

A Study of Efficacy of Endoscopic Middle Meatal Antrostomy in the Management of Chronic Maxillary Sinusitis

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Abstract

Background: Sinusitis refers to a group of disorders characterized by inflammation of the mucosa of the paranasal sinuses. The present study was conducted to assess the efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis.

Materials & Methods: A hospital based prospective study was done in the department of otorhinolaryngology, Viswabharathi Medical College, Kurnool. The study involved the evaluation of 50 patients with chronic maxillary sinusitis of both gender after evaluating inclusion and exclusion criteria with consent. A clinical otorhinolaryngological examination and nasal endoscopy was conducted on all the patients. CT findings were evaluated. Pre and post-operative endoscopic findings and symptoms were compared. Complications encountered postoperatively were evaluated. All data were entered into excel sheets and statistical analysis was done by SPSS version 20.

Results: Most of the patients presented with nasal obstruction, facial pain and headache. Most common endoscopic finding was middle meatal mucopus. Maxillary sinus opacity was the most common CT finding. There was an improvement in post operative period in symptoms and endoscopic parameters. postoperative middle meatus synechia was developed in 4 % patients.

Conclusion: In patients with persistent maxillary sinusitis, middle meatal antrostomy is a safe, minimally invasive, and effective surgery with a lower rate of complications and quick postoperative recovery.

Keywords: Chronic maxillary sinusitis, Endoscopic appearance score, Middle meatal antrostomy

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Background

Sinusitis is a group of diseases that cause the mucosa of the paranasal sinuses to become inflamed. Categories are based on how long the symptoms last, such as acute sinusitis, which is defined as having symptoms for less than 4 weeks [1]. Subacute sinusitis has symptoms that last between 4 and 8 weeks. Chronic sinusitis

has symptoms that last longer than 8 weeks. People often say that someone has recurrent acute sinusitis if they have three or more episodes per year and each episode lasts less than two weeks [2].

Sinusitis is more common in places that are cold and wet and have a lot of

pollution, smoke, and dust in the air. People with poor health in general, a recent history of exanthematous fever, measles, chickenpox, nutritional deficiencies, systemic disorders like diabetes, immune deficiency syndromes, etc., are more likely to get this disease. A big part of the process is that inflammatory oedema of the mucosa makes it hard for the sinuses to drain [3].

Because the upper teeth are so close to the maxillary sinus, they are more likely to get a periapical or periodontal odontogenic infection. The bone wall that separates the maxillary sinus from the roots of the teeth can be completely absent, in which case the roots are only covered by mucous membrane, or it can be as thick as 12 mm [4]. The present study was conducted to assess efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis

Materials and Methods

A hospital based prospective study was done in the department of otorhinolaryngology, Viswabharathi Medical College, Kurnool during the period of 2019-2020 after getting approval from the Institutional Ethics Committee. The study comprised of 50 patients of both gender and age group between 20-60 years with chronic maxillary sinusitis. All were informed regarding the study and their written consent was obtained.

Inclusion criteria were the patients who were suffering from clinically, diagnostic nasal endoscopically and radiologically proven chronic maxillary sinusitis exclusively not responding to Medical Treatment.

Patients with age under 20 years or over 60 years, patients with congenital defects of mucociliary dysfunction, patients with granulomatous diseases of nose, atrophic rhinitis, and patients with systemic

diseases like cardiovascular disease, renal disease, bleeding disorders, immunodeficiency syndrome.

Data such as name, age, gender was recorded. All patients underwent complete otorhinolaryngological examination with nasal endoscopy under local anesthesia. A clinical otorhinolaryngological examination and nasal endoscopy was repeated on 3 months postoperatively. Pre and postoperative symptoms were assessed and tabulated. Postoperative complications were assessed at 3 months

Middle Meatal Antrostomy- Operation typically performed under local anaesthesia 30–40 minutes before to surgery using ribbon gauze filled with 5 mg/ml adrenaline and 4% xylocaine. Using a 26-spinal needle filled with 2 percent xylocaine and adrenaline, the greater palatine, anterior ethmoidal, and sphenopalatine blocks were administered. Midazolam 1-2 mg/kg is used to provide drowsiness in addition to local anaesthesia. Occasionally, general anaesthesia is used for procedures, depending on the patient's resistance to the process. The procedure involved employing 0°, 30°, and 70° rigid 4mm telescopes, ball probe identification of the maxillary ostium, and uncinectomy using back-biting forceps to remove the lower 2/3 of the horizontal section and some of the vertical part. The maxillary sinus was then completely cleaned by irrigation and suction. Antral and anterior packing made with ribbon gauze or merocel to check for postoperative epistaxis was removed after 24 to 48 hours. Patient was followed up in 14 days, 3 months, with a diagnostic nasal endoscopy, X-ray, and CT scan.

Results

In our study, out of 50 patients, males were 27 and females were 23

Table 1: Sex distribution

Gender	Number	Percentage (%)
Male	27	54
Female	23	46

Nasal obstruction was the most common symptom presenting in 90% of patients. The next common were pain, Headache, Earache, Hyposmia, dental pain, & Halitosis.

Table 2: Preoperative symptoms

Symptoms	No. of patients	Percentage (%)
Nasal obstruction	45	90
Facial pain	37	74
Head ache	25	50
Ear Ache	5	10
Dental pain	2	4
hyposmia	5	10
halitosis	2	4

Middle meatus mucopus was the commonest finding (80%) followed by DNS (24%)

Table 3: Pre Operative Endoscopy

Findings	No. of patients	Percentage (%)
DNS	12	24
Middle Meatal Mucopus	40	80
Bilateral ITH	10	20
Antrochoanal Polyp	3	6
Ethmoidal Polyp	2	4

Maxillary sinus opacity was found in all the patients (100%) followed by Maxillary polyp (6%) and concha bullosa (4%)

Table 4: CT findings

Findings	No. of patients	Percentage (%)
Maxillary Polyp	3	6
Ethmoidal Polyp	1	2
Maxillary Sinus Opacity	50	100
Concha Bullosa	2	4
Middle Meatal Mucopus	3	4

Headache was the major immediate complication problem found in 74% of patients

Table 5: Post operative immediate complications

Complications	No. of patients	Percentage (%)
Headache	37	74
Headache+Facial Pain	2	4
Headache+Nasal Obstruction	2	4
Headache+Hyposmia	10	20

Postoperatively middle meatal synechiae developed in 10% of the patients

Table 6: Post-operative endoscopy

Findings	No. of patients	Percentage
Middle Meatal Synechia	5	10
Normal	45	90

On follow up 90% of patients became free from Nasal obstruction, 92% of patients became free from Facial pain, 94% of patients became free from Headache.

Table 7: Postoperative symptoms

Symptoms	No. of patients	Percentage (%)
Nasal obstruction	5	10
Facial pain	4	08
Head ache	3	06
Ear Ache	0	0
Dental pain	0	0
hyposmia	0	0
halitosis	0	0

Discussion

The present study was conducted to assess efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis. Our study included 50 patients with chronic maxillary sinusitis after failure with medical treatment underwent surgical intervention by Middle Meatal Antrostomy.

1. Sex distribution

In the present study, there is a male preponderance with a male to female ratio of 1.6:1. In a study by Hemanth Chopra *et al.* male to female ratio was 1.9:1 with male preponderance [5].

2. Presenting symptoms

In the present study nasal obstruction is the most common symptom (90%) followed by facial pain and Headache. The present study correlates the main complaint of nasal obstruction with other studies such as: in a study conducted by Bunzen *et al.* [6]. 100% patients had nasal obstruction. In a study conducted by Engin *et al.*, Nasal obstruction was seen in 85.4% of patients followed by facial pain (69%) and headache (79%) [7]. In a study conducted by stammerberger, 82% of patients had nasal obstruction [8].

3. Preoperative endoscopy

In our study, Middle Meatus Mucopus was the commonest finding (80%) followed by

DNS (24%). In a study conducted by Kamel, Middle meatus mucopus was noticed in 27.2% of patients. [9] In a study by Engin *et al.*, DNS was the most common finding 53.1% followed by middle meatus 48% [7].

4. Preoperative CT

In present study, all patients (100%) had opacification of maxillary sinus. Maxillary polyp was noted in 6% and Concha bullosa in 4%. In a study by Kennedy *et al.*, also maxillary sinus opacity was the most common CT finding.[10] In a study conducted by K.Joe *et al.*, 52% had maxillary sinus opacity but still was the commonest CT finding [11].

5. Complications

In present study, headache was the major immediate problem. In a study by Prasad John Thottam *et al.*, headache has been mentioned as one of the immediate complications [12]. In our study postoperatively synechia developed in 10% of patients. In a study by K.Joe Jacob *et al.*, synechia developed in 12% of patients postoperatively [11]. In a study by Schaffer *et al.*, most common complication was synechia [13].

6. Symptomatic relief on follow up

In our study, 88% of patients became free from major symptoms of nasal obstruction,

facial pain and headache. In a study by colclasure *et al.* there was 94% of improvement in symptom profile [14]. In a study by Nass *et al.* there was 89% improvement in symptom profile [15]. In a study by Levine, there was 80.2% improvement in symptom profile [16].

Conclusion

In patients with persistent maxillary sinusitis, middle meatal antrostomy is a safe, minimally invasive, and effective surgery with a lower rate of complications and quick postoperative recovery.

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