Minimal invasive approach for small ventrally located intradural lesions of the craniovertebral junction

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Objektive

The surgical management of lesions ventrally to the neuroaxis at the level of the craniocervical junction (CVJ) and upper cervical spine is challenging. Here, we describe a minimal invasive dorsal approach for small ventrally located intradural lesions at the CVJ as an alternative for the more extensive classic transoral or variants of suboccipital approaches.
Methods

Eight symptomatic patients with small lesions of the ventral aspect at the level of the CVJ were treated in our institution using a tubular dorsal approach. The radio-anatomical distance of the posterior atlanto-occipital membrane and the posterior atlanto-axial ligament was assessed in our treated patients and in 100 non-treated persons based on computerized tomography.
Results

Atlantooccipital distance in 100 untreated individuals: 3-17 mm (mean: 8.98)

Atlantoaxial distance in 100 untreated individuals: 5-17 mm (mean: 10.56)
Results

• 8 patients, 3 women, 5 men (mean age 54.7 years)

• Atlantooccipital distance: 9-13mm (mean 10.08)

• Atlantoaxial distance (one patient): 14mm

• sensible deficit in the lower extremities during inclination, which disappeared after surgery
Results

• The neuropathological findings confirmed a meningo-theliomatous meningioma (WHO grade I) in six cases and an extramedullary cavernous hemangioma and neuroenteric cyst in one case each.

• The postoperative course was in all eight patients uneventful.
**A & B:** considerable subarachnoid space at the C0–C2 level.

**C:** denticulate ligament is identified and resected to gain access to the tumor.

**D:** A Simpson Grade II resection of the meningioma is achieved by coagulation of the clearly visible dural tumor attachment.
**A & B.** Preoperative contrast-enhanced MRI studies of a ventrolaterally located intradural lesion at the C0–C1 level.

**B & C** Postoperative contrast-enhanced MRI studies showing complete resection of the WHO Grade I meningioma without any removal of bony structures.
Lage neuroenteric cyst. Due to the cystic character, even large lesions can be removed using this minimal invasive approach.
Meningioma WHO I
22x19.5 mm
Atlantooccipital distance:
16 mm
Compleat removal without any bony removal (D)
Conclusion

Minimal invasive approach for ventrally located intradural small lesions in the cranovertebral junction provides a direct exposure to the lesion avoiding an anterior transoral and broad dorsal approach
Disclosure:

Sven Eicker MD: Consulting: SpineArt