic was given intravenously (Inj. Ceftriaxone sodium 01 Gram diluted in distilled water given over a period of 10 minutes)during surgery and followed by IV antibiotics (Ceftriaxone sodium 01 Gram) for 05 days followed by oral antibiotics (Tab Cefixime 500 mg twice daily for 07 days). Douching with saline solution and topical steroid spray were continued from day 05 to 30 days. Or (used till the nasal mucosa healed). Diagnostic nasal endoscopy was done every week to know the status of the nasal mucosa, middle meatus antrostomy opening, crusting, adhesions and residual or recurrence ofpolyps.After the first month follow up was done every month for 06 months. All the post-operative endoscopy findings, post- operative complications were recorded for analysis.

Analysis of Data: The data was entered into Microsoft excel sheet and analysed using standard statistical packages. The tests used were measures of frequency, measures of central tendency (Mean and Median). Associations were tested using tests of significance like Chi square test and the independent sample t test.

Results:

50 Patients with Sinonasal Polyposis attending the Department of ENT,Viswabharathi Medical College, Kurnool were included after the clinical assessment and investigations at random numbering to include in Microdebrider used FESS and Conventional FESS surgeries to compare the Operative and post- operative variables. In group A among the 26 patients there were 16 (61.53%) males and 10(38.46%) females with a male to female ratio of 1.6:1. In Group B there were 15(68.5%) males and 09(37.5%) females with a male to female ratio of 1.66:1. According to the age groups, in Group A 15.38% were in the age group of 10 to 20 years, 26.92% in the age group of 20 to 30 years, 34.61% in 30 to 40 years and 23.07% in the 40 to 50 years age group. The incidence was 61.53% in the age group of 20 to 40 years.

In Group B 12.5% were in the age group of 10 to 20 years, 20.83% in the age group of 20 to 30 years, 33.33% in 30 to 40 years and 33.33% in the 40 to 50 years age group. The incidence was 54.16% in the age group of 20 to 40 years. The mean age was 33.45±5.60 years. In group A 42.30% patients were from urban areas and 57.69% from the rural areas. In group B 41.66% patients were from urban areas and 58.33% from the rural areas. History of allergy was present in 73.07% of the Group A patients and 70.83% of the Group B

patients. History of Chronic infection was present in 19.23% of the Group A patients and 16.66% of the Group B patients.

History of smoking was present in 30.76% of the Group A patients and 25% of the Group B patients. The Lund-Mackay staging system of symptom score by Visual Analogue method of the patients in both Groups A and B were severe both the groups as shown in Table 1.

The values were analysed using single test variable t test and found to be significant at p value less than 0.05.

Table 1: Showing the demographic data and L M staging: Lund-Mackay staging system: symptom scores by Visual Analogue method of the patients in both Groups A and B (n-Group A-26 Group B- 24).

Observation	Group A Number	%	P value	Group B Number	%	P value
Age			0.001			0.001
10 to 20	04	15.38		03	12.5	
20 to 30	07	26.92		05	20.83	
30 to 40	09	34.61		08	33.33	
40 to 50	06	23.07		08	33.33	
Gender						
Male	16	61.53	0.001	15	62.5	0.001
Female	10	38.46		09	37.5	
Living						
Urban	11	42.30	0.001	10	41.66	0.001
Rural	15	57.69		14	58.33	
Allergy						
Present	19	73.07	0.001	17	70.83	0.001
Absent	07	26.92		07	29.16	
Chronic Infection						
Present	05	19.23	0.001	04	16.66	0.001
Absent	21	80.76		20	83.33	
Smoking						
Present	08	30.76	0.001	06	25	0.001
Absent	18	69.23		18	75	
L M staging						
Nasal blockage	24	92.30	0.001	21	87.5	0.001
Nasal discharge	20	76.92	0.001	19	79.16	0.001
Olfactory disturbance	16	61.53	0.001	18	75	0.001
Headache	22	84.61	0.001	20	83.33	0.001
Facial pain	14	53.84	0.001	19	79.16	0.001

The Lund-Mackay staging system of symptom score by Visual Analogue method of the patients in Group A showed mean values for Nasal obstruction-07.21, for Nasal discharge- 08.10, for Anosmia- 06.43, for Facial pain- 06.77, Headache -04.30 with Total points at 35.11.The Lund-Mackay staging system of symptom score by Visual Analogue method of the patients in Group B showed mean values for Nasal obstruction-08.20, for Nasal discharge- 08.10, for Anosmia- 06.10, for Facial pain- 06.27, Headache -05.11 with Total points at 37.65.(Table 2& Fig 1))The values were analysed using single test variable t test and found to be significant at p value less than 0.05.

Table 2: Showing the LM grading of symptoms in both the groups A and B (n-Group A-26 Group B- 24)

LM staging VAS score of Symptoms	Group A		Mean	Group B		Mean	P value
	Max	Min		Max	Min		
Nasal obstruction	10	03	07.21	10	03	08.20	0.001
Nasal discharge	10	04	08.10	10	03	08.10	0.001
Anosmia	06	03	06.43	07	03	06.10	0.001
Facial pain	06	03	06.77	07	02	06.27	0.001
Headache	05	01	04.30	06	01	05.11	0.001
Total Points	37	14	35.11	40	12	37.65	0.001

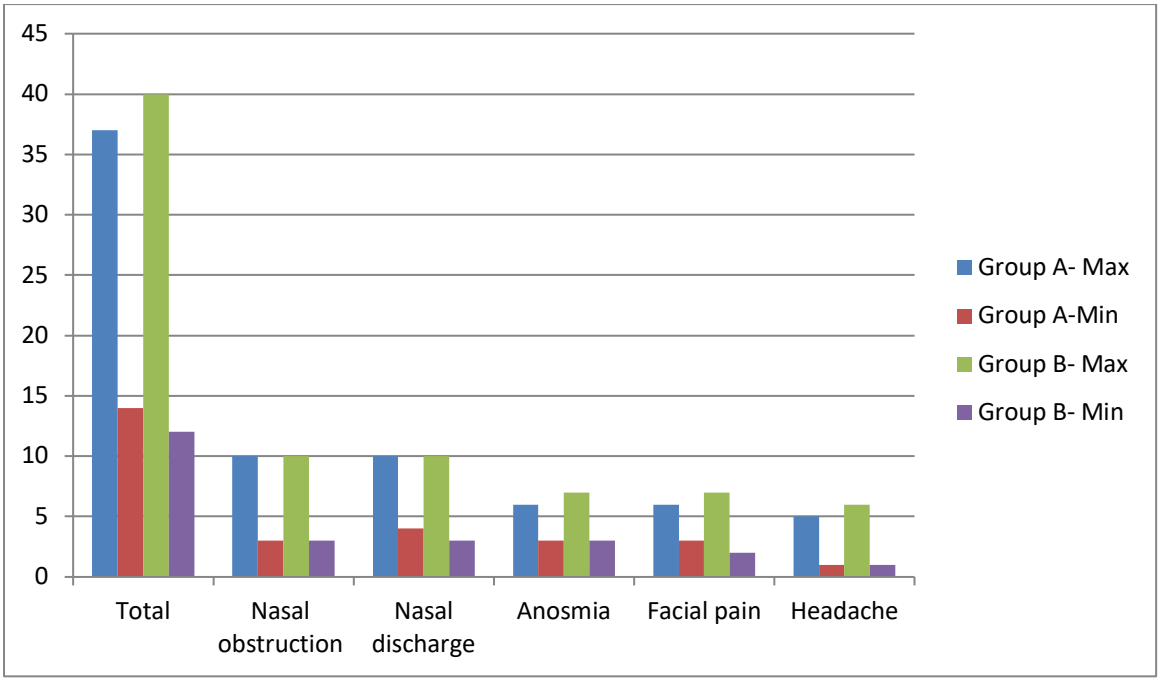

Figure 1: Showing the LM grading of symptoms in both the groups A and B (n-Group A-26 Group B- 24)

The CT scan of PNS showed involvement of sinuses with grading of opacification on both sides of the skull in all the patients of both groups was tabulated as below in Table 3. The values were analysed using single test variable t test and found to be significant at p value less than 0.05.

Table 3: Showing the LM staging of CT scan of PNS in the study in both Groups A and B (n-Group A-26 Group B- 24): scale 0: absence, 1: partial opacification 2: complete opacification and the osteomeatal complex. This scoring system derives a maximum score of 12 per side.

Sinus system	Group A		Group A		P value
	Right	Left	Right	Left	
Maxillary					0.001
0	02	01	01	01	
1	05	06	04	05	
2	06	06	05	08	
Anterior ethmoid					0.001
0	02	02	01	01	
1	04	07	05	05	
2	04	07	06	06	
Posterior ethmoid					0.001
0	01	01	02	02	
1	07	06	04	03	
2	07	04	07	06	
Sphenoid					0.001
0	02	03	02	03	
1	07	09	07	09	
2	02	03	02	01	
Frontal					0.001
0	04	02	04	03	
1	05	04	05	04	
2	05	06	05	03	
Osteomeatal complex (0or2)					0.001
0	05	06	05	06	
2	07	08	07	06	

The mean values of variables of per operative and post-operative findings were tabulated in the table 4 below. It was observed that the mean duration of surgery with Microdebrider for FESS was 74.25±6.15 min and for conventional FESS was 107.25±10.15 min. The amount of blood loss was

120.50±11.25ml with Microdebrider for FESS and 165.25±09.35 ml for conventional FESS. The percentage of patients showing post-operative Oedema was 38.55%, Remnants was 18.20%, Recurrence was 19.05%, and Synechiae was 28.95% and Crusting was 20.48% in Group A. In group B The percentage of patients showing post-operative Oedema was 48.63%, Remnants was 38.14%, Recurrence was 29.72%, and Synechiae was 48.64% crusting was 31.39%. (Table 4& Fig 2).

Table 4: Showing the Intra and postoperative findings with Microdebrider and conventional methods of FESS (n-Group A-26 Group B- 24).

Observation	Group A Mean values	P value	Group B Mean values	P value
Duration	74.25±6.15 min	0.001	107.25±10.15 min	0.001
Bleeding	120.50±11.25ml	0.001	165.25±09.35 ml	0.001
Oedema	38.55%	0.001	48.63%	0.001
Remnants	18.20%	0.001	38.14%	0.001
Recurrence	19.05%	0.001	29.72%	0.001
Synaechiae	28.95%	0.001	48.64%	0.001
Crusting	20.48%	0.001	31.39%	0.001

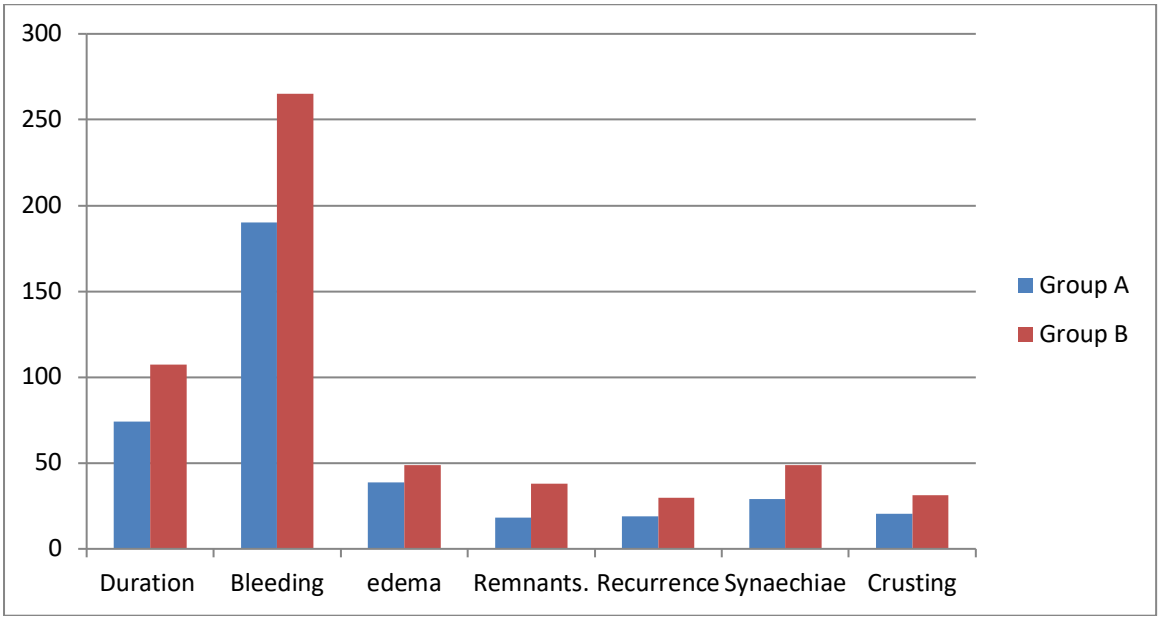

Figure 2: Showing the Intra and postoperative findings with Microdebrider and conventional methods of FESS (n-Group A-26 Group B- 24)

After 06 months the LM grading of symptoms in both the groups A and B was undertaken and found that Group A showed mean values for Nasal obstruction- 03.14, for Nasal discharge-03.54, for Anosmia- 06.43, for Facial pain- 03.29,Headache -03.10 with Total points at 03.01.The Lund-Mackay staging system of symptom score by Visual Analogue method of the patients in Group B showed mean values for Nasal obstruction-04.11, for Nasal discharge-04.23, for Anosmia-03.63, for Facial pain- 03.27, Headache -03.47 with Total points at 04.20. (Table 5) The values were analysed using single test variable t test and found to be significant at p value less than 0.05.

Table 5: Showing the LM grading of symptoms in both the groups A and B after 06 months (n-Group A-26 Group B- 24)

Symptoms	Group A		Mean	Group B		Mean	P value
	Max	Min		Max	Min		
Nasal obstruction	03	01	03.14	04	02	04.11	0.001
Nasal discharge	04	01	03.54	05	02	04.23	0.001
Anosmia	03	01	03.51	03	02	03.63	0.001
Facial pain	03	01	03.29	03	02	03.27	0.001
Headache	02	01	03.10	02	03	03.47	0.001
Total Points	15	05	03.01	17	11	04.20	0.001

Discussion

In patients with Sinonasal Polyposis refractory to medical management are usually subjected to Functional Endoscopic sinus surgery (FESS) all over the world. FESS helps to improve ventilation of the affected Para nasal sinuses and their drainage. To restore the impaired drainage and ventilation and quicker healing optimal normal nasal and sinus mucosa has to be preserved during the FESS. If the sinuses are badly affected then limited removal of the pathology and preservation of the mucosa should be attempted as the cilia require 06 months to regenerate. [19]

In this study 50 patients were included and divided into two groups based on the type of instruments used for FESS surgery. Group 'A' out of 26 patients 16 (61.53%) were males and 10(38.46%) females with a male to female ratio of 1.6:1. In Group B there were 15(68.5%) males and 09(37.5%) females with a male to female ratio of 1.66:1. In a similar study by Singh R, Hazarika P, Nayak DR, [20] they reported male to female ratio as 3:1 (30 males and 10 females). Their patient's age was in the range of 25 to 77 years. But in this study the age range was 10 to 50 years with the incidence of 61.53% in the age group of 20 to 40 years in group A. The incidence was 54.16% in the age group of 20 to 40 years in Group B. History of allergy was present in 73.07% of the Group A patients and 70.83% of the Group B patients. History of Chronic infection was present in 19.23% of the Group A patients and 16.66% of the Group B patients.

History of allergy was present in 73.07% of the Group A patients and 70.83% of the Group B patients. History of Chronic infection was present in 19.23% of the Group A patients and 16.66% of the Group B patients. Fokkens WJ, Lund VJ, Hopkins C, Hellings PW et al [21] showed that both Allergic rhinitis and Sinonasal polyposis exist in the same patients in the range of 25 to 70% of the incidences. In another study 59.5% of the patients who were positive for skin tests for allergy and clinical symptoms had positive CT scan findings for Sinonasal Polyposis. [22] History of smoking was present in 30.76% of the Group A patients and 25% of the Group B patients. Review of literature showed evidence of correlation between smoking and either active or passive smoking contributes to Sinonasal Polyposis. [23] LM staging was used to assess the severity of the symptoms in the patients of both groups and observed that the commonest symptom was nasal obstruction with 92.30% in group A and 87.5% in group B. The next common symptom was nasal discharge with 76.92% in group A and 79.16% in group B, Olfactory disturbance in 61.53% in group A and 75% in group B patients. Headache was seen in 84.61% in group A and 83.33% in group B and facial pain in 53.84% in group A and 79.16 in group B patients. Usually the surgeons grade the symptoms and direct endoscopic examination and CT PNS findings of patients with Sinonasal Polyposis to assess the severity and plan the surgical treatment.

The role of DNE and CT scan reports were studied and reported in the literature [24] and Lloyd G.A., Lund V.J., Scadding G. et al [25] who conducted the study and termed them as Gold Standard. In this study also the two methods of assessment of severity were followed. It was observed that the mean duration of surgery with Microdebrider for FESS was 74.25±6.15 min and for conventional FESS was107.25±10.15 min. The amount of blood loss was 120.50±11.25ml with Microdebrider for FESS and 165.25±09.35 ml for conventional FESS. The percentage of patients showing post-operative Oedema was 38.55%, Remnants was 18.20%, Recurrence was 19.05%, and Synechiae was 28.95% and Crusting was 20.48% in Group A. In group B The percentage of patients showing post-operative Oedema was 48.63%, Remnants was 38.14%, Recurrence was 29.72%, and Synechiae was 48.64% crusting was 31.39%. (Table 4& Fig 2). Singh R, Hazarika P, Nayak DR, Balakrishnan R [20] from their study reported intraoperative bleeding in the microdebrider group was 181 ml, compared with 225 ml in the standard group.

This could be due to improved Hypotensive anaesthesia used in this study. N.Kanishkavarman et al [26] stated in his study of 50 patients found that the amount of intraoperative bleeding in the microdebrider method was 180 ml, compared with 214ml in conventional methods. Singh R, Hazarika P et al [20] reported that the average time taken for the FESS with debrider was 55 min and 64 min with conventional method of FESS. They also noted that the scarring, adhesions and crusting were noted in 10% of patients in microdebrider group, and in 15% of patients in conventional method.

The average Lund–Mackay score of 1 was noted postoperatively. The polyp recurrence was 25% and recurrence in 55% in microdebrider group and 55% and 75% in the conventional method respectively. Setliff and Parsons (1994) [27] were the authors who introduced microdebrider for nasal surgeries. They found that blood loss was limited, procedure was consuming less time, healing time was lessened, and synechiae formation and middle turbinate trauma was minimized. Bernstein et al. (1998) [28] reported good mucosal healing from his cases studies of 40 patients who had undergone FESS with the microdebrider. He also reported minimal crusting and minimal synechiae. Kim Dalziel et al. (2006) [29] observed clinical improvement in 78–88% and recurrence rate was

20%. In the present study after 06 months LM grading of symptoms in both the groups A and B was undertaken and found that Group A showed mean values for Nasal obstruction- 03.14, for Nasal discharge-03.54, for Anosmia- 06.43, for Facial pain- 03.29,Headache -03.10 with Total points at 03.01.The Lund-Mackay staging system of symptom score by Visual Analogue method of the patients in Group B showed mean values for Nasal obstruction-04.11, for Nasal discharge-04.23, for Anosmia-03.63, for Facial pain- 03.27, Headache - 03.47 with Total points at 04.20. (Table 2& Fig 1) The values were analysed using single test variable t test and found to be significant at p value less than 0.05. (Table 5) This data is in agreement with all the previous studies and their reports in the literature. Krouse and Christmas (1996), [30] reported that there was no statistically significant blood loss and operative time difference in both the groups. Krouse and Christmas (1996) reported identical percentage of symptom free patients on follow up in both groups for 06 months. In this study also after a gap of 06 months 89.24% of the patients of Microdebrider group and 76.12% of the conventional group was symptom free.

Conclusion

1. Age of the patients ranged from 10 to 50 years with the mean age of 33.45±5.60 years.
2. Male to female ratio was 1.6:1.
3. The operative time and surgical field visibility in the microdebrider method was much better when compared to the conventional method. Blood loss was also less in microdebrider assisted method.
4. There were no complications in both the methods. There was considerable statistical difference between the two methods with respect to the post-operative outcomes of synechiae formation. Postoperative recurrence and scarring in both methods did not have considerable statistical difference.
5. There was statistically considerable difference between microdebrider assisted endoscopic sinus surgery and the conventional method in total VAS scores at 3 months and 6 months postoperatively.

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