

A Prospective Study to Expected Clinical Trial, Clinical Presentation and Diagnostic Procedure for Unilateral Chronic Maxillary Sinusitis

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ABSTRACT

Background: Chronic sinusitis is one of the most common chronic diseases in India, affecting people of all ages. It is an inflammatory process involving the paranasal sinuses and lasts for 12 weeks or more. In this study every effort was made to determine the etiology that may be contributing to unilateral maxillary sinusitis so that the etiology correction helps to correct the disease and results in better treatment outcomes.

Materials & Methods: This is a cross sectional study were done on 50 patients presenting with symptoms and signs suggestive of unilateral maxillary chronic sinusitis duration of more than 12 weeks reporting to Otorhinolaryngology OPD at Mahatma Gandhi Hospital, Bhilwara at carried out to study the etiological factors of unilateral maxillary chronic sinusitis. After informed consent, a detailed history was taken, ENT examination including complete orodental examination was done.

Results: Our study showed that the mean age of patients was 47.66 ± 18.25 years, male to female ratio was 3.16:1 and rural was more common (80%) as compared to urban (20%). The most common symptoms were headache/facial pain (80%), followed by nasal obstruction (52%). In anterior rhinoscopy, right deviated nasal septum was found most commonly (40%)

and in posterior rhinoscopy, positive mass present in 18% of cases.

Conclusion: We concluded that some anatomical variability is thought to be a prerequisite for the development of sinus disease, so that the surgeon may be aware of these changes.

Keywords: Chronic Sinusitis, Maxillary Sinus, Unilateral, Deviated Nasal Septum.


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INTRODUCTION

The maxillary sinus is a pneumatic space. It is the largest bilateral air sinus located in the body of the maxilla and opens in the middle nasal meatus of the nasal cavity with single or multiple openings. The maxillary sinus varies greatly in size, shape and position not only in different individuals but also in different sides of the same individual.¹

Chronic rhinosinusitis (CRS) means a disease that persists for more than 12 weeks. Any structural, physiological or pathological factors which in a way obstruct free drainage from sinuses permits stasis of secretion and predisposes to infection. At times it is difficult to get to the etiological aspect as the pathogenesis of chronic rhinosinusitis is not well defined. There is a wide range of anatomical variations in the ostiomeatal complex that have been implicated in the etiology of sinus infection.²

Maxillary sinuses are fully dependent on anterior ethmoid region because their ventilation and drainage pass through complicated fissures and narrow compartments.³

Unilateral maxillary sinusitis is a multi-functional disease, the possible causes are ruptured nasal septum (DNS), ostiomeatal malformations as a prominent bulla, confusing turn into a central turbinate, medialised uncinate, agger cells here are the prominent, antrochoanal polyps, and undiagnosed odontogenic when unknown surgery will lead to endoscopic sinus failure. The external body of sinus as the root of the teeth, the implantation of the teeth is also the cause. Children often put peas, beans, a button, safety pins and plastic toys in their noses. Foreign bodies remain unavailable until infection of the nasal cavity. Messerklinger has shown that in many cases the infection spreads

from the inner ethmoidal region and the central region of the flesh to secondarily large and former sinners.⁴

Chronic sinusitis is one of the most common chronic diseases in India, affecting people of all ages. It is an inflammatory process involving the paranasal sinuses and lasts for 12 weeks or more. The literature supports that chronic sinusitis is almost always accompanied by inflammatory air-like inflammation and is often preceded by symptoms of rhinitis; therefore, the term chronic rhinosinusitis (CRS) has evolved to accurately describe the condition. In this study every effort was made to determine the etiology that may be contributing to unilateral maxillary sinusitis so that the etiology correction helps to correct the disease and results in better treatment outcomes.

MATERIALS & METHODS

This is a cross sectional study were done on out patients and in patients presenting with symptoms and signs suggestive of unilateral maxillary chronic sinusitis duration of more than 12 weeks reporting to Otorhinolaryngology OPD at Mahatma Gandhi Hospital, Bhilwara at carried out to study the etiological factors of unilateral maxillary chronic sinusitis.

Inclusion Criteria

- Patients presenting with symptoms of unilateral chronic maxillary sinusitis.

Exclusion Criteria

- Acute Sinusitis.
- Patient suffering from chronic granulomatous diseases of nose.
- Allergic Rhinosinusitis.
- Bilateral chronic maxillary sinusitis.

Method: Patients were selected by the convenience sampling method. After informed consent, a detailed history was taken, ENT examination including complete orodental examination was done.

Investigations: All 50 patients were subjected to complete hemogram, absolute eosinophil count, RBS, urine routine. Antral wash was taken and was sent to department of microbiology

Imaging: Intra oral peri apical radiographs were taken of maxillary teeth. Imaging of nose and PNS was done with sinus computed tomography, maxillary teeth on CT were examined for periapical lucencies.

Statistical Analysis: All variations were placed in Microsoft excel sheet and statistical analysis by SPSS software 16 version.

Table 1: Age wise distribution of cases

Parameters	No. of patients (N=50)	Percentage
Age (yrs)		
Mean±SD	47.66±18.25	
Sex		
Male	38	76%
Female	12	24%
Region		
Rural	40	80%
Urban	10	20%
Symptoms		
Nasal obstruction	26	52%
Nasal discharge	19	38%
Sneezing	18	36%
Epistaxis	2	4%
Headache/facial pain	40	80%

Table 2: Distribution of patients according to radiographic parameters

Radiographic parameters	No. of patients	Percentage
X-ray PNS		
Opacification of maxillary sinus	8	16%
Haziness of maxillary sinus	42	84%
CT Scan		
Soft tissue attenuation in maxillary sinus	9	18%
Middle turbinate pneumatization	6	12%
Paradoxical curvature of middle turbinate	5	10%

Table 3: Examination of cases

		No. of patients	Percentage
External nose	Deformity	6	12%
	Normal	44	88%
Sinus tenderness	Positive	12	24%
	Negative	38	76%
Anterior rhinoscopy	B/L ITH	11	22%
	Left DNS	10	20%
	Right DNS	20	40%
	Mass Positive	9	18%
Posterior rhinoscopy	Mass Positive	9	18%

Table 4: Diagnosis of patients

Diagnosis	No. of patients	Percentage
Right DNS	20	40%
Left DNS	10	20%
Antrochoanal polyp	9	18%
Concha bullosa	6	12%
Paradoxical turned middle turbinate	5	10%
Total	50	100%

RESULTS

Our study showed that the mean age of patients was 47.66 ± 18.25 years, male to female ratio was 3.16:1 and rural was more common (80%) as compared to urban (20%) (table 1).

The most common symptoms were headache/facial pain (80%), followed by nasal obstruction (52%) (table 1).

On x-ray PNS the haziness of maxillary sinus is present most commonly in 81% of cases and in CT scan the soft tissue attenuation in maxillary sinus is present most commonly in 19% of cases followed by middle turbinate pneumatization in 12% cases, paradoxical curvature of middle turbinate in 10% cases (table 2).

Our study showed that the external nose deformity was found in 12% of cases and sinus tenderness positive in 24% of cases. In anterior rhinoscopy, right deviated nasal septum was found most commonly (40%) and in posterior rhinoscopy, positive mass present in 18% of cases (table 3).

In our study showed that the mostly patients occurred with right deviated nasal septum (40%) followed by left DNS (20%) (table 4).

DISCUSSION

Our study showed that the mean age of patients was 47.66 ± 18.25 years. A study done by Paulius Ugincius et al (2006)⁵ who found that mean age of the female was 46.6 ± 15.0 , the mean age of the men was 42.1 ± 14.4 , but our study didn't significant of mean age of gender. Other research related to our results with D. Chandrika et al (2017)⁶ who found that youngest patient was 7 years and oldest patient was 67 years. D. Chandrika et al (2017)⁶ and Lee and Lee,⁷ found male to female ratio was 1.08:1 & 1.25:1 respectively, which was conflicted with our results (male to female ratio was 3.16:1). Because our patients were residing more commonly in rural area (approx 80%).

The most common symptoms were headache/facial pain (80%), followed by nasal obstruction (52%) in our study, which was consisted with Prakash and Biyyapu et al (2016)⁸, Longhini and Ferguson⁹ & Andric et al.¹⁰

R. H. Kamel (1989)¹¹ found that all cases of chronic maxillary sinusitis were associated with anatomical variations and/or pathological abnormalities of 'the ostiomeatal area'. Dua K, et al (2005)¹² found deviated nasal septum was present in 44% of patients, which was consisted with our results.

In x-ray PNS the haziness of maxillary sinus is present most commonly in 81% of cases and in CT scan the soft tissue attenuation in maxillary sinus is present most commonly in 19% of cases followed by middle turbinate pneumatization in 12% cases, paradoxical curvature of middle turbinate in 10% cases, which was consisted with Pandey A et al (2014)¹³ & Chandrika D, Anantharaju GS (2017).⁶

Our study showed that the external nose deformity was found in 12% of cases and sinus tenderness positive in 24% of cases. In anterior rhinoscopy, right deviated nasal septum was found most commonly (40%) and in posterior rhinoscopy, positive mass present in 18% of cases. Dua K, et al (2005)¹² found deviated nasal septum was found in 44% of patients.

CONCLUSION

We concluded that some anatomical variability is thought to be a prerequisite for the development of sinus disease, so that the surgeon may be aware of these changes.

Nasal endoscopy and CT scan PNS assist the surgeon as a "road map guide" during medical treatment and surgery for chronic unilateral sinusitis.

REFERENCES

1. Barghouth G, Prior JO, Lepori D, Duvoisin B, Schnyder P; Gudinchet F. Paranasal sinuses in children: size evaluation of maxillary, sphenoid, and frontal sinuses by magnetic resonance imaging and proposal of volume index percentile curves. *Eur Radiol* 2002; 12(6): 1451–8.
2. Xinreich SJ, Kennedy DW, Gayler BW. CT of nasal cavity, paranasal sinuses: an evaluation of anatomy in endoscopic sinus surgery. *Clear images*. 1988;2:2-10.
3. Kamel RH. Nasal endoscopy in chronic maxillary sinusitis. *The J Laryngol Otol*. 1989;103:275-8.
4. Messerklinger W. Drainage of normal frontal sinus of man. *Acta Otolaryngol*. 1967;63(2):176-81.
5. Paulius Ugincius, Ricardas Kubilius, Albinas Gervickas, Saulius Vaitkus. Chronic odontogenic maxillary sinusitis. *Stomatologija, Baltic Dental and Maxillofacial Journal*, 2006; 8:44-8.
6. D. Chandrika, Anantharaju G. S. Study of etiological factors in unilateral maxillary chronic sinusitis. *Int J Otorhinolaryngol Head Neck Surg*. 2017 Jan;3(1):88-90.
7. Lee KC, Lee SJ. Clinical features and treatments of odontogenic sinusitis. *Yonsei Med J* 2010;51:932-7.
8. B G Prakash, Suhasini Biyyapu. Incidence of Odontogenic Sinusitis – Experience in a Tertiary Care Centre. *International Journal of Scientific Study*, March 2016; 3(12):105-9.
9. Longhini AB, Branstetter BF, Ferguson BJ. Unrecognized maxillary sinusitis: a cause of sinus surgery failure. *Am J Rhinol allergy*. 2010;24(4):296-300.
10. Andric M, Saranovic V, Drazic R, Brkovic B, Todorovic L. Functional endoscopic sinus surgery as an adjunctive treatment for closure of oroantral fistulae: A retrospective analysis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010;109:510-6.
11. R. H. Kamel. Study of Nasal Endoscopy in Chronic Sinusitis. *The Journal of Laryngology and otology*. March 1998;103(3):275-8.
12. Dua K, Chopra H, Khurana A S, Munjal M. CT scan variations in chronic sinusitis. *Indian J Radiol Imaging* 2005;15:315-2.
13. Pandey A, Nigam R, Jain A.K. A comparative study of radiological and endoscopic finding in paranasal sinuses disease. *Scholars Journal of Applied Medical Sciences (SJAMS)* 2014; 2(3C):1053-8.

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