



Mini Review

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# Review on the Surgical Anatomy of the Vertebral Artery during Surgical Approaches to the Foramen Magnum



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## Mini Review

Surgical anatomy of the vertebral artery is of great importance during surgical approaches to the foramen magnum. Neurosurgeons should have detailed knowledge about the anatomy of the vertebral artery specifically the extradural part of this important anatomical structure during surgical approaches to the foramen magnum. This is a brief review on the surgical anatomy of the vertebral artery. In far lateral approach, the vertebral artery can be observed from the Axis transverse foramen to the intradural course. It traverses from Axis transverse foramen to Atlas transverse foramen in a vertical and somehow lateral direction. While resting on the vertebral groove, it curves around the Atlanto-occipital joint in a medial and posterior direction after it exits from the foramina of the Atlas. Then the artery exits from the vertebral groove in a medial direction. After that with an anterior and medial turn, the artery will enter the dura.

The extradural part of the vertebral artery has various meningeal branches. Paying enough attention to the posterior inferior cerebellar arteries and posterior spinal artery is of importance during surgical dissection. Atlanto-occipital joint exposure during surgery may necessitate the vertebral artery mobilization which can be done in an inferomedial direction by Atlas transverse foramina's posterior ramus drilling and making the second segment of the vertebral artery free, along with surgical dissection of the artery from the vertebral groove. By performing a subperiosteal dissection, entering the periarterial soft tissue can be avoided and since the venous plexus surround the artery and making any damage to such plexus may result in bleeding, such subperiosteal dissection would be of importance and should be

of notice during surgical dissection. During intradural course the artery rests on the anterior clival dura. By coursing in an anterior and medial direction, the vertebral artery on one side will join the artery on the other side [1,2].

The Basilar artery which is formed by this joining would lie at the junction of the pons and medulla. From this segment of the vertebral artery, the posteroinferior cerebellar artery will arise. During dural incision, it is important to pay enough attention to the cuff of dural which is formed around the vertebral artery during its entrance to the dural. It is important for the neurosurgeons to have detailed knowledge about the anatomy of the vertebral artery. During surgical approaches to the foramen magnum and skull base lesions, paying enough attention to anatomical details related to vertebral artery is of great importance [3,4].

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