Anterior meningeal artery

Arises at the body of C2 (axis), may feed chordomas or foramen magnum meningiomas, may also act as collateral in vascular occlusion.

The so called anterior meningeal artery (AMA) is a branch of the vertebral artery (VA), which had been interpreted as a supplying vessel of the dura in the foramen magnum and upper cervical level.

The middle meningeal artery is the largest of the three (paired) arteries that supply the meninges, the others being the anterior meningeal artery and the posterior meningeal artery.

In a study, Shimizu et al. examined the anatomy of this artery and relationships to its surrounding structures for treatment modalities. With the aid of magnification, five adult cadaveric head and neck complex and five cervical spines were examined after perfusion of the vessels with colored silicone. The AMA arose from the VA between the C2 and C3 level, and passed medially through the intervertebral foramen anterior to the dural sheath of the third cervical nerve root. It ran upwards dorsal to the deep layer of the posterior longitudinal ligament (PLL) with anterior internal vertebral venous plexus. Rostrally, it formed an arcade above the apex of the odontoid process with its contralateral mate. The AMA gave off several tiny branches to the deep layer of the PLL, ligaments and soft tissues above the apex of the odontoid process, and vertebral bodies of the axis. At the level of the foramen magnum, it ended in several small twigs to the dura. Anastomoses between the AMA system and adjacent vessels were observed. One was directed through the hypoglossal canal to the ascending pharyngeal artery and the other was with the V3 segment of the VA. The origin and course of the two AMA, and anastomoses were symmetric. Although the AMA feeds the ventral dura of the foramen magnum, the perfusion area is larger than its name suggests, including the bony and ligamentous structures in the craniovertebral junction. Anatomical knowledge of the AMA, including its anastomoses and layer relationships to the surrounding structures, may help to perform treatment modalities in this region rationally [1].

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Shimizu S, Garcia AS, Tanriover N, Fujii K. The so-called anterior meningeal artery: an anatomic study for treatment modalities. Interv Neuroradiol. 2004 Dec 20;10(4):293-9. Epub 2005 Feb 8. PubMed PMID: 20587212; PubMed Central PMCID: PMC3463288.