



## PRESENCE OF ACCESSORY MAXILLARY OSTIA AND ITS CLINICAL APPLICATION.

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**ABSTRACT** **INTRODUCTION:** As functional endoscopic sinus surgery (FESS) is one of the advances in sinus surgery and is on peak now a days. Therefore understanding of anatomical variations of Accessory Maxillary Ostium(AMO) becomes essential for an endoscopic sinus surgeon in order to differentiate it from the natural ostium for safe and efficacious surgery in this region. **MATERIAL AND METHOD:** Present study was carried on 150 CTscans(300 sides) of age >20years for presence of accessory maxillary foramen by Postgraduate Department of Anatomy in collaboration with Department of Radiodiagnosis and Imaging, Government Medical College, Srinagar **RESULTS:** In our study of 150 CT scans( total of 300 sides) presence of AMO was seen in total 4sides which accounts 1.33%.3 AMO were present in posterior nasal fontanelle while in one case AMO was located in anterior nasal fontanelle. **CONCLUSION:** The radiologists and rhinologists must have complete knowledge of inconsistent location of these apertures and intricate topography of the middle meatus in any interventional endonasal endoscopic maxillary sinus surgery.

**KEYWORDS :** Paranasal sinuses, Accessory Maxillary ostium, Fontanelle, CT scan

### INTRODUCTION

Maxillary sinus occupies the body of the maxillary bone. It is pyramidal in shape, with the base facing medially. The roof of the sinus is the floor of orbit and floor is formed by the alveolar process of the maxilla. The medial wall of the maxilla is a large bony defect called fontanelle. The bony defect is made much smaller by the contribution of the surrounding bones like lacrimal bone, ethmoid bone, inferior turbinate, and perpendicular plate of the palatine bone. Fontanelle is crossed by the uncinate process which divides it into a small anterior fontanelle and larger posterior fontanelle. <sup>1</sup>Accessory maxillary ostium (AMO) in latin termed as ostium maxillare accessorium is invariably solitary but occasionally multiple, either congenital or secondary to disease process. It is not clear whether these ostia are congenital or acquired. <sup>2</sup>A possible mechanism of formation of AMO is obstruction of the main ostium by maxillary sinusitis, due to anatomic factors or because of pathologic factors in the middle meatus resulting in the rupture of membranous fontanelle. <sup>3</sup>The anatomical variations of surgical landmarks represent a significant challenge even to the most experienced surgeon. <sup>4</sup>The anatomy of the maxillary ostia should be well understood by an endoscopic surgeon before performing the middle meatal antrostomy. <sup>5</sup>

### MATERIAL AND METHOD

This cross sectional observational study was conducted by Postgraduate Department of Anatomy in collaboration with Department of Radiodiagnosis and Imaging, Government Medical College, Srinagar on 150 CTscans (300 sides). Ethical clearance was obtained from institution ethical committee for the present study. All cases of age >20 years irrespective of their sex were taken up for the study. Any trauma, surgery or pathology distorting normal anatomy in nasal or maxillary region were excluded from study. Non contrast CT scan of cases were studied in coronal and axial planes for presence of accessory maxillary foramen.

### RESULTS

In our study of 150 CT scans( total of 300 sides) presence of AMO was seen in total 4sides,3 on left side while 1 on right side. Hence the total percent incidence of AMO in our study accounts 1.33%. Among 4 cases, in 3 AMO was present in posterior nasal fontanelle while in one case AMO was located in anterior nasal fontanelle.

S.NO	LOCATION	RIGHT	LEFT
1	Anterior nasal fontanelle	-----	1
2	Posterior nasal fontanelle	1	2
TOTAL		1	3



Accessory maxillary foramen(AMO) on left side shown by an arrow.

### DISCUSSION

With evolution, man has attained an erect posture, associated with multiple modifications in the body pattern. Higher location of the maxillary sinus ostium (MSO) is one among them. Consequently drainage was no longer due to gravity. Maxillary sinus ostium is on the highest part of medial wall of sinus and it doesn't open directly into the nasal cavity but into narrow ethmoidal infundibulum, inflammation of which can interfere with drainage. <sup>6</sup> It has been observed that there is two fold increase in the incidence of maxillary sinusitis due to presence of accessory maxillary ostium. It is important to differentiate primary maxillary ostium from accessory maxillary ostium to avoid orbital injuries and to achieve adequate results while performing endoscopic sinus surgery in middle meatus. The natural ostium differs from accessory ostium in the fact that it tends to be elliptical about 1 to 20mm in length, located more anteriorly than accessory ostium and has an angle to the vertical plane. The accessory ostium is located 5-10 mm superior to the attachment point of inferior concha and it opens in lateral nasal wall or infundibulum. <sup>8</sup>In present study of 300sides, AMO was seen only in total of 4 sides (1.33%) which is comparable to studies like by Stammberger and Kennedy <sup>9</sup> reporting presence of AMO in 4.50% and May et al <sup>10</sup> reporting in 0% while cadaveric studies like Van Alyea <sup>11</sup>, Neivert <sup>12</sup>, Schaeffer <sup>13</sup>, Lang and Wuzburg <sup>14</sup>, Myerson <sup>15</sup>, Kumar et al <sup>16</sup> reported AMO in 23%, 25%, 43%, 28%, 31%, 30% respectively

and endoscopic study by Kennedy and Zeinrich<sup>17</sup> reported AMO in 15% ,which is higher as compared to present study. Van Alyea (1936) found that the primary maxillary ostium was not approachable due to variable configuration of uncinat process or ethmoid bulla or because of size of the ostia in 20% of specimens, where surgeons may then fail to cannulate it. Clinically the AMO may be utilized in such cases by the endoscopic sinus surgeon to irrigate the maxillary sinus (Levine et al 1993).

## CONCLUSION

The accessory maxillary sinus ostium is one of the anatomical variations that plays a very important role for surgeons to anticipate the direction in which guidewire must be manipulated in order to correctly enter the maxillary ostium

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