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"I can be anywhere": sigmoid sinus; early identification and right apporach for anteriorly and superficially placed sigmoid sinus-made easy

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Abstract
Chronic suppurative otitis media is prevalent around the world. Tympanoplasty with mastoidectomy is one of the commonest surgeries they should be mastered at. To have a thorough understanding of anatomical and pathological abnormalities, while exploring the mastoid cavity along with a good skill and experience to individualize and optimize the surgical outcome is necessary. Wide variety sigmoid sinus location in temporal bones have been reported. Distance from the sigmoid sinus to mastoid cortex is highly variable because of the space occupied by retrosigmoid cells in the mastoid (6-22mm) which determines the success rate of the procedure. It also has a positive correlation with sclerotic mastoid. Even though literature has described various anatomical variations of sigmoid sinus, in a situation of anteriorly and laterally placed sigmoid sinus how to proceed with the surgery to have a better disease clearance was not commended by authors.

Keywords: early identification right apporach anteriorly and superficially

Introduction
Chronic suppurative otitis media is prevalent around the world. No matter safe or unsafe an ENT surgeon will invariably come across CSOM cases at day to day work. Tympanoplasty with mastoidectomy is one of the commonest surgeries they should be mastered at. For mastoid exploration and surgical clearance chronic otitis media is the most common indication. So to have a thorough understanding of anatomical and pathological abnormalities, while exploring the mastoid cavity along with a good skill and experience to individualize and optimize the surgical outcome is necessary [1]. One of the major component to say a dangerous temporal bone is superficially or anteriorly placed sigmoid sinus. Even though variability of sigmoid sinus anatomy are well described in literature, to be well versed to manage that scenario is important. Wide variety sigmoid sinus location in temporal bones has been reported [2, 3, 4]. The location of sigmoid sinus in the mastoid cavity determines the surface area of the Trautmann'a triangle and surgical access [5].

The sigmoid sinus is a venous space between the endosteam of the occipital bone and the Dura and it possess an endothelium lining without valves or muscles in the walls [6]. According to literature sigmoid sinus originates at the junction of transverse and superior petrosal sinus at the superior border of petrous bone, then changes direction to vertical plane runs towards medial part of mastoid cavity In S form and terminates at the internal jugular vein [7, 8]. Sigmoid sinus forms the posterior limit of Trautmanns triangle and if located anteriorly will limit the assess to internal auditory canal via translabrynthine approach [8, 9] if located anterior or medial limits the assess to endo lymphatic sac near the posterior semi-circular canal [10]. According to Shatz and Sade distance from the lateral sinus to external auditory canal is significantly associated with sclerotic mastoids and is linked with the hereditary theory of chronic otitis media [11]. Studies conducted on 96 temporal bones at Columbia found significant correlation between the sinus length, the mastoid length in vertical plane and sinus location in mastoid cavity. Distance from the sigmoid sinus to mastoid cortex is highly variable because of the space occupied by retrosigmoid cells in the mastoid (6-22mm). In another study by Turget and Tos the length of the mastoid process was significantly shorter in specimen with poor pneumatisation compared with good

pneumatisation [12]. A retrospective study by Christanthus J *et al* on 137 patients at medical college Trivandrum 19 patients had anteriorly placed sigmoid sinus and a positive association between contracted antrum and the position of sinus and Dural plate [1].

In a study by Xing *et al* on 238 temporal bones the width of sigmoid sinus was 11.14+/- 2.13mm, depth 6.04=/- 1.67mm, distance from the lateral wall of sigmoid sinus to surface of mastoid 9.74+/- 2.95mm, distance from the anterior wall of sigmoid sinus to posterior wall of EAC- 12.98+/- 2.71 [13]. In a case we came across in our institute sigmoid sinus was placed anteriorly and superficially that it was forming the posterior wall of EAC. (Figure: 1).

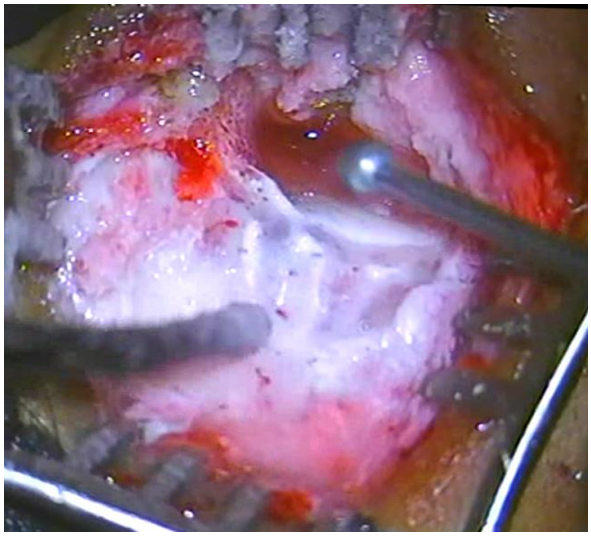

Fig 1: sigmoid sinus forming posterior wall of EAC, very superficially and anteriorly placed.

sometimes a thin bony plate may be separating it from posterior wall of EAC. As mastoid exploration is mandatory for disease clearance it's important to identify this condition at the earliest. Before opening mastoid surgeon will not know the anatomy of sigmoid sinus unless a HRCT temporal bone is issued which is comparatively expensive. Intra operatively a big cell and a sigmoid sigmoid sinus appear bluish but only an experienced eye can differentiate between air cell and sigmoid sinus which is more bluish. (Figure: 2).

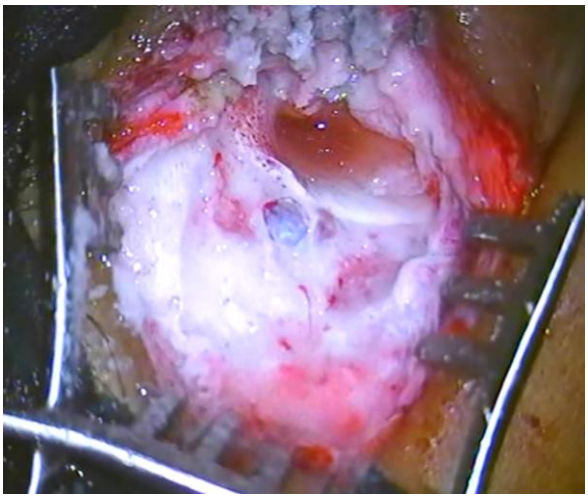

Fig 2: difference between a large air cell and sigmoid sinus (sigmoid sinus being more bluish and forming posterior wall of EAC)

Once identified drill through neighbouring portion to identify continuity. In case of a similar situation, intraoperative care should be taken while raising tympanomeatal vascular flap or else can damage the sigmoid sinus if dehiscent. Surgical procedure to be conducted under high magnification, proceed superiorly and anteriorly till spine of Henle, delineate the sinus superiorly and anteriorly and follow middle cranial fossa Dural plate till we reach mastoid antrum. (Figure: 3).

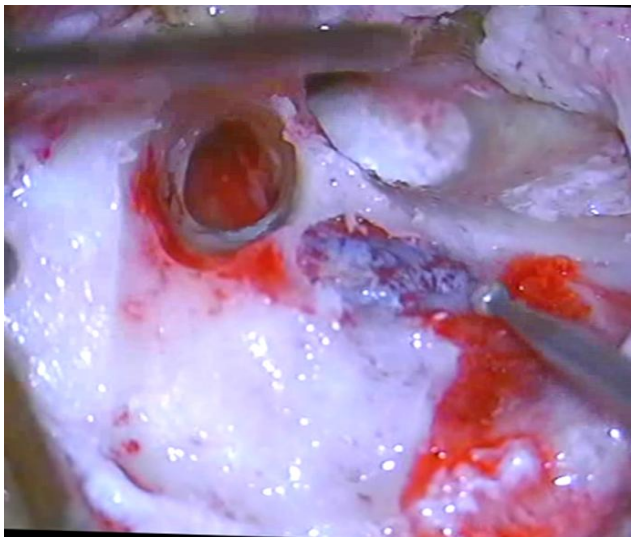

Fig 3: superior and anterior to spine of Henle, mastoid antrum was opened for disease clearance.

Many a times its a panicky situation for the surgeon and ends up abandoning the procedure being worried about the complications. But following this approach can get a successful surgical outcome without complications and good disease clearance.

Conflicts of interest: No conflicts of interest

Ethical clearance: issued by the university ethical clearance board.

References

1. Jaya Chrisanthus, Shibu George. Mastoidectomy: retrospective analysis of 137 cases in a tertiary care hospital. Int J Otorhinolaryngol Head Neck Surg. 2018; 4(1):93-99. DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20174662
2. Glasscock ME, Shambaugh GE. Surgery of the Ear. Philadelphia: Sauders, 1990.
3. Sanna M. Atlas of temporal Bone and Lateral Skull Base Surgery. Thieme, 1995.
4. Tos M. Mastoid and Reconstructive Procedures. Manual of Middle Ear Surgery: Thieme, 1995, 3.
5. Pedro Blanco Sarmiento, Francisco Gonza´ Lez Eslait. Surgical classification of variations in the anatomy of the sigmoid sinus. Int J Otorhinolaryngol Head Neck Surg. 2004; 131(3):192-99. doi:10.1016/j.otohns.2004.02.009
6. Fawcett DW, Jensh RP, Bloom W. Bloom and Fawcett's textbook of , 11th ed. Spain: Interamericana McGraw-Hill, 1988, 969-93.
7. Moore KL. Clinically oriented anatomy, 2nd ed. Baltimore. The Williams & Wilkins Company. 1985; 971(1005):1217-1283.
8. Rhoton AL Jr. The temporal bone and trans temporal approaches. Neurosugery. 2000; 47(3):S211-65.

9. Lee HK, Lee EH, Lee WS *et al*. Microsurgical anatomy of the perigeniculate ganglion area as seen from a translabyrinthine approach. Ann Otol Rhinol Laryngol. 2000; 109:255-61.
10. Friberg U, Jansson B, Rask-Andersen H *et al*. Variations in surgical anatomy of the endolymphatic sac. Arch Otolaryngol Head Neck Surg. 1988; 114:389-94.
11. Shatz A, Sa´ de J. Correlation between mastoid pneumatisation and position of the lateral sinus. Ann Otol Rhinol Laryngol. 1990; 99:142-5.
12. Da Costa SS, de Sousa LC, Piza MR. Meniere's disease. Overview, epidemiology, and natural history. Otolaryngol Clin North Am. 2002; 35:455-95.
13. Xing WW, Zhang LC, Chen HY, Gu JC. A three-dimensional quantitative measurement related to sigmoid sinus by using multi-slices spiral CT. Pubmed. ncbi. 2010; 45(4):296-300. https://www.ncbi.nlm.nih.gov/pubmed/20627048