

KSSSS 2026

The 43rd International Congress of
Korean Society of Spine Surgery
May 20 (Wed) - 22 (Fri), 2026
Lotte Hotel Seoul (Sogong-dong), Seoul, Korea



Unstable C1-C2 fracture dislocation in an elderly patient: A case report

Ma. Gicelle Christine U. Ambulo, MD

Buenaventura Alfredo B. Canto IV, MD, FPOA, Jose Martin S. Paiso, MD, FPOA,
Angelo Phillip P. Ong, MD, FPOA

Makati Medical Center



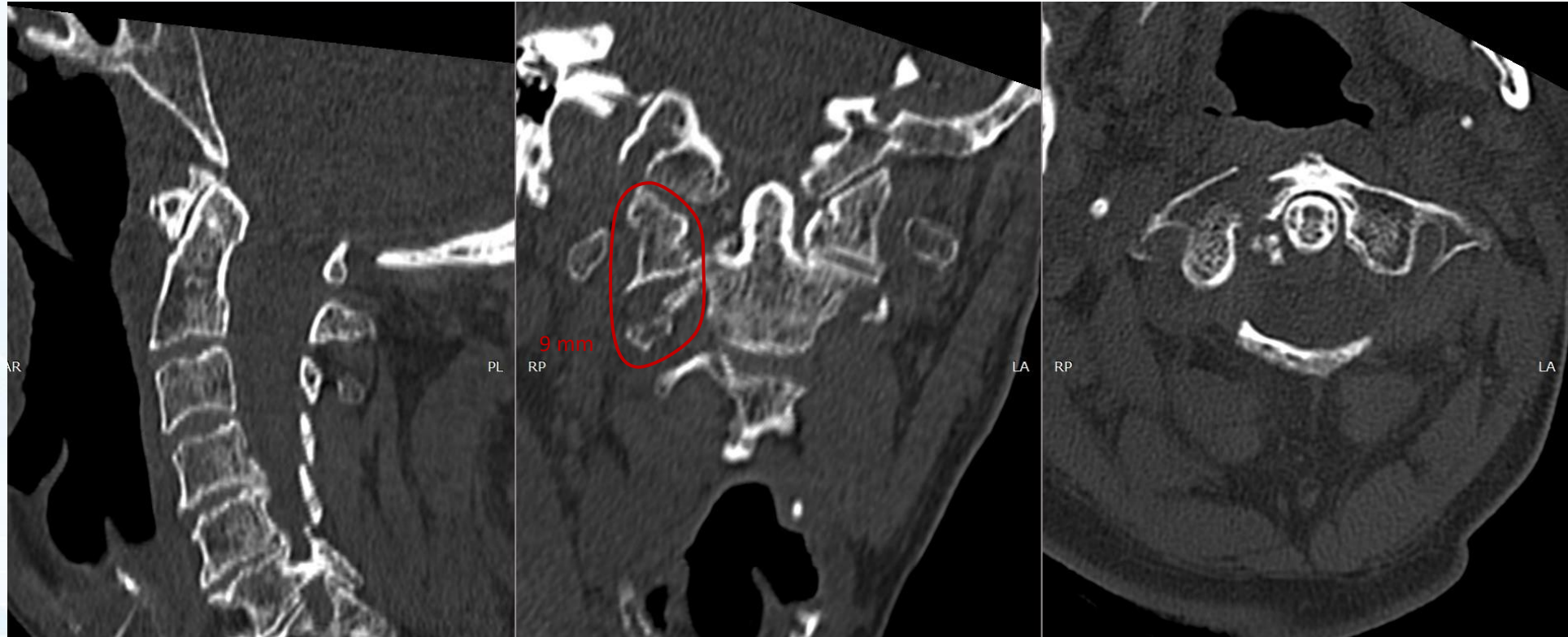
Overview

- One-third of geriatric population suffer from a fall each year
 - Half of these are from ground-level falls → **cervical spine fractures 2.6% to 4.7%** in those more than 65 years
- Cervical immobilization is mainstay of treatment
- Surgery advised if unstable or when with neurologic deficit
- **Case report:** Right-sided C1 and C2 articular process fracture with C1 lateral mass displacement
 - Successfully managed with occiput to C4 posterior instrumented fusion

79F (+) Parkinson's disease, Rheumatoid arthritis, Osteoporosis

- Came in after a fall at home
 - (+) Torticollis and dysesthesia to left upper extremity
 - Intact motor status
- Cervical spine CT
 - Complete, displaced fracture of the right C1 and C2 lateral mass with the entire C1C2 facet displaced 5 mm laterally and 5 mm inferiorly.
 - Right occipito-cervical joint remained intact

CT Scan of Cervical Spine

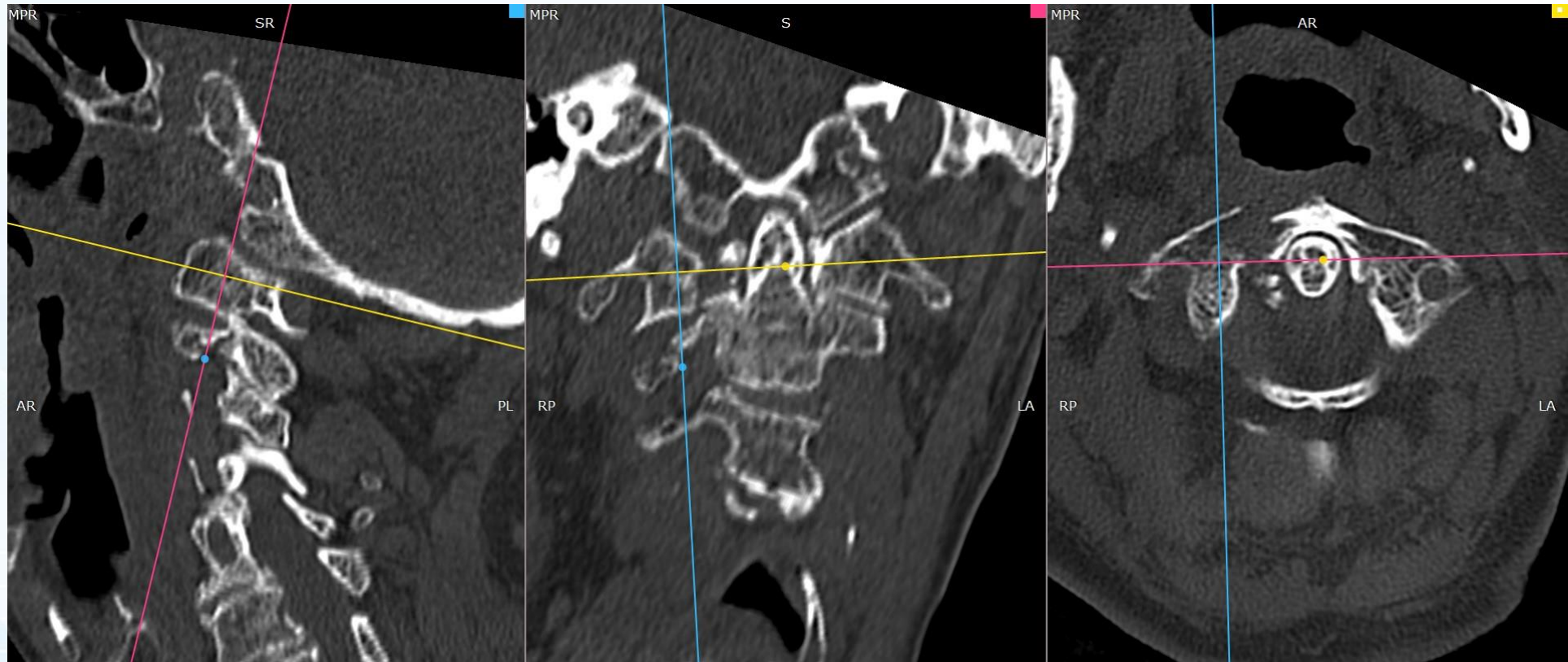


Sagittal

Coronal

Axial

CT Scan of Cervical Spine



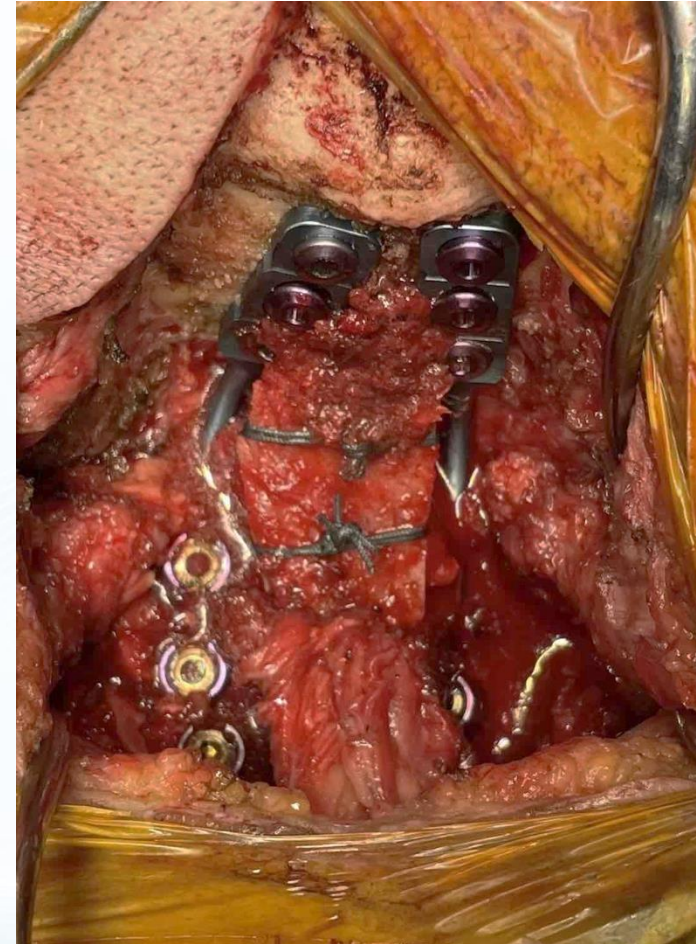
Sagittal

Coronal

Axial

Surgical Procedure: Posterior instrumented fusion occiput to C4

- Bilateral lateral mass fixation on C3 and C4, with C2 transpedicular fixation of the contralateral pedicle using the Magerl technique
- Pre-contoured *VertexMax* plate rod was applied over the occipital protruberance, secured with 6 occipital screws
- Tricortical iliac bone graft harvested and applied, and subsequently stabilized with non-absorbable sutures (modified Gallie)
- Decortication of posterior elements of C3C4 done followed by additional morselized bone graft
- Intraoperative cord monitoring was stable all throughout the procedure





Discussion

- Radiographic parameters preoperative vs. postoperative
 - Occipitocervical angle (OCA) $34^{\circ} \rightarrow 32^{\circ}$
 - Occipitocervical distance (OCD) 30 mm \rightarrow 37.5 mm
 - Occipitocervical inclination (OCI) $62.6^{\circ} \rightarrow 70.9^{\circ}$
- Immobilization on Philadelphia cervical collar \rightarrow conversion to soft cervical collar at 1 month
- 2 months: Tolerated walker ambulation
- 4 months: Radiographs showed good consolidation of the C2C3 facet joints with no screw pullout
- 6 months: Able to carry out activities of daily living with minimal assistance

Conclusion

- A right-sided C1 and C2 articular process fracture, with C1 lateral mass displacement, poses a unique and complex challenge in managing upper cervical fractures. Occipitocervical fusion combined with tricortical iliac bone graft application remains a reliable surgical option for unstable C1C2 injuries; with noted good clinical and functional outcomes postoperatively.