

Video Abstract

One burr-hole craniotomy: Enough lateral approach to foramen magnum in helsinki neurosurgery

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Received: 13 June 18 Accepted: 13 July 18 Published: 14 August 18

Abstract

Background: In this video-abstract, we present a one burr-hole craniotomy for the enough lateral approach (ELA) to the foramen magnum developed in Helsinki Neurosurgery, a less invasive variant of the classical far lateral approach. ELA does not require the resection of the occipital condyle nor the exposure of the extracranial/intraosseal course of the lower cranial nerves. The vertebral artery is not transposed and the sigmoid sinus is not skeletonized. ELA allow us to access lesions that are close to the level of the foramen magnum (less than 10 mm). In this regard, low-lying vertebral aneurysms, foramen magnum meningiomas, or low brainstem cavernomas and intrinsic tumors are our common indications for this approach.

Case Description: The patient with a foramen magnum meningioma is placed in park bench position with slight backward rotation and elevation of the upper body to maintain the head around 20 cm above the cardiac level. The correct positioning of the head requires slight forward flexion, contralateral rotation, and contralateral tilt to open the angle with the upper shoulder. Under microscopic vision, a straight incision is made behind the mastoid process running between the zygomatic line and 4–5 cm below to the level of the mastoid process. The suboccipital muscles are split with electrocoagulation while the vertebral artery is recognized by digital palpation. Blunt dissection with cotton balls is performed at the occipitocervical junction. Strong retraction maintains a clean space for the craniotomy. A single burr-hole is placed at the posterior border of the craniotomy, and a small 3 × 4 cm craniotomy is performed over the anterior border of the intradural origin of the vertebral artery. The anterior lateral border of the craniotomy is reached under visual control using a diamond drill. In this regard, one more burr hole opposite to the first one would be a tiring and difficult procedure deep inside the lateral margin of the craniotomy. The dura is opened based on the sigmoid sinus and cerebrospinal fluid is released. Finally, under high microscopic magnification, the lesion is properly removed.

Conclusion: The described procedure may represent a more efficient lateral approach to the foramen magnum.

Videolink: <http://surgicalneurologyint.com/videogallery/enough-lateral-approach-for-the-foramen-magnum/>

Key Words: Burr-hole, craniotomy, enough lateral approach, foramen magnum

Access this article online

Website:www.surgicalneurologyint.com**DOI:**

10.4103/sni.sni_193_18

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How to cite this article: Choque-Velasquez J, Hernesniemi J. One burr-hole craniotomy: Enough lateral approach to foramen magnum in helsinki neurosurgery. *Surg Neurol Int* 2018;9:165.

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