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Research article

## COMPARISON OF ENDOSCOPIC SINUS SURGERY AND ANTRAL WASH OUT IN THE MANAGEMENT OF SUBACUTE AND CHRONIC MAXILLARY SINUSITIS

\*MuthuBabuK, Srinivasan MK., Sakthivel M, Kiran kumar C, Arvinth kumar G

Department of ENT, Meenakshi Medical College and Research Institute, Kanchipuram, Tamil Nadu, India

\*Corresponding author: MuthuBabu. K ; Email: muthubabu67@gmail.com

### ABSTRACT

**Introduction:** Sub acute and chronic maxillary sinusitis is commonly encountered in day to day ENT practice. Here we compare the management options available in the treatment of these two conditions. **Methodology:** Endoscopic sinus surgery and antral wash out are two well known and authentic procedures used in the management of maxillary sinusitis. Here we evaluate the effectiveness and advantages of both the procedures in the management of sub acute and chronic maxillary sinusitis. 40 patients were evaluated. 20 patients underwent antral lavage and the remaining 20 underwent Endoscopic sinus surgery. Equal number of patients with sub acute and chronic maxillary sinusitis underwent both the procedures. **Result:** Evaluation was done based on the symptoms, anterior rhinoscopy finding and radiological finding. **Conclusion:** Endoscopic sinus surgery is an ideal management tool for chronic maxillary sinusitis. But sub acute maxillary sinusitis can be treated as a day care procedure by antral washout.

**Keywords:** Antral wash out, Endoscopic sinus surgery, Maxillary sinusitis.

### INTRODUCTION

Sinusitis is classified as acute sinusitis – 7days to 4 weeks duration, sub acute sinusitis – 4 weeks to 12 weeks duration and chronic sinusitis – more than 12 weeks duration, acute exacerbation of chronic maxillary sinusitis and recurrent sinusitis – more than 4 episodes per year<sup>[1]</sup>. Here we limit our study to sub acute and chronic maxillary sinusitis. The differential diagnosis is based upon the duration of symptoms and sinus endoscopic finding<sup>[2]</sup>. We compare the effectiveness of two authentic procedures, antral washout and endoscopic sinus surgery. Sub acute maxillary sinusitis usually clears up by repeated sinus washout<sup>[3]</sup>.

### MATERIAL AND METHODS

Patients from the outpatient and inpatient Department of ENT and head and neck surgery, Meenakshi Medical College and Research Institute were taken up

for the study after getting the approval. Patients in the age group of 20 to 45 years of both sexes were taken up for the study. Only patients who were suffering from exclusive maxillary sinusitis were evaluated. Exclusions: Involvement of other paranasal sinuses, Presence of nasal polyps, Allergic rhinitis, Acute exacerbations of chronic diseases, Fungal sinusitis, Presence of any tumours in the nose. Randomized separation study was done after getting the written consent from the patients.

40 patients with symptomatic maxillary sinusitis were evaluated. 20 patients underwent antral wash out. 10 patients were suffering from sub acute maxillary sinusitis and the rest 10 patients were suffering from the chronic form of the disease. Similarly 20 patients underwent endoscopic middle meatal antrostomy out of which 10 were suffering from sub acute maxillary sinusitis and the other 10 patients with chronic

maxillary sinusitis. Evaluation was then done based on the symptoms like nasal discharge, headache, anterior rhinoscopic examination, endoscopic examination of the nose, X-ray of the paranasal sinuses, CT scan of the paranasal sinuses. The evaluation of all these parameters was done before the procedure and after the procedure. In few patients who had purulent secretions the pus was sent for culture and sensitivity. **Antral lavage:** Under local anaesthesia, 4% xylocaine was used to anaesthetize the nasal cavity through the inferior meatus<sup>[4]</sup>. A Lichtwitz trocar and canula was inserted into the maxillary antrum through the inferior meatus and the antrum washed with normal saline. By doing so the antrum was washed out and the patency of the natural maxillary sinus ostium was established thus helping in the treatment of the disease. **Endoscopic sinus surgery:** Using 0 degree nasal endoscope, under local or general anaesthesia the procedure was performed depending on the ability of the patient to withstand the procedure<sup>[5]</sup>. A middle meatal antrostomy and complete toiletting of the maxillary antrum was done. Pus if present was sent for culture and sensitivity. Patients were followed up every week for six weeks and the patient's response to treatment was evaluated depending on the symptoms like headache, nasal discharge, and nasal obstruction and from the anterior rhinoscopy and nasal endoscopic findings. Preoperative and post operative X-ray and CT scan of the patients were compared to come to a conclusion regarding the results of both the procedures.

**Table1: Showing percentage of patients improved following antral wash and endoscopic sinus surgery.**

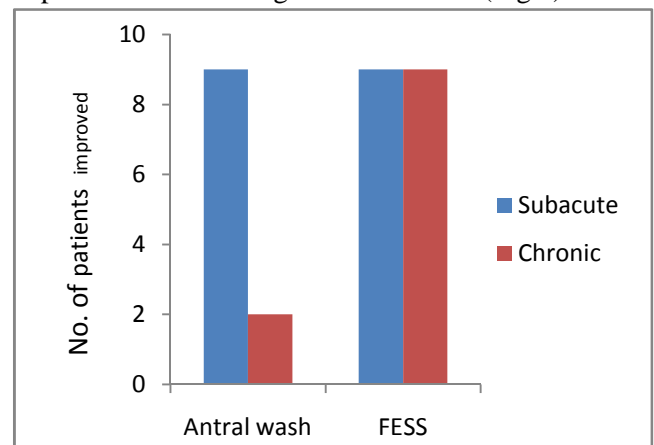
Disease	Percentage of patients improved following antral wash	Percentage of patients improved following endoscopic sinus surgery
Chronic maxillary sinusitis	20%	90%
Subacute maxillary sinusitis	90%	90%

## RESULTS

9 out of 10 patients who underwent antral wash out for sub acute maxillary sinusitis were relieved of the symptoms that they complained off. Anterior rhinoscopy and nasal endoscopic evaluation also

revealed complete normalcy after the procedure. Radiological appearance of sinuses also showed improvement with decrease in the opacification. Similarly 9 out of 10 patients who underwent endoscopic surgery with sub acute symptoms showed similar improvement.

On the other hand 9 out of 10 patients who were suffering from chronic maxillary sinusitis and who underwent endoscopic sinus surgery showed improvement based on the symptoms, signs and radiologic comparisons. But only 2 out of 10 patients with chronic maxillary sinusitis showed symptomatic improvement following antral wash out (Fig 1).



**Fig 1: Comparison of antral wash-out with FESS for sub acute and chronic diseases.**

## DISCUSSION

It was Messerklinger who made us understand about the physiology of the nose and sinuses and also in recognizing the mucociliary transport mechanism in the nose and sinus mucosa. The mucociliary transport of mucous occurs in a definite genetically predetermined system. The transport is always towards the natural ostium. In sinusitis the pathology is not in the major sinuses but secondary to impaired drainage caused by disease in the ethmoidal infundibulum blocking the natural ostium in the middle meatus. This leads to stagnation and impaired ventilation causing damage to the respiratory epithelium with consequent inflammation and further occlusion of the ostium. Functional endoscopic surgery is aimed in tackling the pathology in the natural ostium. Antral wash out aims at washing out the stagnated contents in the antrum through a trochar and canula inserted through the inferior meatus and is washed out through the natural ostium. So any minimal pathology in the ostium may be cleared of in

this procedure itself. Hence we were induced to make such a comparative study. The predisposing factors for sinusitis are Upper respiratory tract infections, anatomic variations, allergic rhinitis, immuno deficiency diseases, inhalation of irritants etc<sup>[2]</sup>. Dental infections are also a common cause for maxillary sinusitis. Here two of our patients had dental infection. Typical organisms in an odontogenic sinusitis include anaerobic streptococci, streptococci sanguis, streptococcus salivarius, streptococcus mutans, bacteroides, proteus and coliform bacilli<sup>[3]</sup>. In sub acute cases antral wash out is frequently carried out as a first line of management. Antral washouts are also done in some centres at the time of polypectomy<sup>[4]</sup>. local anesthesia is usually preferred. We use 4% xylocaine surface anesthesia. In some centres Propandid as the sole anaesthetic agent for antral wash out in adult day case is described<sup>[5,6]</sup>. One of the main benefits of antral wash out in sub acute cases is that the tap provides material for culture and sensitivity to guide antibiotic selection especially in immunocompromised patients in the intensive care units. The commonest organism being gram positive organisms responding to amoxicillin and clavulanic acid<sup>[7]</sup>. If penicillin group is to be avoided due to hypersensitivity then cefpodoxime and cefuroxime can be used<sup>[8-11]</sup>. In our study no such limitations were present.

## CONCLUSION

From the above study we came to a conclusion that in the management of sub acute maxillary sinusitis both antral wash out and endoscopic sinus surgery provides equal relief. Since Antral wash out is a simpler procedure and doesn't require hospital stay and can be done as a day case, antral wash out still holds good in the treatment of sub acute maxillary sinusitis. But functional endoscopic sinus surgery still remains the gold standard in the treatment of chronic maxillary sinusitis.

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**Conflict of interest:** Nil

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