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0975-6299**CHRONIC MAXILLARY SINUSITIS - DIAGNOSIS
AND ENDOSCOPIC MANAGEMENT****HAMID ABDUL QAIYUM* AND UROOJ AHMED CHOUDHRY***Department of ENT, Owaisi Hospital and Research Center, Hyderabad, India-500 058.***ABSTRACT**

Sinusitis is a common condition. Women are more often affected than men. Chronic sinusitis affects approximately 12.5% of people. Treatment of sinusitis in the United States results in more than 11 billion USD in costs. Although much has been written about the surgical technique of functional endoscopic sinus surgery (FESS), little has appeared about its long-term results. In the present study out of 42 patients 26 underwent bilateral surgeries and 16 underwent unilateral surgeries. 26 procedures of polypectomy were done. Apart from that 6 underwent septoplasty. Sphenoidotomy was done in 3 patients. Uncinectomy & MMA was done in all cases. Total ethmoidectomy was done in 10 patients, & conchoplasty was done in 7 patients. The present study validated endoscopic sinus surgery as it showed that the procedure resulted in an improvement in patient general and physical health.

KEYWORDS: Chronic Maxillary Sinusitis, FESS, Rhinosinusitis,

*Corresponding author

**HAMID ABDUL QAIYUM**

Department of ENT, Owaisi Hospital and Research Center,

INTRODUCTION

The technique of systematic endoscopic exploration of the lateral nasal wall developed by Prof. Messerklinger in the late 1960s/early 1970s, impressively confirms the clinical experience that most inflammatory diseases of the large paranasal sinuses such as the frontal and maxillary sinuses, are rhinogenic in origin¹. Even if the symptoms of diseased frontal and or maxillary sinus are clinically in the foreground, the underlying changes were not for the most part in the sinus itself, but lay rather in the preceding clefts and narrow spaces of the lateral nasal wall^{2, 3}. These areas of the osteomeatal unit, which by their nature are extremely narrow, play a key role in the normal function and patho-physiology of the sinuses. They represent prechambers leading to the frontal and maxillary sinuses, providing ventilation and drainage for them. A number of anatomical variants can additionally narrow these pre-chambers in the lateral nasal wall, causing a predisposition to constantly recurring diseases⁴. The exact diagnosis of these changes which underlie an acute or recurrent sinusitis is the basis for the technique presented here. Endoscopic diagnostic examinations in the conjunction with modern imaging methods, particularly computed tomography (CT) have proven to be an ideal combination in recent years and are already accepted as the "standard of care" in many parts of the world for sinus diseases⁵. As a logical consequence of diagnostic findings, an endoscopic-surgical concept has resulted which is directed at the diseased areas in key position of the lateral nasal wall. It was fascinating to see how, after relatively localized intervention in these key positions, even massive changes in the mucosa of the adjoining large sinuses regressed, even without being actually touched. Thus using less traumatic interventions which preserve the mucosa, a cure was possible in the majority of all cases of chronic sinusitis, without having to resort to the more surgical methods-either endonasally or from the exterior that have been implemented up to now. Thus today, routine radical sinus operations or "ectomies" take place very rarely. The exact diagnostics allow intervention to be tailored to the respective

individual pathology with a very broad spectrum of indications. In the extreme case, if technically indicated, a total⁶. Sphenoidotomy & ethmoidectomy is quite possible, the real advantage nevertheless lies in the fact that, due to the preceding diagnostics, such interventions are becoming far less necessary. Even then, these interventions can take place mostly with preservation of anatomical landmarks such as the middle turbinate, and preservation of the nasal mucosa.

MATERIALS AND METHODS

This study was conducted at Deccan College of medical sciences, Princess Esra Hospital, Hyderabad, Telangana between October 2011-September 2013, comprising of 42 patients who underwent endoscopic sinus surgery for chronic maxillary sinusitis. All the patients with clinically proven chronic maxillary sinusitis not responding to medical line of treatment for atleast six weeks were included in the study. The patients with acute attack of sinusitis, sinus malignancies, on treatment for coronary heart diseases (Aspirin hypersensitivity) and patients with nasal obstruction, headache, who do not have sinusitis (Radio- logically and with diagnostic endoscopy) were excluded from the study.

Method of collection of Data

The cases selected for the study were subjected to detailed history taking and examination. A hemogram and urine examination along with x-ray water's view of paranasal sinuses & CT-scan Para nasal sinuses were done for the patients. All the patients in the active stage of the disease were treated with course of suitable Antibiotics, anti histamines and local decongestants. No patient received steroid therapy or immunotherapy. Each patient underwent a systematic diagnostic nasal endoscopy of nose and paranasal sinuses.

Diagnostic endoscopic procedure

The patients were placed in supine position with head slightly elevated and turned towards the examiner, who is standing at the right side

of the patient. Topical decongestant 4% Xylocaine with 1:100,000 adrenaline solution using application like cotton strips was given to the patient. Endoscopy was performed by three passes. Briefly, The first pass was along the floor of the nose. The inferior meatus is the first area to inspect. After examination of the inferior meatus, the scope was advanced through the nasal cavity towards the nasopharynx. The Eustachian tube orifices, torus tubarius, adenoid pad (if present) & entire nasopharynx was visualised by rotating a 30° endoscope. Second Pass: The sphenoidal recess was visualised by passing the scope medial to the posterior aspect of the middle turbinate and rotating it superiorly. The examiner was able to visualize the superior turbinate and the natural sphenoid ostium. Third Pass: The scope was rotated laterally beneath the posterior aspect of the middle turbinate to gain access to the deeper areas of the middle meatus. Visualisation of the bulla ethmoidalis, hiatus semilunaris and infundibular entrance was obtained and as the scope is withdrawn even further, an excellent view of the uncinate process and its overlying mucosa was obtained.

Surgical treatment

In our hospital, we follow Messerklinger's technique of anterior to posterior dissection⁷⁻¹¹. Post-Operative Care: Packing of the nose using gauze, merocele, gel foam soaked with antibiotic ointment. Antibiotic coverage for 7 to 10 days. Patient typically seen on a weekly basis for debridement of crusts. If polypoidal changes are present patient is advised a course of steroid spray.

Follow Up Protocol

All the patients were given fixed protocol of follow up consisting of weekly visit for 1st month after the sinus surgery, followed by fortnightly visits in 2nd post op month & monthly once thereafter until 6 months. At the end of 6 months patient were observed both objectively by nasal endoscopy & subjectively by asking the patient how he or she feels and whether there is any improvement after surgery or not. It is rated as "Better" if patients feel improvement, "Same" if there is no improvement.

RESULTS

Our study included 42 patients out of which bilateral surgery was done on 26 patients and unilateral was done on 16 patients thus a total no of 68 procedures were carried out. Maximum number of patients was in the age group of 31-40 years. Out of 42 patients 52.3% were females and 47% were males (Table 1). 95% of the patients showed the commonest symptom of nasal obstruction and nasal discharge while 47.6% of the patients had Nasal Obstruction + Headache + Nasal Discharge and 48% of patients complained about sneezing. 76% of the patients complained about nasal discharge and nasal obstruction bilaterally while unilateral symptoms were only in 19% of the patients. The duration of symptoms were found to be more in a period of 3-6 months in 62% of the patients. 80.6% of patients underwent General anaesthesia. Nasal synechiae is the most common complication

Table 1
Age Distribution (n=42)

S.No.	AGE(YEARS)	No. OF CASES
1	0-10	1 (2.3)
2	11-20	14 (33.3)
3	21-30	5 (11.1)
4	31-40	21 (50.0)
5	41-50	1 (2.3)

Table 2 describes the clinical findings by anterior rhinoscopy and figure 1 shows clinical findings by DNE which reveals that Mucopurulent discharge in middle meatus are present in maximum in number of patients.

TABLE 2
Clinical Findings by Anterior Rhinoscopy

S.NO	CLINICAL FINDINGS	NO OF CASES
1	BILATERAL ETHMOIDAL POLYP	10
2	ANTROCHOANAL POLYP	8
3	CONGESTED MUCOSA OF MIDDLE MEATUS	20
4	MUCOPURULENT DISCHARGE IN MIDDLE MEATUS	16

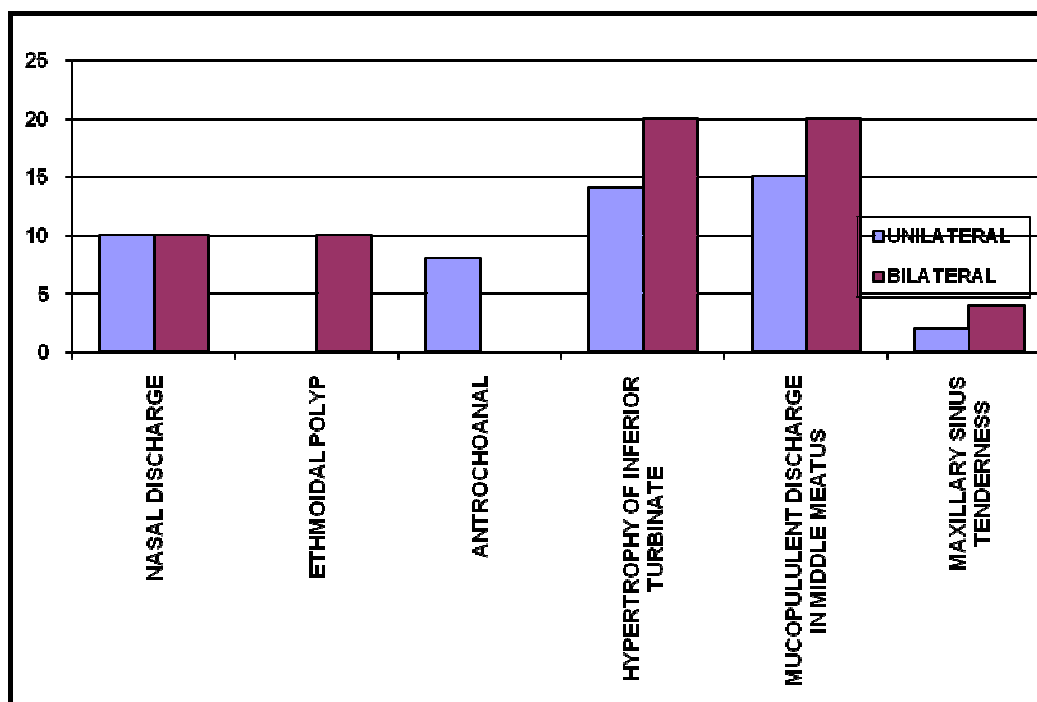


Figure 1
CLINICAL FINDINGS BY DNE

Table 3
Endoscopic Sinus Surgical Procedures Performed (n=4)

S.NO	PROCEDURES	NO OF CASES (%)
1	UNCINECTOMY+MMA	9 (21.42)
2	POLYPECTOMY +UNCINECTOMY+MMA	15 (35.71)
3	POLYPECTOMY+UNCINECTOMY + ANTERIOR ETHMOIDECTOMY+MMA	5 (11.90)
4	POLYPECTOMY + UNCINECTOMY + MMA + TOTAL ETHMOIDECTOMY	5 (11.90)
5	POLYPECTOMY +UNCINECTOMY + MMA + TOTAL ETHMOIDECTOMY+SPHENOIDOTOMY + CONCHOPLASTY	2 (4.70)
6	UNCINECTOMY + TOTAL ETHMOIDECTOMY + MMA	2 (4.70)
7	UNCINECTOMY + TOTAETHMOIDECTOMY+ MMA +SPHENOIDOTOMY	1 (2.30)
8	UNCINECTOMY + ANTERIOR ETHMOIDECTOMY + MMA + CONCHOPLASTY	3 (7.14)

The common procedure followed Polypectomy, Uncinectomy, MMA (middle meatalantrostomy) was performed in 35.71% of patients. Figure 2 shows X-RAYS (MAXILLARY SINUS) FINDINGS which revealed Haziness in 47.60% of patient and Figure 3 shows - endoscopic sinus surgery findings in maxillary sinus, 42.80% patients were with polyps.

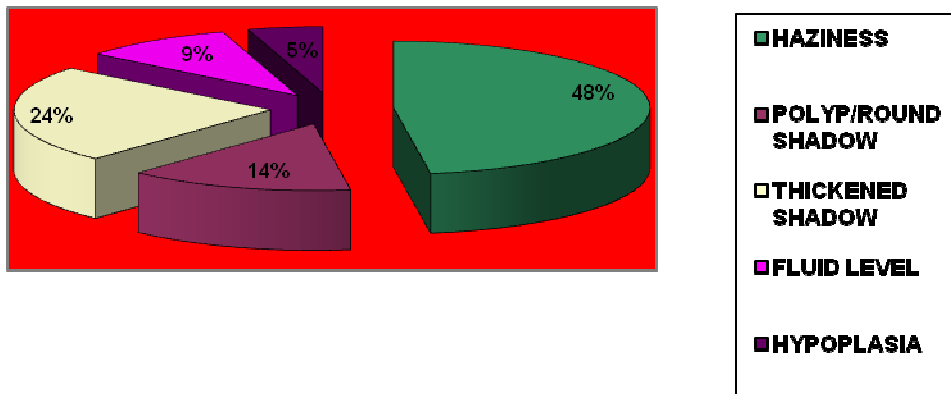


Figure 2
X-RAYS (MAXILLARY SINUS) FINDINGS (n=42)

Table 4 shows the CT-SCAN findings 64.3% of patients showed OMC - osteomeatal complex.

TABLE 4
CT-SCAN FINDINGS (n=42)

S.NO.	CT FINDINGS	NO OF CASES (%)
1	OMC BLOCK	64.34%
2	DNS	39.7%
3	CONCHA BULLOSA	16.6%
4	MUCOSAL THICKENING	100%
	a)MAXILLARY	
5	b)ETHMOID	42.1%
6	c)FRONTAL	3%
7	d)SPHENOID	7%
8	POLYP	34.6%

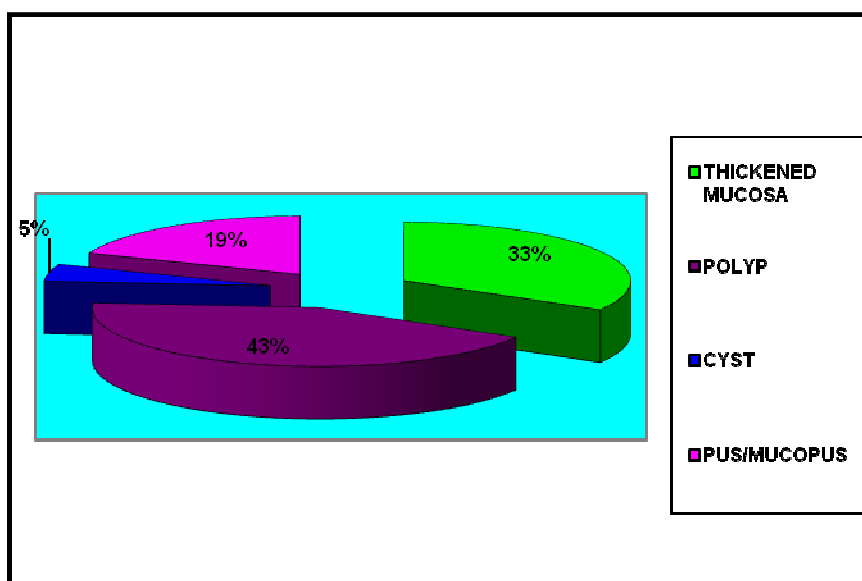


Figure 3
ENDOSCOPIC SINUS SURGERY FINDINGS (n=42)

TABLE-5 Shows the results of functional endoscopic sinus surgery FESS (n=42) and 85% of the patients improved with Endoscopic sinus surgery.

Table 5
Results of FESS

S.NO	RESULTS OF FESS(based on patient's response)	NO OF CASES (%)
1	BETTER	36(85.7)
2	SAME	6 (14.2)
3	WORSE	0 (0)



Figure 4
CT-Scan PNS (axial view) showing bilateral maxillary sinusitis

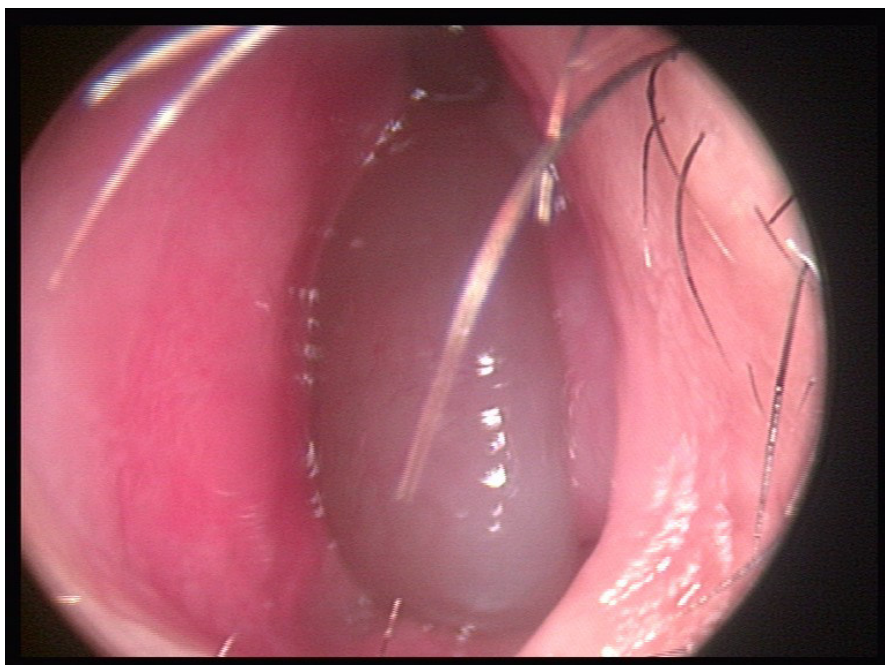


Figure 5
Showing polyp coming out from the middle meatus

DISCUSSION

The present study entitled Chronic Maxillary Sinusitis-Endoscopic Management was conducted in the department of ENT-Princess Esra Hospital, DCMS between October 2011-September 2013. The study included 42 patients with chronic sinusitis who did not respond to medical treatment and had to undergo endoscopic sinus surgery. All the cases have undergone diagnostic endoscopy and x-ray paranasal sinuses, CT-SCAN paranasal sinuses axial & coronal view prior to surgery. Out of 42 patients 26 underwent bilateral and 16 underwent unilateral endoscopic surgeries, all patients underwent uncinectomy, middle meatalantrostomy, while total Ethmoidectomy were done in 10 patients, Sphenoidotomy in 3 patients. In our study age of patient varied between 0-50 years with maximum no. of patients in 31-40 years category. The study conducted by Kirtane¹² et al (1991) the age range from 16-52 years, with the majority of cases i.e (46.78%) in the fourth decade. The study conducted by V.P.Venkatachalam¹³ et al(2000) the age ranges from 7-66 years with majority of age group of third decade (22.85%). In present study majority of patient i.e 21 cases(50.00) were in the third decade. The observation was consistent with previous studies. In the present study 22 patients i.e 52.38% were female while 20 patient i.e 47.61% were males. The study conducted by Kirtane³⁸ et al (1991). There were 19 males i.e 61.53% and 13 female i.e 38.46%. Nasal obstruction and nasal discharge were the common symptoms both of which are present in 40 patients. The next frequently occurring complaint was headache in 18 patients. Sneezing in 18 patients and other symptoms like anosmia/ hypsomia/ cacosmia etc in 2 patients. In the majority of patients the duration of symptoms was present for more than 3- 6 months. In the study conducted by Kirtane M.V¹² et al (1991) the commonest complaint was nasal discharge occurring in 25 patients i.e 78.10% followed by headache in 22 patients (68.70%) and nasal obstruction in 22 patients (68.70%) the other complaints sneezing in 6 patients (18.70%)

anosmia/cocosmia in 2 patients (6.25%) the duration of symptoms varied from 3 months to 30 years. In the study conducted by Venkatachalam¹³ et al (2000) the commonest symptoms were nasal discharge 147 patients (70.00%) and nasal obstruction 183 patients (87.14%) the other symptoms were headache 86 patient (40.95%) sneezing 48 patients (27.85%) Hyposmia / anosmia 27 patients (25.71%). In the study conducted by Y.BAJAJ¹⁴ et al (2008) the commonest patient symptoms were nasal obstructions (81.50%) and nasal discharge (83.10%) followed by post nasal discharge (44.30%), headache (43.20%), sneezing (38.70%) and anosmia (15.70%). The observations of the present study are comparable with previous studies. In our study the common clinical signs present were congested mucosa in 20 patients (47.6%) while pale mucosa was present in 13 patients (30.95%). The other findings were nasal polyp in 26 patients (61.90%) mucopurulent discharge in middle meatus in 16 patients (38.09%) inferior turbinate hypertrophy in 20 patients (47.6%). In the study conducted by Venkatachalam¹⁵ et al the clinical findings were hypertrophy inferior turbinates (10%) of patients, hypertrophied middle turbinate (17.14%) of patients, congested mucous membrane (15.71%) of patients, sinus tenderness (7.14%) of patients and ethmoidal polyps (12.80%) of patients. In study conducted by Kirtane¹² M.V et.al hypertrophied inferior turbinate were present in 9.50% of patients, middle turbinate hypertrophy in 12.30% of patients, polyps in 40.60% of patients sinus tenderness in 12.50% of the cases. In the present study 18 patients (42.85%) had bilateral ethmoidal polyposis. In the study conducted by Venkatachalam¹³ V.P et al 67 patients have Sino nasal polyposis (31.90%) Plain x-ray & CT-scan of paranasal sinuses were done in all cases to look for abnormality. DNE was carried in all patients. There was more number of patients with polyp in our study. Table-6: RESULTS OF FESS in comparison with previous studies

S.NO	AUTHOR	YEAR	RESULTS BETTER (%)
1	KIRTANE	1991	76
2	VENKATACHALAM	2000	70
3	Y.BAJAJ	2008	81.9
4	PRESENT STUDY	2010-2013	85.7

Operative procedures

In the present study out of 42 patients 26 underwent bilateral surgeries and 16 underwent unilateral surgeries. 26 procedures of polypectomy were done. Apart from that 6 underwent septoplasty. Sphenoidotomy was done in 3 patients. Uncinectomy & MMA was done in all cases. Total ethmoidectomy was done in 10 patients, & conchoplasty was done in 7 patients.

CONCLUSION

Maxillary Sinus was most diseased sinus in present study followed by anterior ethmoidectomy, as most infections of the Para Nasal Sinus are Rhionogenic in origin. Infections can spread from the Ethmoid sinuses to the larger maxillary and frontal

sinus secondarily. Diagnostic Nasal Endoscopic Examination along with CT-SCAN PNS is the clinical guide to the surgeon to evaluate the disease and severity of Anatomical abnormality. Functional Endoscopic Sinus Surgery is the treatment of choice with a success rate of 90-96%. FESS targets obstructive elements but, more research is still required into non obstructive elements before the diseases can be truly understood & cured, until then the treatment goal should be in reduction of symptoms leading to an improvement in patients psychological, social and physical well-being. Overall the present study validated endoscopic sinus surgery as it showed that the procedure resulted in an improvement in patient general and physical health.

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