

## Assessment of efficacy of 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 efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis.

**Materials & Methods:** 62 patients of chronic maxillary sinusitis of both genders underwent complete otorhinolaryngological examination with nasal endoscopy under local anesthesia. A clinical otorhinolaryngological examination and nasal endoscopy was repeated on visits 2 weeks, 3 months, 6 months and 1 year postoperatively.

**Results:** Radiological score 0 was seen in 10, 1 in 20 and 2 in 32. Endoscopic appearance score for polyp at baseline was 26, at 6 months was 10 and at 1 year was 1, endoscopic appearance score for edema at baseline was 54, at 6 months was 12 and at 1 year was 2. Endoscopic appearance score for secretion at baseline was 62, at 6 months was 20 and at 1 year was 4. Symptoms score at 6 months for nasal blockage was 26, facial pain was 11, headache was 5, epistaxis was 6, post nasal discharge was 7. Symptoms score at 1 year for nasal blockage, facial pain, headache, epistaxis and post nasal discharge was 5, 2, 1, 1 and 2 respectively. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Middle meatal antrostomy is a safe and effective procedure in patients suffering from chronic maxillary sinusitis.

**Key words:** Chronic maxillary sinusitis, Endoscopic appearance score, Middle meatal antrostomy.

### INTRODUCTION

Sinusitis refers to a group of disorders characterized by inflammation of the mucosa of the paranasal sinuses. Categories based on duration as acute sinusitis, defined as symptoms of less than 4 weeks' duration.<sup>1</sup> Subacute sinusitis is defined as symptoms of 4 to 8 weeks' duration and Chronic sinusitis, defined as symptoms lasting longer than 8 weeks. Recurrent acute sinusitis, often defined as three or more episodes per year, with each episode lasting less than 2 weeks.<sup>2</sup> Sinusitis is more common in cold and wet climate, atmospheric pollution, smoke, dust overcrowded condition. Increased cases are found in people with poor general health, with recent history of exanthematous fever measles, chickenpox, in nutritional deficiencies, systemic disorders like diabetes, immune deficiency syndromes etc. Impairment of drainage of sinuses by inflammatory oedema of the mucosa is an important contributor to the process.<sup>3</sup>

Intimate anatomical relation of the upper teeth to the maxillary sinus promotes the development of periapical or periodontal odontogenic infection into MS. The bony wall, separating maxillary sinus from teeth roots varies from full absence, when teeth roots are covered only by mucous membrane, to the wall of 12 mm.<sup>4</sup> Sinonasal symptoms predominate

in patients with odontogenic sinusitis; however, these symptoms do not distinguish odontogenic sinusitis from other causes of sinusitis. Furthermore, no single symptom from the various sinonasal complaints associated with sinusitis has been shown to predominate in odontogenic sinusitis.<sup>5</sup>The present study was conducted to assess efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis.

## MATERIALS & METHODS

The present study comprised of 62 patients of chronic maxillary sinusitis of both genders. All were informed regarding the study and their written consent was obtained. Inclusion criteria was sinus-related symptoms lasting at least 12 weeks despite maximal medical treatment (intranasal corticosteroid and/or antihistamine with or without antibiotics).

Data such as name, age, gender etc. was recorded. All patients underwent complete otorhinolaryngological examination with nasal endoscopy under local anesthesia. A clinical otorhinolaryngological examination and nasal endoscopy was repeated on visits 2 weeks, 3 months, 6 months and 1 year postoperatively. Pre and postoperative symptoms were assessed. Postoperative computed tomography scans were repeated at 6 months and maxillary sinus grading and scoring was done. Postoperative nasal endoscopic assessment was done at 6 months and 1 year done and maxillary sinus grading and scoring was done. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULTS

**Table I Distribution of cases**

<b>Total- 62</b>		
<b>Gender</b>	<b>Males</b>	<b>Females</b>
<b>Number</b>	40	22

Table I shows that out of 62 patients, males were 40 and females were 22.

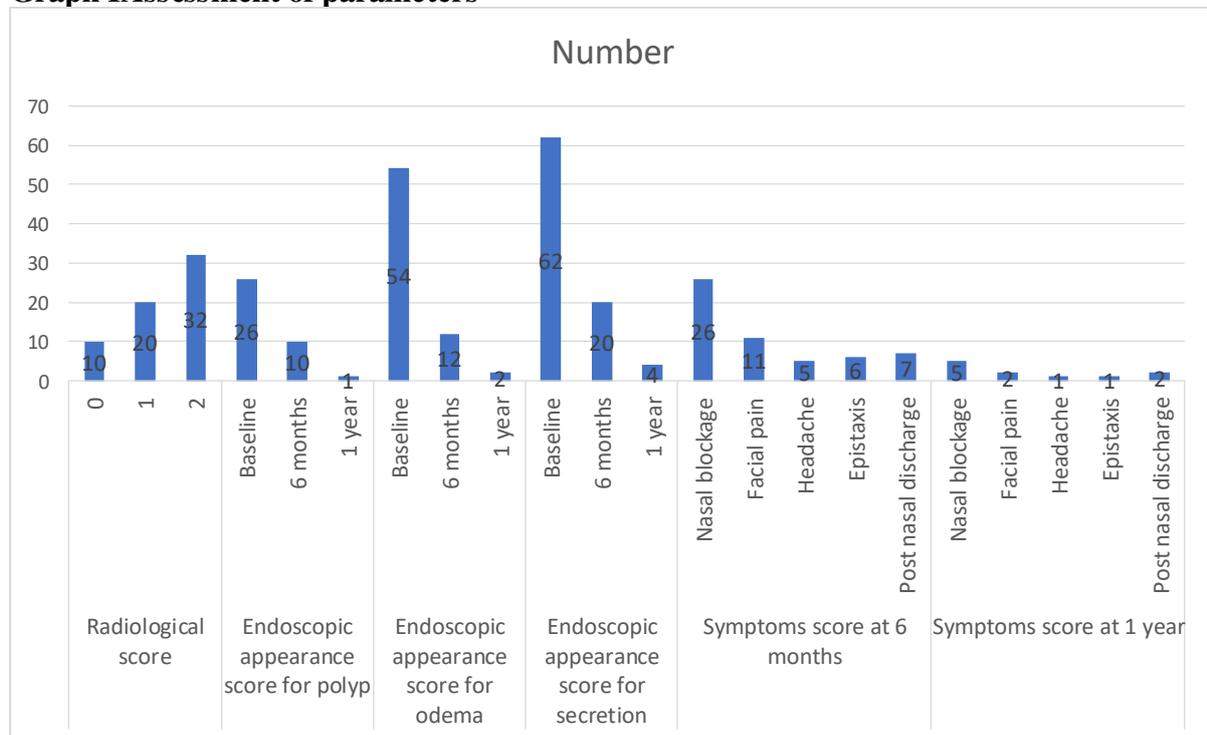
**Table II Assessment of parameters**

<b>Parameters</b>	<b>Variables</b>	<b>Number</b>	<b>P value</b>
Radiological score	0	10	0.01
	1	20	
	2	32	
Endoscopic appearance score for polyp	Baseline	26	0.05
	6 months	10	
	1 year	1	
Endoscopic appearance score for odema	Baseline	54	0.04
	6 months	12	
	1 year	2	
Endoscopic appearance score for secretion	Baseline	62	0.01
	6 months	20	

	1 year	4	
Symptoms score at 6 months	Nasal blockage	26	0.02
	Facial pain	11	
	Headache	5	
	Epistaxis	6	
	Post nasal discharge	7	
Symptoms score at 1 year	Nasal blockage	5	0.05
	Facial pain	2	
	Headache	1	
	Epistaxis	1	
	Post nasal discharge	2	

Table II, graph I shows that radiological score 0 was seen in 10, 1 in 20 and 2 in 32. Endoscopic appearance score for polyp at baseline was 26, at 6 months was 10 and at 1 year was 1, endoscopic appearance score for odema at baseline was 54, at 6 months was 12 and at 1 year was 2. Endoscopic appearance score for secretion at baseline was 62, at 6 months was 20 and at 1 year was 4. Symptoms score at 6 months for nasal blockage was 26, facial pain was 11, headache was 5, epistaxis was 6, post nasal discharge was 7. Symptoms score at 1 year for nasal blockage, facial pain, headache, epistaxis and post nasal discharge was 5, 2, 1, 1 and 2 respectively. The difference was significant ( $P < 0.05$ ).

**Graph I Assessment of parameters**



## DISCUSSION

Sinusitis is more common in cold and wet climate, atmospheric pollution, smoke, dust overcrowded condition. Increased cases are found in people with poor general health, with recent history of exanthematous fever measles, chickenpox, in nutritional deficiencies, systemic disorders like diabetes, immune deficiency syndromes etc. Impairment of drainage of sinuses by inflammatory oedema of the mucosa is an important contributor to the process.<sup>6</sup> Current thinking supports the concept that chronic rhino sinusitis (CRS) is predominantly a multifactorial inflammatory disease.<sup>7</sup> Confounding factors that may contribute to inflammation are persistent infection (including biofilms and osteitis), allergy and other immunologic disorders, intrinsic factors of the upper airway, super antigens, colonizing fungi that induce and sustain eosinophilic inflammation, metabolic abnormalities. Functionally active L-selectin ligands guiding leukocyte traffic into maxillary sinus mucosa have been suggested preferentially in patients with severe findings of chronic maxillary rhino sinusitis. Endoscopic sinus surgery was developed in continental Europe in the 1970s and 1980s.<sup>8</sup> Despite great claims for the technique, there had been fewer controlled trial of FESS versus conventional surgery. Success rates of around 90% have been reported using the old ‘unphysiological’ operation of inferior meatal antrostomy in cases of recurrent acute and chronic sinusitis. Reported success rates for endoscopic surgery are similar.<sup>9</sup> The present study was conducted to assess efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis.

In present study we found that out of 62 patients, males were 40 and females were 22. Acharya et al<sup>10</sup> determined the efficacy of middle meatal antrostomy in the management of chronic maxillary sinusitis in subjective and objective parameters. Pre and post-operative endoscopic and radiological scoring [Lund Mackay], mean area of maxillary ostium as well as symptom and complication charting was done and compared. Only 8 patients had concomitant Antrochoanal polyps and maxillary sinusitis. 7/8 cases had uni-lateral polyps (4 on left, 3 on right and 1 case bi lateral). All the polyps were histo-pathologically confirmed. Nearly 40% cases were unilateral (on radiographs) .7 out of the 25 cases of uni lateral maxillary sinusitis presented with antrochoanal polyps. One case of 35 bilateral cases presented with bilateral antrochoanal polyps. Patient symptoms were not necessarily limited to the side of sinus involvement.

We found that radiological score 0 was seen in 10, 1 in 20 and 2 in 32. Endoscopic appearance score for polyp at baseline was 26, at 6 months was 10 and at 1 year was 1, endoscopic appearance score for odema at baseline was 54, at 6 months was 12 and at 1 year was 2. Jacob et al<sup>11</sup> compared the effectiveness of endoscopic middle meatal antrostomy and Caldwell-Luc’s surgery in the management of Chronic Maxillary Sinusitis. This was a prospective randomized comparative study based on the analysis of eighty patients who were diagnosed to have chronic, unilateral, maxillary sinusitis and underwent surgery, after a failed trial of conservative management. One year after surgery 44% of the C-L patients and 89% of the FESS patients reported distinct improvement of their symptoms. Both are effective in the management of chronic sinusitis. Endoscopic middle meatal antrostomy is superior to CaldwellLuc in intraoperative and postoperative parameters.

We found that endoscopic appearance score for secretion at baseline was 62, at 6 months was 20 and at 1 year was 4. Symptoms score at 6 months for nasal blockage was 26, facial pain was 11, headache was 5, epistaxis was 6, post nasal discharge was 7. Symptoms score at 1 year for nasal blockage, facial pain, headache, epistaxis and post nasal discharge was 5, 2, 1, 1 and 2 respectively.

In meta-analysis made by Arias-Irimia<sup>12</sup> the most common cause of OMS was iatrogenic (55.97%). Other possible etiologies were periodontitis (40.38%) and the odontogenic cysts (6.66%). Oroantral fistulas and the remaining roots, taken together as iatrogenic after tooth

extraction, accounted for 47.56% within iatrogenic causes. The dressings to close these oroantral fistulas and non-specific foreign bodies for the 19.72%, extrusion of endodontic obturation materials into the maxillary sinus represented the 22.27%, amalgam remains after apicoectomies the 5.33%, the maxillary sinus lift pre-implantology surgery 4.17%, and poorly positioned dental implants or those migrated to the maxillary sinus the 0.92% of all cases included under an iatrogenic source.

## CONCLUSION

Authors found that middle meatal antrostomy is a safe and effective procedure in patients suffering from chronic maxillary sinusitis.

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