



Missed Maxillary Sinus Ostium Syndrome and its Management

Nagalingeswaran Ahilasamy¹ · Rajendran Dinesh Kumar² · Sowmya S.² · Srirangaprasad K.² · Asma Rahiman²

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Abstract

The inflammatory process involving the maxillary sinus is often exacerbated by a functional obstruction due to laterally displaced uncinat process which obstructs the infundibulum and the natural ostium. Physiologically the drainage pathway may be adequate but during periods of inflammation resulting in nasal oedema, the ostium/infundibulum interface is inadequate, preventing adequate ventilation and drainage of the maxillary sinus. Incomplete removal of the uncinat process without including the natural ostium may result in failure and recurrence. This method of Middle meatal antrostomy that does not include the natural ostium of the maxillary sinus, leads to the missed ostium sequence and continued sinus disease. Here a case of missed maxillary sinus syndrome and its management is presented. A 28-year-old man with complaints of post nasal drip and Left facial pain for 4 months. 3 years prior the patient underwent functional endoscopic sinus surgery (FESS), following surgery patient had recurrent episode of sinusitis. Diagnostic nasal endoscopy revealed presence of mucopurulent discharge in left middle meatus, CT scan Paranasal sinus was suggestive of opacity in left maxillary sinuses and in left middle meatus with wide maxillary antrostomy. Revision FESS surgery was performed, where two ostia were present was converted into single wide middle meatal antrostomy using a back biting forceps and microdebrider to avoid maxillary sinus mucus recirculation phenomenon. On follow up 1 year later, patient had no symptoms of repeated sinusitis. Missed maxillary sinus ostium syndrome has to be recognized and timely addressed by joining the natural and surgically created ostia as single wide middle meatal antrostomy window.

Keywords Maxillary sinus · Ostium · Syndrome · FESS

Background

The inflammatory process involving the maxillary sinus is often exacerbated by a functional obstruction due to laterally displaced uncinat process which obstructs the infundibulum and the natural ostium. Physiologically the drainage pathway may be adequate but during periods of inflammation resulting in nasal oedema, the ostium/infundibulum interface is inadequate, preventing adequate ventilation and drainage of the maxillary sinus. Incomplete removal of the uncinat process without including the natural ostium may result in failure and recurrence. This method of Middle meatal antrostomy that does not include the natural ostium of the maxillary sinus, leads to the missed ostium sequence and continued sinus disease.

Here a case of missed maxillary sinus syndrome and its management is presented.

✉ Rajendran Dinesh Kumar
dinuraj1186@gmail.com

Nagalingeswaran Ahilasamy
nahilasamy@yahoo.com

Sowmya S.
sowmyareddy1189@gmail.com

Srirangaprasad K.
ranganitha@yahoo.co.in

Asma Rahiman
asma_rahiman15595@yahoo.com

¹ Ahilasamy ENT Centre, Chennai, Tamil Nadu 600 042, India

² Department of ENT and Head-Neck Surgery, Rajarajeswari Medical College and Hospital, Bengaluru, Karnataka 560074, India

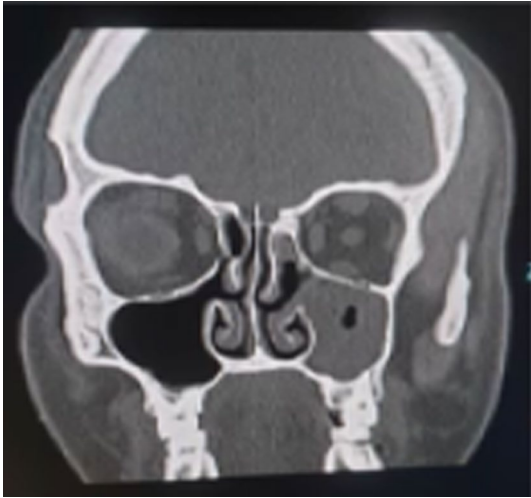


Fig. 1 CT Scan of paranasal Sinuses showing Left maxillary Sinusitis

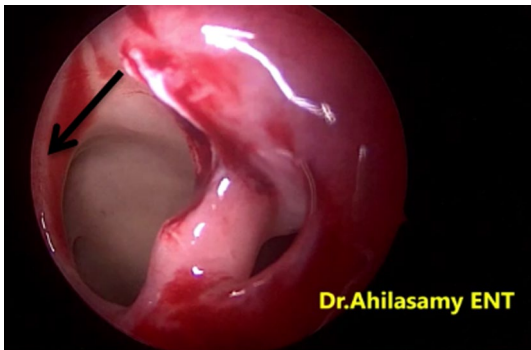


Fig. 2 Previous Middle meatal antrostomy (Arrow)

Case Presentation

A 28-year-old man with complaints of post nasal drip and Left facial pain for 4 months. There was previous history of repeated sinusitis. 3 years prior, patient underwent functional endoscopic sinus surgery and left middle meatal antrostomy was done. Diagnostic Nasal endoscopy revealed presence of mucopurulent discharge in the left middle meatus. Computerized tomography of the paranasal sinuses was suggestive of opacity in left maxillary sinuses and in the left middle meatus (Fig. 1), wide patent left maxillary antrostomy. The patient was treated with antibiotic and oral steroids for 2 weeks prior to surgery. The patient underwent revision functional endoscopic sinus surgery under local anaesthesia with intravenous sedation.

Intraoperative findings was suggestive of a healed previously performed middle meatal antrostomy (MMA) in the posterior part of the left middle meatus (Fig. 2), there



Fig. 3 Remnant uncinata is removed using backbiting forceps

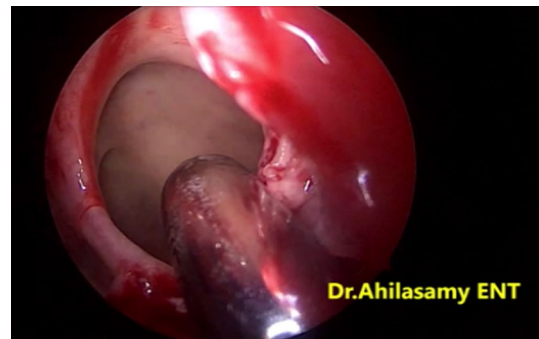


Fig. 4 Septum in between the two ostia is removed using microdebrider

were no polypoidal changes seen as suggested as per CT scan of Paranasal sinuses. A distinct, oblique oval-shape maxillary sinus ostium was located anterior to the previously created antrostomy site. This finding represents a case of a "missed maxillary sinus ostium." (Video-1). This was not expected before. The antero-inferior uncinata remnants of the previous surgery was removed.

The two ostia were then made into single wide middle meatal antrostomy using a back biting forceps (Fig. 3) and microdebrider (Fig. 4) to avoid maxillary sinus mucus recirculation phenomenon. No postoperative nasal packing was done. Saline nasal douching started from 2nd postoperative day, continued for 2 weeks. On follow up 1 year later, patient had no symptoms of repeated sinusitis. Diagnostic nasal endoscopy was suggestive of wide patent left maxillary middle meatal antrostomy site (MMA) well healed and epithelialize. (Fig. 5).

Maxillary sinus ventilation and mucociliary drainage (from anterior, posterior, medial, lateral wall & roof) of the secretion follow a stellate pattern, starting from the floor of the maxillary sinus eventually draining in to the osteomeatal complex. Along with anterior ethmoids, frontal sinuses the mucociliary secretions pass towards the nasopharynx.

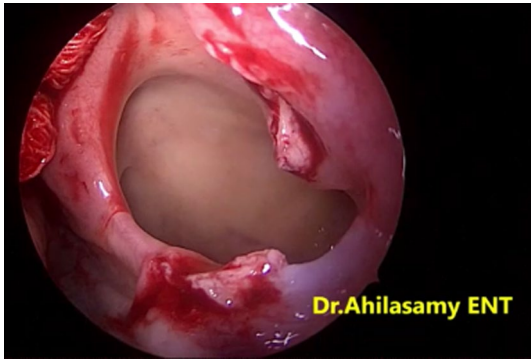


Fig. 5 Wide single middle meatal antrostomy

Maxillary sinus recirculation phenomenon occurs when the natural ostia of maxillary sinus is not communicated with the surgically created middle meatal antrostomy, patient presents with symptoms of chronic rhinosinusitis (persistent nasal obstruction and post nasal drip). Diagnostic nasal endoscopy with a 0° endoscope is useful to identify the pathology of the mucus originating from natural maxillary ostia site and flowing back in the surgically middle meatal antrostomy site predisposing to recirculation phenomenon.

In the traditional anterior to posterior approach by Messerklinger's technique, the anterior-inferior uncinate remnant may hide the natural maxillary sinus ostium as it is obliquely placed, this finding can be missed leading to "missed ostium syndrome". [1–3]

Discussion

Retrograde uncinectomy approach is a safe method to identifying the natural maxillary sinus ostium while performing middle meatal antrostomy (MMA). When patients complain of recurrent sinusitis symptoms following Functional endoscopic sinus surgery (FESS), recirculation phenomenon in the maxillary sinus may have to be considered as a causative factor for persistent nasal and sinus symptoms.

Setliff RC et al., Christmas DA et al. have described missed maxillary sinus ostium in their case study and clinical practice [4–6], which has to be recognized and timely addressed by joining the natural and surgically created ostia as single wide middle meatal antrostomy window.

Conclusion

Missed maxillary sinus ostium syndrome has to be recognized and timely addressed by joining the natural and surgically created ostia as single wide middle meatal antrostomy window.

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Author Contributions AN Performed surgery, prepared the manuscript and patient preoperative and postoperative management and follow up. Major Contributor in writing the manuscript. RDK Review and editing the manuscript. SS Legends to Figures. SK patient postoperative follow up and helpline. AR Proof reading of the manuscript. All authors have read and agreed to the contents.

Data Availability This is a case report and all the data pertaining to the case report have been included in this published article.

Declarations

Conflict of interest The authors declare that they have no competing interests.

Ethical Approval This is a case report, and case reports are exempted from the Institute ethics committee, RRMCH, Bangalore. This article was prepared in accordance with the Declaration of Helsinki. Written informed consent was obtained prior to publication of the case report from the patient.

Consent for Publication Written informed consent for publication of the patient's clinical details and clinical images was obtained from the patient.

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