Abstract : Aberrant ICA is a rare abnormal condition that can be associated with life threatening ear bleed. It was first reported by Max in 1899 and the incidence is very rare. It occurs usually due to erosion of medial wall of middle ear, congenital anomalies or dilatation of ICA in the petrous part of temporal bone due to an aneurysm. Misdiagnosis of patients with aberrant ICA leads to unnecessary explorative surgical procedures and or localized treatment which carries risk of massive haemorrhage or even hemiplegia and death.

Keyword : aberrant, carotid, tinnitus, middle ear

CASE REPORT

We present a case of 58yr old female with history of hard of hearing and giddiness on & off for 8 years and right ear tinnitus for 6 months. Initially she was evaluated for giddiness and hard of hearing and was treated with labyrinthine sedatives on & off during giddiness. Her audiogram report showed profound mixed hearing loss on the right side and mild sensorineural hearing loss on the left side. On Otoscopic examination a pinkish retrotympanic mass which was pulsatile was seen behind the intact tympanic membrane more on the anterior aspect.

We suspected it to be a glomus tumour. The patient underwent a CT Angiogram and was reported as Aberrant Internal carotid artery in the middle ear. Patient was managed conservatively

DISCUSSION

The internal carotid artery enters the temporal bone through the carotid canal. The initial vertical segment is separated from the middle ear cavity by a bony plate approximately 0.5mm in thickness. Rarely, the internal carotid artery takes an aberrant course and enters the middle ear cavity. There are several hypotheses regarding the formation of aberrant ICA. The first hypothesis considers congenital or acquired defects in the bony plate that separates the ICA from the middle ear cavity to be the cause of aberrant ICA. The second hypothesis attributes this condition to the persistence of the embryonal vessels that alter the passage of the ICA.

A third hypothesis states that aberrant ICA may be due to failure of the carotid canal to develop thus resulting in the altered route of the ICA.

The relative position of aberrant ICA is often in the antero-inferior part of ear drum. In contrast, dehiscent jugular bulb and glomus tumour are usually located in the posterior part of ear drum. The aberrant ICA is light red in colour in contrast to the dark reddish blue of the glomus tumour and the dark blue of the dehiscent jugular bulb. Pulsation is noted in glomus tumour and aberrant ICA.

It is essential for all to keep this condition in the list of differential diagnosis. Aberrant ICA is a rare abnormal condition that can be associated with life threatening ear bleed. It was first reported by Max in 1899 and the incidence is approximately 1%. It occurs usually due to erosion of medial wall of middle ear, congenital anomalies or dilatation of ICA in the petrous
part of temporal bone due to an aneurysm. Clinical symptoms associated with aberrant ICA include conductive hearing loss, pulsatile tinnitus and vertigo. Due to rareness of aberrant ICA it is frequently misdiagnosed and confused with other conditions such as glomus tumour, dehiscent jugular bulb and aneurysms. Misdiagnosis of patients with aberrant ICA leads to unnecessary explorative surgical procedures and/or localized treatment which carries risk of massive haemorrhage or even hemiplegia and death. Computed tomography (CT) scans and Magnetic resonance angiography (MRA) are useful tools that provide excellent visualization of the temporal bone for the diagnosis of aberrant ICA. CT scan shows the following characteristics 1) Enlarged inferior tympanic canaliculus 2) The absence of the vertical segment of the carotid canal 3) A dehiscent bony plate along the petrous part of the ICA 4) The presence of an enhancing mass in the hypotympanum. Magnetic resonance angiography provides excellent visualization of intracranial and extracranial circulation and has almost superseded the need for conventional angiography. The main features seen in angiography are (1) a reduced diameter of the Tympanic ICA and (2) in a frontal view, the vertical segment of the ICA is lateral to a line drawn vertically through the vestibule.

CONCLUSION

The consequences associated with the failure to accurately diagnose aberrant ICA are serious and potentially life-threatening. Aberrant ICA should be included in the differential diagnosis of the middle ear masses. Otolaryngologist should remain alert regarding the symptoms and signs of aberrant ICA. Otoscopy and Audiometry should be performed with radiological investigations. CT scan is a useful tool for diagnosing aberrant ICA. When CT scans are inconclusive, MRA should be considered as an additional tool permitting the definitive diagnosis of aberrant ICA. After confirmation of an aberrant ICA localized treatment and/or surgery of the middle ear is contraindicated.