

Stapedial artery supplying sphenoid wing meningioma: case report

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Received: 15 September 1992

Abstract. A 46-year-old woman presented complaining of resting tremor of the right arm and attacks of inappropriate crying and laughing. Computed tomography and magnetic resonance imaging of the head revealed a large left sphenoid wing meningioma. Preoperative cerebral angiography demonstrated a persistent stapedial artery, terminating as a middle meningeal artery which was the main blood supply to the tumour.

Key words: Stapedial artery – Middle meningeal artery – Meningioma

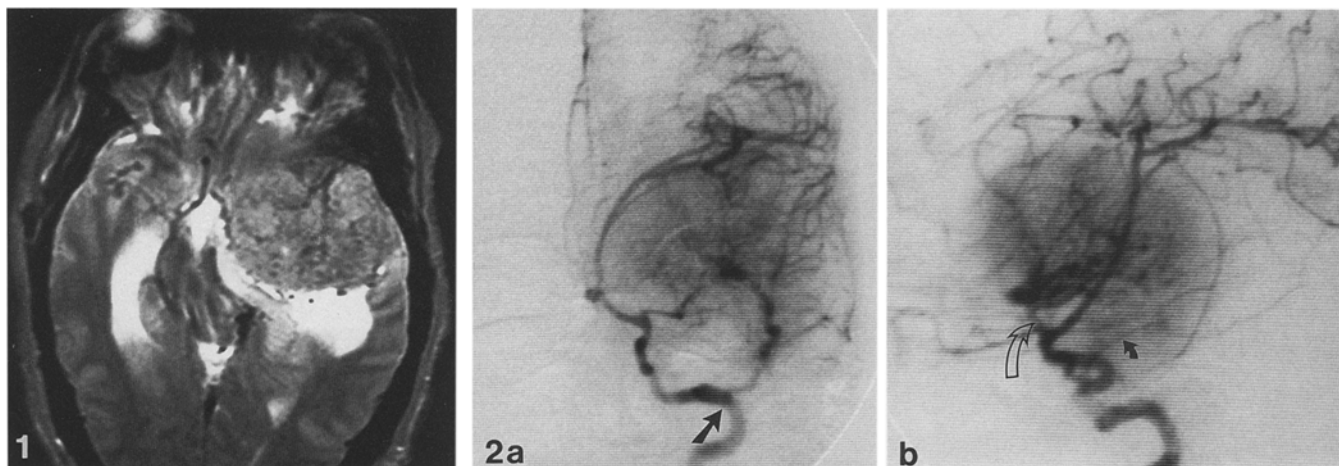
Variations in the origin of the middle meningeal artery (MMA) may be encountered during angiography. We report a patient in whom a persistent stapedial artery terminating as an MMA was the predominant supply to a sphenoid wing meningioma. To our knowledge, only one other persistent stapedial artery has been reported to supply a neoplasm, a glomus tympanicum tumour [1].

Case report

A 46-year-old woman presented with a resting tremor of the right upper limb, associated with inappropriate attacks of laughing and crying. CT and MRI of the head revealed a large left anterior temporal contrast-enhancing tumour consistent with a sphenoid wing meningioma (Fig. 1). Cerebral angiography, including selective left internal and external carotid injections, was performed (Fig. 2). Blood supply to the tumour was predominantly from a large branch of the internal carotid artery proximal to the petrous bone, and consistent with a persistent stapedial artery which continued as the MMA. A little supply from branches of the internal maxillary artery was seen on the external carotid injections.

Fig. 1. T2-weighted axial MRI, showing isointense meningioma with a large, central draining vein

Fig. 2 a, b. Left internal carotid artery injections. **a** Anteroposterior view, demonstrating anomalous origin of the middle meningeal artery from a persistent stapedial artery (*arrow*). **b** Lateral view, demonstrating anomalous middle meningeal artery supplying meningioma (*open arrow*) and middle meningeal branch (*solid arrow*)



Discussion

Persistence of the stapedial artery has rarely been reported [1–4]. It is possibly due to an embryological failure of regression and disappearance of the hyoid artery and the stem of the stapedial artery. The hyoid artery replaces the second aortic arch in the 4–5 mm embryo [1, 5]. It gives rise to the stapedial artery near its origin from the internal carotid artery during the 5th week of intrauterine gestation. The stapedial artery divides into a dorsal branch which represents the future MMA, and a ventral branch which will give rise to the maxillary and mandibular arteries. The persistent stapedial artery is important in otolaryngology as it may be encountered during surgery as it courses between the crura of the stapes.

Acknowledgements. The authors would like to thank Mrs. Yvonne Lock for editing and typing this report.

References

1. Boscia R, Knox RD, Adkins WY, Holgate RC (1990) Persistent stapedial artery supplying a glomus tympanicum tumor. *Arch Otolaryngol* 116: 852–854
2. Guinto FC Jr, Gamabant EC, Radcliffe WB (1972) Radiology of the persistent stapedial artery. *Radiology* 105: 365–369
3. Marion M, Hinqosa R, Khan AA (1985) Persistence of the stapedial artery: a histopathologic study. *Otolaryngol Head Neck Surg* 93: 298–312
4. Yamamoto E, Hirono Y (1988) Persistent stapedial artery associated with otosclerosis. *ORL J Otorhinolaryngol Relat Spec* 50: 382–384
5. Sadler TW (1990) *Longman's medical embryology*, 6th edn. Williams & Wilkins, Baltimore, p 208