

Craniovertebral Junction Tumor

Definition: CVJ tumors are neoplastic lesions involving the occipital bone, atlas (C1), axis (C2), and adjacent structures. These tumors may be extradural, intradural-extramedullary, or intramedullary.

Common Tumor Types

- Meningioma
 - Chordoma
 - Schwannoma (CN XI, XII)
 - Paraganglioma
 - Metastasis
 - Epidermoid cyst
 - Neurofibroma
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Treatment

Goals of Treatment

- Maximal safe resection or control
 - Preservation of neurological function
 - Stabilization of the craniocervical junction (if destabilized)
 - Symptom relief (e.g., brainstem compression, myelopathy, cranial nerve dysfunction)
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Multidisciplinary Planning

- **Imaging:** MRI with contrast ± CT with bone windows
 - **Neuro-navigation / intraoperative neuromonitoring**
 - **Preoperative angiography ± embolization** (esp. in vascular tumors like meningiomas or paragangliomas)
 - **Histology:** Biopsy when necessary (for chordomas, metastases)
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Surgical Indications

- Neurological deterioration
- Brainstem compression
- Spinal cord compression or instability
- Progressive symptoms

- Tumor growth

Surgical Approaches

[Craniovertebral Junction Tumor Surgical Approaches.](#)

Non-Surgical Management

- **Stereotactic Radiosurgery (SRS):** e.g., for chordomas, schwannomas, or residuals
 - **Fractionated Radiotherapy:** if high risk for injury with surgery
 - **Chemotherapy:** rarely indicated, unless lymphoma or metastasis
 - **Observation:** for small, asymptomatic, benign tumors in high-risk locations
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Complications

- Lower cranial nerve palsies
 - CSF leak
 - Vertebral artery injury
 - Instability requiring fusion
 - Dysphagia / aspiration
 - Infection / wound healing issues
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Outcome Predictors

- Tumor location and extension (midline vs lateral)
- Histology (benign vs aggressive)
- Preoperative neurological status
- Surgeon's experience and approach selection
- Use of neuromonitoring and neuronavigation

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