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## PP-013

### C1-C2 TRANSARTICULAR SCREW PLACEMENT IN A CASE OF CERVICAL ATLANTO-AXIAL METASTASIS

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**Introduction:** C1 lateral mass, C2 pedicular (Harms-Goel technique) and transarticular atlantoaxial screw placements (Magerl technique) are currently accepted techniques for C1-C2 joint stabilization with a posterior approach<sup>1</sup>. In both methods, care should be taken during instrumentation because of the risk of vertebral artery injury. Transpedicular screw placement of C2 is known to be safer than transarticular screws for cases of variable vertebral artery tracing since it is directed more medial and superior<sup>2</sup>. We presented a case of C1-C2 transarticular placement of screws due to the lytic bilateral C2 pedicle and corpus metastatic lesions.

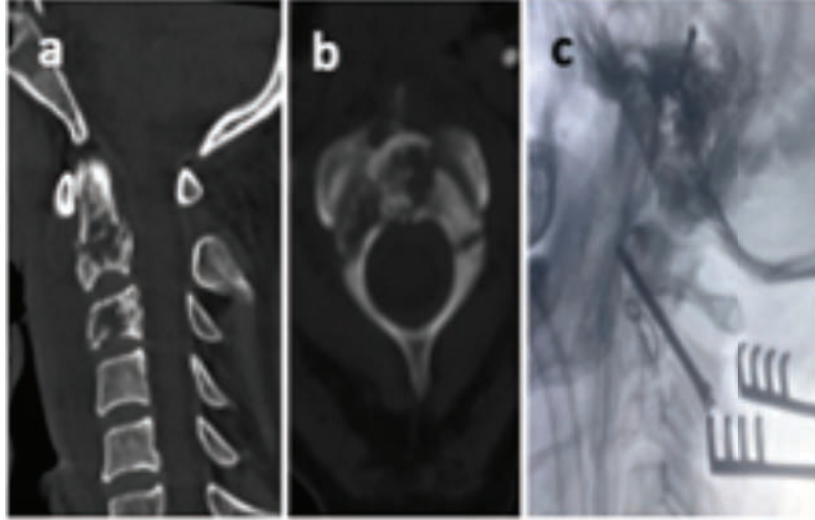
**Case:** A 54-year-old male patient was admitted to our hospital with a complaint of neck pain due to cervical trauma. There was cervical tenderness and no neurological motor deficit in the physical examination. No first motor neuron sign was detected. The patient had a known history of bladder cancer and chronic renal failure.

Cervical CT and contrast enhancement MRI revealed metastatic lytic lesions on the C2 and C3 corpus and bilateral C2 pedicles. There was also a left C2 pedicle fracture and a Type 3 odontoid fracture. (Figure 1a and 1b). C1-C2 transarticular instrumentation was decided due to the lytic C2 corpus and pedicle lesion. The patient was operated on under fluoroscopy. In the prone position, a midline skin incision and subperiosteal paravertebral dissection was performed between C1-C7. A Kirschner wire was advanced under fluoroscopy for bilateral C1-2 transarticular screw placement using the Magerl technique. Canulated screws were placed bilaterally under fluoroscopic guidance. (Figure 1c). The C1-C2 intraarticular space was drilled with a 3 mm burr, and the bone grafts harvested from the C2 spinous process were placed between them for fusion. No loss of motor strength was observed in the neurological examination in the postoperative period and the patient's neck pain was relieved.

**Conclusion:** In this case, C2 pedicle screw placement is not possible due to the bilateral C2 pedicle and lytic corpus metastatic lesions. Transarticular placement of screw is a risky approach due to its proximity to the vertebral artery. Especially in patients with oncological involvement of the C1 and C2 vertebrae, where transpedicular and lateral mass instrumentation is not suitable, atlantoaxial fixation may be considered as an alternative method can be used instead.



Figure 1



a: Preoperative sagittal CT, note that lysis of C2 and C3 corpus due to the metastasis and type 3 odontoid fracture; b: Preoperative axial CT shows lysis of C2 corpus and left pedicle fracture; c: Perioperative lateral fluoroscopic image of transarticular screw placement (Magerl technique)

**Keywords:** Cervical transarticular screw placement, Magerl technique, cervical transpedicular screw placement

#### References

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