Persistent stapedial artery: An otomicroscopic finding
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The stapedial artery in human beings is an embryonic artery that disappears during the 10th week in utero. In many vertebrates the stapedial artery persists in adulthood. The persistent stapedial artery (PSA) is a congenital malformation of vascular type which is very rare and may present as a mass pulsating in the middle ear. Awareness of this variant is important as it may complicate middle ear surgery e.g. myringotomy or stapes surgery. We present a case of 28 years old lady who visited the ENT OPD with complaints of impaired hearing and tinnitus extending anteriorly from the third arch artery becomes the adult internal carotid artery. In the hindbrain region, the bilateral longitudinal neural arteries emerge, supplied at the level of the otocyst and acoustic nerve by the primitive otic artery, a remnant of a presegmental branch of the paired aortae. In the fourth to fifth week stage, the ventral pharyngeal artery, which parallels the internal carotid artery, arises in the area formerly occupied by the ventral aspects of the first and second arch arteries. This artery supplies the bulk of the first two pharyngeal bars and subsequently is involved in the formation of the stapedial and external carotid arteries. At the same time, the bilateral longitudinal neural arteries fuse to form the basilar artery (7).

At six weeks, as the transition from branchial phase to post branchial phase takes place, the stapedial artery appears as a small offshoot of the hyoid artery and passes through the stapes to enter the mandibular bar; here the stapedial artery anastomoses with the distal remnant of the shrinking ventral pharyngeal artery (8). The maxillomandibular division of the stapedial artery is the result of this anastomosis, and it divides into maxillary and mandibular branches. The proximal remnant of the ventral pharyngeal artery evolves into the root of the external carotid artery, whereas the common carotid artery develops from the ventral union of the third and fourth arch arteries (8).

The stapedial artery reaches the height of its development at seven weeks and has two divisions, the maxillomandibular and the supraorbital; the latter division supplies the primitive orbit (9,10). Over the next week, the two major divisions of the stapedial artery are annexed by the internal maxillary artery of the external carotid artery and the opthalmonic artery, respectively (11). The trunk of the maxillomandibular division becomes the stem of the middle meningeal artery. As the stapedial artery widens proximal to the stapes, its more distal stem becomes the superior tympanic branch of the stapes, and its aortic arch is involved in the formation of the middle meningeal artery (8).

The stapedial artery may abnormally persist into adulthood, interfering with stapes operations. After passing through the stapes, just behind the cochleariform process there is a dehiscence through which it enters the facial nerve canal (12) and branches; bifurcation of the stapedial artery proximal to the stapes, with both branches penetrating the stapes blastaema, may give rise to three legged stapes (8).

CASE REPORT
We present a case of 28 years old lady who visited the ENT OPD with complaints of impaired hearing and tinnitus on left side. On physical examination subtotal perforation of tympanic membrane was noted without ear discharge. Pure tone audiometry revealed moderate conductive deafness on left side. On otomicroscopic examination revealed a persistent stapedial artery coursing between the posterior and the anterior crus of the stapes, which was well visualized through the perforation. The tympanic membrane of the patient was surgically repaired without any complication.

Key Words: Rumenosal sinus; Accessory maxillary ostium; Fontanelle; Sinustitis

INTRODUCTION
The stapedial artery is a congenital variant of vascular type which was well visualized through the perforation. The tympanic membrane of the patient was surgically repaired without any complication.
The stapedial artery, either directly or indirectly through branch, may fix the developing internal carotid artery so as to pull it into the middle ear more posteriorly and laterally than it ordinarily would run [8]. In the literature there are reports of cases where the stapedial artery may either course through a canal parallel to the facial nerve or extend into such canal through a short segment (3). Hyrtl reported fifty-six cases of PSA (13). PSA is seen in 0.2-4.8 per thousand of human adults (14). Most authors however observed a lower prevalence of PSA 1:10,000 (Figure 2).

**CONCLUSION**

Persistent stapedial artery does not require treatment except in cases of pulsatile tinnitus, conductive hearing loss or in routine ear surgeries where the artery can be reasonably coagulated for which thorough knowledge of the anatomy and anastomosis of PSA are of great help in reducing complications.

**REFERENCES**


**Figure 1** A Showing the origin of stapedial artery from the hyoid artery which in turn arises from ICA. After the origin, stapedial artery passes through the stapes and divides into upper and lower divisions; B Showing anastomosis between the lower division of stapedial artery and ventral pharyngeal artery, C Showing regression in size of stapedial artery, D Showing involuted stapedial artery, E Showing persistent stapedial artery

**Figure 2** Showing Persistent Stapedial Artery (PSA)