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ORIGINAL ARTICLE

CHRONIC MAXILLARY SINUSITIS - DIAGNOSIS AND ENDOSCOPIC MANAGEMENT

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ABSTRACT:
Introduction: Chronic rhino sinusitis is a complex multi factorial disorders. Endoscopic sinus surgery is a common adjunct to medical therapy **Materials and methods:** Comprising of 42 patients who underwent endoscopic sinus surgery for chronic sinusitis with clinically proven chronic sinusitis not responding to routine medical line of treatment for six weeks were included in study. Results: 50 % Of the patients in the study were in the age group of 31-40 years. Male (52.35%) predominance was slightly higher than Female (47.60%). The commonest symptoms were Headache, Nasal obstruction, Nasal discharge and a combination of all the symptoms. Nasal discharge, Headache, and Nasal obstruction were common bilaterally. Most patients had the duration of symptoms in 6 months group (61.9%). The most common clinically a finding by Anterior Rhinoscopy was Maxillary sinus tenderness and congested mucosa. The most common surgeries performed were Polypectomy, Anterion etemoidectomy and Middle meatal Antrostomy (23.8%). 47.6% of the patient showed haziness in X-ray Para Nasal Sinus in present study. 42.8% of the patients presented with polyps on endoscopic findings. 4(9.5%) of the 42 cases presented with complications in Present study. 85.7% of the patients in the present study had better results. **Conclusions:** Over all the present study validated endoscopic sinus surgery as treatment of choice in chronic sinusitis not responding to routine medical line of treatment as it showed that the procedure resulted in an improvement inpatient general and physical health.
Key words: Chronic sinusitis, Endoscopic sinus surgery, Ethimodectomy

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INTRODUCTION

The technique for systematic endoscopic exploration of the lateral nasal wall developed by [1]Prof. Messerklinger in the late 1960s/early 1970s, impressively confirms clinical experience that most diseases of the large paranasal sinuses such as the frontal and maxillary sinuses, are rhinogenic. As he was able to demonstrate, most infections spread from the nose to the sinuses. 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.[1-3] These areas of the ostiomeatal unit, which by their nature are extremely narrow, play a key role in the normal and pathophysiology of the sinuses. They represent prechambers leading to the frontal and maxillary sinuses, providing ventilatin and drainage for them. Embryologically, the frontal as well as maxillary sinuses were formed from the anterior ethmoid sinus, to which they remain connected via extremely complex "cleft".[4] A number of anatomical variants can additionally narrow these prechambers in the lateral nasal wall, causing a predisposition to constantly recurring diseases. 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 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 diseases. 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 radical 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 a total[1-6] sphenoethmoidectomy is quite possible, the real advantage nevertheless lies in the fact that, due to the preceding diagnostics, such interventions are becoming for less necessary. Even then, these interventions can take place mostly with preservation of anatomical landmarks such as the middle turbinate, and preservation of the parietal mucosa.

For chronic sinusitis today, we can say that interventions which used to be directed at the large sinuses, are targeted today at their prechambers in the lateral nasal wall; the ostiomeatal until with the narrow infundibulum of the ethmoid and the frontal recess as key positions

In the hands of a skilled surgeon, the[1-7] "Messerklinger Technique" (MT/FESS technique) demonstrates extremely few complications and a low morbidity rate. As with any surgical procedure, the technique described here also has its problems, limits and clear contraindications. It entails the typical risks of any type of endonasal ethmoid sinus and skull base surgery, and must therefore be carefully learned. Serious complications are nevertheless extremely rare when the technique is correctly performed.

The mechanical concept of stenoses and contact areas in the lateral nasal wall is, of course, not able to explain all pathological pheonomena. But even in complex disease processes such as diffuse polyposis, the first changes manifest themselves primarily in this area. Today the method of choice seems to be a combination of surgery and medical therapy for the aforementioned syndrome, the complex nature of which we are only gradually beginning to understand through basic research in the last years. More radical surgical procedure alone only rarely leads to healing. Diffuse, enosinophilic-dominated nasal polyposis is therefore a domain of endoscopic surgery in combination with medical therapy, usually by topical corticosteroids.

Since introduction of the endoscopic technique, the spectrum of indications has widened considerably. Not only cases of chronic and polypoid rhinosinusitis can be controlled today, but also imminent complications of acute sinusitis. Other conditions appropriate for an endoscopic approach are: Mucoceles of all sinuses – even with considerable intracranial extension; lesions of the anterior skull base (including cerebrospinal fluid fistulae) and meningoencephaloceles particularly of the sphenoidal sinus.[4-8] Decompressions of the orbit as well as of the otic nerve, dacryocystorhinostomies or choanal atresia can also be treated endoscopically. Under certain conditions, benign tumors such as inverted papillomas, mycoses and localized malignancies are also particularly suitable for endonasal, endoscopic resection. With the development of new instruments and techniques, resections can also be performed on pituitary tumors, and in special cases even on juvenile nasopharyngeal angiofibromas.

In spite of all these fascinating possibilities, it should not be forgotten that the actual domain of rigid endoscopy within the field of the paranasal sinuses is diagnosis. Early recognition of disease can therefore allow medical therapy to be sufficient in many cases.

MATERIAL AND METHODS

This study comprising of 42 patients who underwent endoscopic sinus surgery for chronic sinusitis.

INCLUSION CRITERIA

All the patients with clinically proven chronic sinusitis not responding to routine medical line of treatment for six weeks

EXCLUSION CRITERIA:

Patients with acute attack of sinusitis**,** sinus malignancies**,** orbital complications, treatment for coronary heart diseases (Asprin hypersensitivity) and nasal obstruction, headache, who do not have sinusitis (radiologically and with diagnostic endoscopic)

The cases selected for the study were subjected to detailed history taking and examination. A hemogram (HB,BT,CT,DC) and urine examination (albumin ,sugar, microscopy) along with X-ray para nasal sinuses were done for the patients. All the patients in active stage of the disease were treated with course of suitable Antibiotic, Systemic antihistamines and local decongestants .No patient received steroid therapy or immunotherapy. Each

patient underwent a systemic diagnostic nasal endoscopy of nose and para nasal sinuses

Diagnostic endoscopic procedure

Supine with head slightly elevated and turned towards the examiner, who is standing at the right side of the patient. Topical decongestant 4% Xylocain with 1:100.000 adrenaline solution using application like cotton stripes. Procedures: Endoscopy was performed by three pases. Along the floor of nasal cavity towards nasoparynx to visualize the status of inferior turbinate and meatus, Eaustachian tube orifice, nasopharyngeal mucosa, naslacrimal duct orifice and any pathological variations. Scope was inserted along the superior surface of inferior turbinate. As the endoscope was withdrawn the sphenoid ostium, sphneo-ethmoidal recess, frontanellae, middle meatus, natural ostium of maxillary sinus and any pathological or anatomical variations were noted to visualize the frontal recess.A gental medial subluxation of middle turbinate or use of a cannula placed under middle turbinate helps the introduction of the scope in middle meatus.

RESULTS

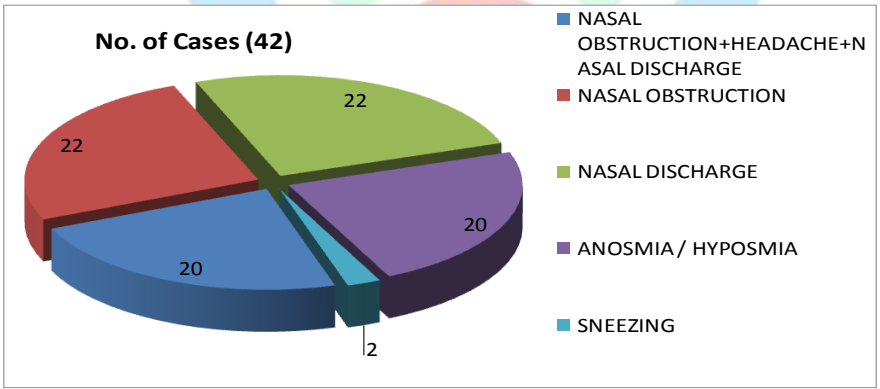
Our study included 42 patients out of which bilateral surgery was done on 26 patients and unilateral was done on 16 patients thus a total no of 68 procedures were carried out.

Table 1: Demographic distribution (n=42)

Age (Years)	No.of Cases N (%)
0-10	1 (2.3)
11-20	14 (33.3)
21-30	5 (11.1)
31-40	21 (50.0)
41-50	1 (2.3)
Gender	
Male	22 (52.36)
Female	20 (47.60)

Male predominance is slightly higher

Figure 1: Symptom Distribution



Nasal obstruction and headache are the commonest symptoms. Bilateral symptoms are higher than unilateral.

Table 2: Duration of Symptoms (N=42)

Duration Of Symptoms	No Of Cases N (%)
6 Months	26 (61.90)
6 Months- 1 Years	6 (14.28)
1 Years– 2 Years	6 (14.28)
2 Years – 4 Years	4 (9.52)

Table 3: Clinical Findings by Anterior Rhinoscopy

Clincal Fndings	Unilateral	Bilateral
Nasal Discharge	10	10
Ethimodial Polyp	0	10
Antrochonal Polyp	8	0
Hypertrophy Of Inferior Turbinate	14	20
Hypertrophy Of Middle Turbinate	15	20
Maxillary Sinus Tenderness	2	4

Hypertrophy of inferior and middle turbinates are present in max. no. of patients.

Table 3: Endoscopic Sinus Surgical Procedures Performed (n=42)

Procedures	No Of Cases N (%)
Uncinectomy + MMA + Anterior Ethmodectomy	8 (19.0)
Polypectomy +Uncinectomy + MMA	8 (19.0)
Polypectomy +Anterior Ethimodectomy + MMA	10 (23.80)
Polypectomy + Total Ethimodectomy + MMA	5 (11.00)
Polypectomy + Total Ethimodectomy + MMA + Sphenoidectomy	2 (4.70)
Total Ethimodectomy + MMA	4 (9.50)
Total Ethimodectomy + MMA + Sphenoidectomy	1 (2.30)
Anterior Ethimodectomy + MMA	4 (9.50)
Total	42 (100)

Polypectomy anterior ethmoidectomy MMA was performed in 23.80% of patients

Table 4: Paranasal Sinus Findings (n=42)

X-Ray Findings	No. of Cases N(%)
Haziness	20 (47.6)
Polyp/ Round Shadow	6 (14.2)
Thickened Shadow	10 (23.8)
Fluid Level	4 (9.5)
Hypoplasia	2 (4.7)
Total	42 (100)
Endoscopic Findings	
Thickened Mucosa	14 (33.3)
Polyp	18 (42.8)
Cyst	2 (4.7)
Pus / Mucopus	8 (19.0)

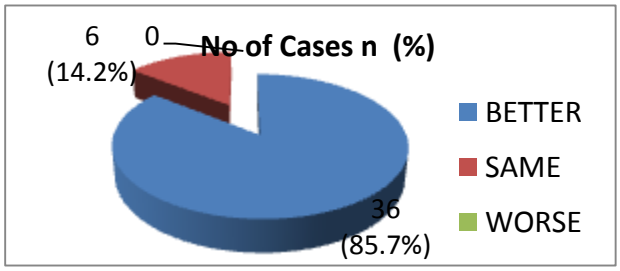
Haziness are present in 47.60% of patients, 42.80% patients presented with polyps

Table 5: Complications (n=4)

Complications	No. of. Cases N(%)
Nasal Synechia	0
Bleeding	3 (75)
Csf Leak	0
Blindness	0
Subcutaneous Emphysema	1 (25)
Total	4(100)

Bleeding is the most common complication

Figure 2: Results of FESS (n=42)



85% of the patients improved with Endoscopic sinus surgery

DISCISSION

The study included 42 patients of chronic sinusitis who did not respond to medical leave of treatment and where will to undergo endoscopic sinus surgery. Out of 42 patients 26 underwent bilateral and 16 underwent unilateral endoscopic surgeries, hence a total of 68 procedures were carried out. Out of 68 procedures all underwent anterior ethmoidectomy, middle meatus antrastomy, while total ethmoidectomy were done in 4 procedures, sphenoidectomy in 2 procedures. All the cases had undergone diagnostic endoscopy and x-ray paranasal sinuses. While CT scan was done in 5 cases before operation. Maximum numbers of patients are in the age group of 31 – 40. In our study age of patient varied between 0-45 with maximum no. of patients in 31 -40 years category. The study conducted by Kirtane [8]et al (1991). The ages range from 16 -52 years, with majority of cases i.e (46.78%) in the fourth decade. The study conducted by V. P. Venkatachalam[9] et al (19990 41.9 the age range from 7 -66 years with majority of age group of 3rd decade (22.85%). In present study majority of patient i.e 21 cases (50.00) were in the three decade. The observations were consistent with previous study.[10,11]

In the present study 22 patient i.e 52.38% were male while 20 patient i.e 47.61% were females. The study conducted by Kirtane[8] et al (1991). There were 19 males i.e 59.39% and 13 females i.e 40.62%. Our study is consistent with other studies.[10,11] In the present study nasal obstruction and headache were the common symptoms both of which are present in 22 patients. The next frequently occurring complaint was nasal discharge present in 10 patients. Sneezing in 15 patients and other symptoms like Anosmia/Hypsomia/ Cacosmia etc in 3 patients. In the majority of patients the duration of symptoms were present for more than 6 months. In the study conducted by Kirtane [8] M.V et al (1991) the commonest complaint was nasal discharge occurring in 25 patient i.e 78.10% followed by head ache in 22 patients (68.705) and nasal obstruction in 22 patient (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 30 years.

In the study conducted by venkatachalam[9] et al (1999) the commonest symptoms were nasal discharge 147 patient (70.00%) and nasal obstruction 183 patient (87.14%) the other symptoms were post nasal obstruction 86 patient (40.95%) sneezing 48 patients (27.85%) hyposmia/anosmia 57 patients (35.71%).

In the study conducted by Y.Bajaj[12] et al (2007) the commnest patient symptoms were nasal obstructions (81.50%) and anosmia (83.105) followed by post nasal discharge (44.30%) headache (43.20%) sneezing about (38.70%) rhinorrhea (35.705)

In our study the common clinical signs present were congested mucosal in 8 patients (19.40%) while pale mucosa was present in 13 patients (30.95%). The other findings were nasal polyp in 15 patients (35.91%) middle meatus discharge turbinate hypertrophy in 10 patients (23.80%) inferior turbinate hypertrophy in 8 patients (19.04%). In the study conducted by Venkatachalam[9] et.al the clinical findings were hypertrophy inferior turbinates (10%) hypertrophied middle turbinate (17.14%) congested mucosa membrane (15.71%) sinus tenderness, (7.14%) and ethmoidal polyps (12.80%). In study conducted by Kritane[8] M.V et. al hypertophied inferior turbinate was present in (9.50%) middle turbinate hypertrophy in (12.30%) sinus tenderness in 40.60%) polyps in (12.50%) of the cases. Present study polyps are more in patient.

In the present study 27 patients (64.28%) had chronic rhinosinositis while 15 patients (35.71%) had gross sinonasal polyposis. In the study conducted by Venkatachalam V.P [9]et al 67 patient have sinonasal polyposis (31.90%) and chronic rhinosinositis 143 patients (68.09%).Plain x-ray of Paranasal sinuses were done in all the cases to look abnormality DNE was carried in all patients.

Table 6: Complications

Author	Year	Complications (%)
Kirtane [8]	1991	15.3
Venkatachalam [9]	2000	15.2
Y.Bajaj [12]	2007	10.9
Present Study	2006-08	9.5

In the present study out of 42 patients 26 underwent bilateral surgeries and 16 underwent unilateral surgeries. Hence a total of 68 procedures were carried out in addition to 24 procedure of polypectomy was done along with MMA at the same time. A part from that 8 underwent septoplasty. Sphenoidectomy was done in 3 patients. Anterior ethmoidectomy was done in all cases. Post ethmoiduction was done in 7 patients MMA was done in all patients.

CONCLUSION

Chronic rhinosinusitis is a complex multi factorial disorders. Endoscopic sinus surgery is a common adjunct to medical therapy. Male predomiency was slightly more than female. The commonest symptoms were Nasal Obstruction, Headache with Nasal Discharge. The commonest signs were Middle Meatus Discharge, Edematous Mucosa, Polyps and Sinus Tenderness. Anterior Ethmoidal Sinus was most diseased Sinus, as most infections of the Para Nasal Sinus is Rhinogenic in origin. Infections spreads from the Ethomoid sinuses to infect the larger maxillary and frontal sinus secondarily. Functional Endoscopic Sinus Surgery is the treatment of choice with a success rate of 90-96%. Over all 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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