

Craniovertebral Junction Tumor Surgical Approaches

Posterior Approaches

- **Suboccipital midline** (for posterior lesions)
- **Laminectomy of C1/C2**
- **With or without occipitocervical fusion**

Lateral Approaches

- **Far lateral** (posterolateral for ventrolateral lesions)
- **Extreme lateral / transcondylar** (for anterior lesions)
- **Anterolateral transjugular or infratemporal** (complex skull base tumors)

Anterior Approaches

- **Transoral or endoscopic endonasal** (midline anterior lesions)
- **Mandibulotomy** (rare/extensive anterior access)

Stabilization & Reconstruction

- Necessary if bony resection compromises CVJ integrity
- Techniques:
 - Occipitocervical fusion (plate-rod, screw-rod systems)
 - Use of allograft/autograft ± cage

Minimalistic Approaches to Craniovertebral Junction Tumors (Ammirati et al., 2025)

In a cadaveric anatomy-demonstration + surgical technique description Mario Ammirati et al. from the Dept. Neurosurgery, Mercy Health/St. Rita Medical Center, Lima, OH; [and] Catholic University, Rome published in [Advances and technical standards in neurosurgery](#) to describe a “simple posterolateral” microsurgical technique for craniovertebral junction (CVJ) tumor removal and review pros/cons of different approaches. The authors propose that a minimalist posterolateral route achieves tumour access with reduced retraction and operative time, avoiding extensive bony drilling seen in [far-lateral](#) or [extreme lateral approaches](#), though a formal clinical outcomes series is lacking ¹.

Critical Appraisal

- * **Strengths** **1. Technical innovation** – Proposes a streamlined, less invasive posterolateral route aimed at decreased operative morbidity. **2. Balanced discussion** – Compares technique versus anterolateral/far-lateral approaches, discussing trade-offs (e.g., retraction vs bone removal).
- * **Weaknesses** **1. Lack of clinical data** – No patient series or intraoperative metrics to validate safety or efficacy; limited to cadaver demonstration. **2. Selection bias** – Technique suited for “favorable” lesions; unclear criteria limit generalizability. **3. Incomplete metrics** – Missing quantitative comparison of corridor size, exposure extent, brainstem retraction, or operative time.
- * **Contextual comparison** Prior anatomical cadaver studies (e.g., Ammirati & Colasanti 2018) showed added bone drills (transcondylar, supracondylar) may improve exposure for small tumors, but clinical relevance is debated [:contentReference\[oaicite:1\]{index=1}](#). This new report simplifies further, yet without demonstrating equivalent exposure or outcomes.

Verdict

Score: **4.5 / 10** Innovative as a concept, but premature without clinical validation. A descriptive anatomical technique alone earns only modest credit.

Takeaway for Practicing Neurosurgeon

The technique may be considered for small, posterolaterally situated CVJ lesions in select cases—especially where minimizing bone removal and operative time is desirable. However, lacking patient outcomes or exposure metrics, its safety and effectiveness remain unproven. [Far-lateral](#) variants with condyle drilling still remain the gold standard when anterior exposure is needed.

Bottom Line

Describes a less invasive anatomical corridor, but without clinical validation; useful conceptually but not ready for routine adoption.

Citation

Minimalistic Approaches to Craniovertebral Junction Tumors. Ammirati M et al. Adv Tech Stand Neurosurg. 2025;55:165–179. doi:10.1007/978-3-031-90762-3_9. Published: 2025-05-??.
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