

Petroclival Meningiomas Surgical Complications

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Received: 📅 August 02, 2021

Published: 📅 August 27, 2021

Keywords: Petroclival meningiomas; Surgical complications

Introduction

Surgical complications of petroclival meningiomas have reduced in last decades due to advancement in surgical techniques, neurosurgical technology and intraoperative monitoring improvement. This is a review on some possible surgical complications of the petroclival meningiomas surgery. Brainstem manipulation and perforating blood vessels injury which lead to edema and ischemia are the main reasons for surgical mortality in petroclival meningiomas surgery. Lower cranial nerves injury may result in breathing and swallowing disorders. Indelicate and prolonged retraction leads to cerebellar hemisphere and temporal lobe swelling. By using transpetrosal approaches the amount of brain manipulation and retraction would be decreased and as a result the occurrence of complications would be decreased. Meticulous care should be taken to avoid causing injuries to the arachnoid layers and perforating vessels during surgery at the brainstem level. Vein of Labbe is an important anatomical structure which care should be taken to not cause injury to it during surgery [1-4]. It is important to take care of venous channels during surgery although sacrificing the veins which are located in the superior and also lateral surface of the cerebellum would not cause any important complications. It is important to avoid sigmoid sinus ligation during surgery. Paying enough attention to cranial nerves and to avoid causing injury to them is of great importance during surgery of petroclival meningiomas specifically cranial nerves from oculomotor to hypoglossal.

The nerves can be displaced by the tumor or encased by it. So it is important to analyze these possibilities by using MRI studies before surgery. Fourth cranial nerve injury may occur by

splitting the tentorium. The injury of the third cranial nerve during petroclival meningiomas surgery is rare. Care should be taken to avoid causing injury to the fifth cranial nerve since paralysis of the trigeminal nerve can lead to painful anesthesia, corneal anesthesia, keratitis and trigeminal neuralgia. The risk of injury of the seventh cranial nerve is high by using transcochlear approach while such risk is low by using retrosigmoid approach. Care should be taken to preserve the vestibulocochlear nerve and the inner ear and relevant blood supply in the patients who have normal hearing ability. In these cases drilling of the pyramid should only be done during retrolabyrinthine approach. By appropriate closure, it is possible to prevent CSF leakage which is a common complication of surgery of the petroclival meningiomas. In case of the presence of CSF leakage and to stop it, continuous spinal drainage, elevation of the head and spinal taps can be of help [5-7]. Prophylactic antibiotic therapy should be considered in case of the presence of CSF leakage to prevent the occurrence of meningitis and its complications. In the cases which CSF leakage is persistent, the patients should be evaluated for the presence of hydrocephalus and appropriate decisions for treatment with shunting should be made. It is important for the neurosurgeons to have detailed knowledge about the possible complications of petroclival meningiomas surgery to make appropriate decisions in the relevant patients.

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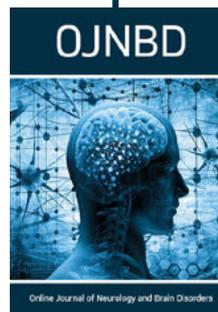
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DOI: [10.32474/OJNBD.2021.05.000225](https://doi.org/10.32474/OJNBD.2021.05.000225)



Online Journal of Neurology and Brain Disorders

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