Midline suboccipital subtonsillar approach

Marcos Tatagiba et al. described the surgical anatomy of the midline suboccipital subtonsillar approach to the hypoglossal canal. This approach includes a midline suboccipital craniotomy, dorsal opening of the foramen magnum and elevation of ipsilateral cerebellar tonsil to expose the hypoglossal nerve and its canal. The midline subtonsillar approach permits a straight primary intradural view to the hypoglossal canal. There is no necessity of condylar resections [1) 2)].

It offers excellent access with a panoramic view of the cerebellomedullary cistern and its structures and therefore can be useful for a number of different pathologies in the lower petroclival region [3)].

A study was performed on three alcohol (ETOH)-fixed specimens (6 sides), and the technique of the approach was highlighted. The tonsillar retraction needed to view the important structures was measured. Additionally, the records of 31 patients who underwent the STA procedure were evaluated and provide three clinical cases as examples.

Tonsillar retraction of 0.3cm (SD±0.1cm) exposed the PICA with its telo-velo-tonsillar and cortical branches. Retraction of 0.4cm (SD±0.2cm) exposed the spinal root of CN XI. Retraction of 0.9cm (SD±0.01cm) exposed the hypoglossal canal. Retraction of 1.3cm (SD±0.2cm) exposed the root exit zone of the glossopharyngeal nerve. Retraction of 1.6cm (SD±0.3cm) exposed the jugular foramen (JF), and retraction of 2.4cm (SD±0.2cm) exposed the inner auditory canal (IAC). In all of the selected cases, the pathology could be reached and exposed using the STA.

They recommend STA as a straightforward, easy-to-learn and therefore time-saving and safe procedure compared with other standard approaches to the cerebellomedullary cistern and its pathologies [4)].

Indications

Glossopharyngeal neuralgia. [5)].

Anterior, anterolateral, and posterior Foramen magnum meningiomas [6)].

There was no significant postoperative complication in the remainder of the patientes, and their conditions improved after surgery [7)].

Hypoglossal canal meningioma.

Case reports

2015

Two patients with exophytic or focal lesions in the inferior half of the medulla, who underwent surgery by suboccipital midline subtonsillar approach. This approach was not specifically described to reach MO before, and they found that the lesions produced a mild elevation of the tonsils providing a wide

surgical view from the medulla to the foramen of Luchska laterally, and up to the middle cerebellar peduncle, offering a wide and safe access [8].

2010

A 36-year-old woman presented with increased intracranial pressure and cerebellar signs without hypoglossal nerve palsy. Magnetic resonance imaging showed a predominantly cystic mass with a fluid-fluid level in the foramen magnum region extending into the hypoglossal canal. The intracranial tumor was largely removed via a midline suboccipital subtonsillar approach, leaving only a tiny residue in the hypoglossal canal. Histology confirmed a schwannoma with relative hypervascularity. Twenty months later, the tumor recurred and presented as a multicystic dumbbell-shaped lesion, extending intra- and extracranially through the enlarged hypoglossal canal. A complete resection of the intracranial and intracanalicular parts of the tumor was achieved with a small extracranial remnant treated by radiosurgery. Histology revealed a focal increased K(i)67 proliferative index. In this report, we discuss the possible reasons for the absence of hypoglossal nerve palsy and the potential mechanism of the formation of the fluid-fluid level, and we consider the treatment of this lesion [9].

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