

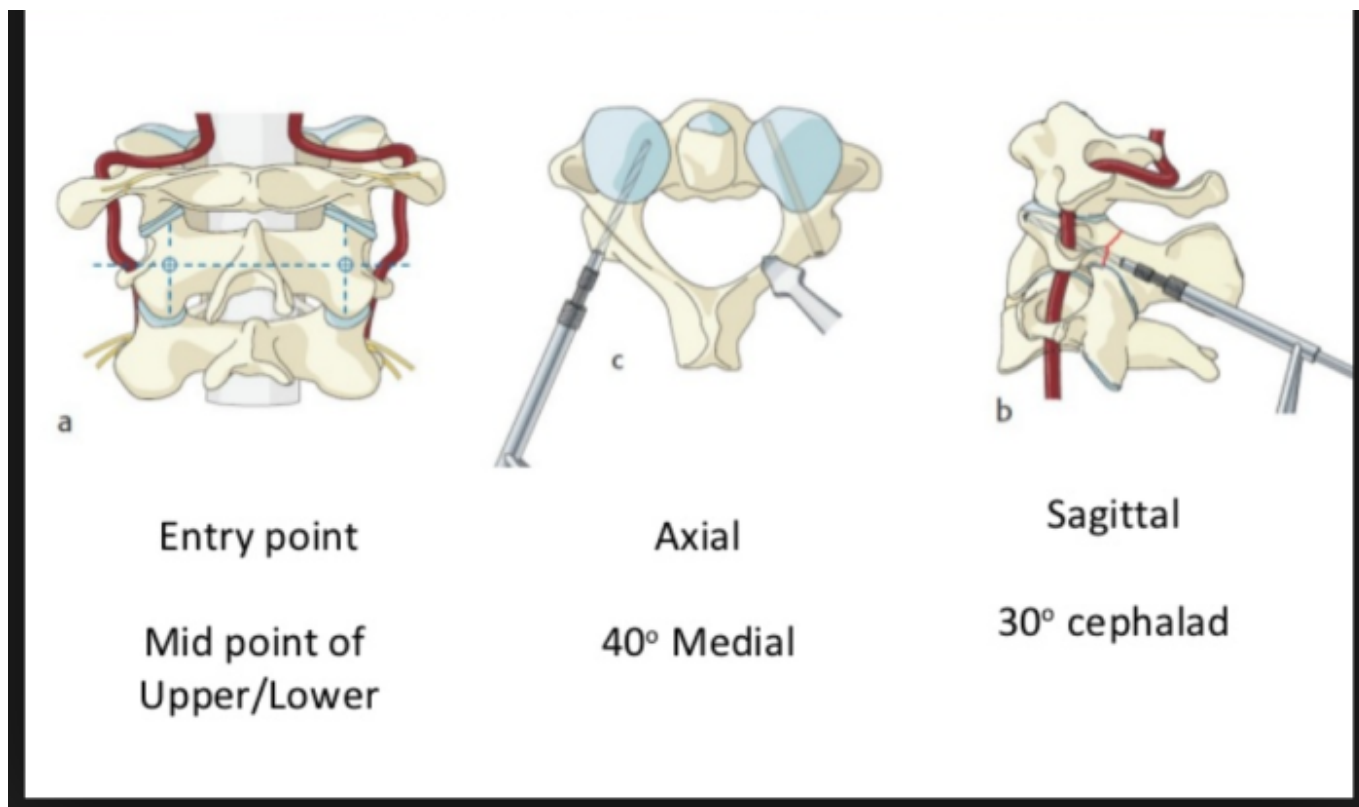
C2 pedicle screw placement

- Modeling optimal trajectory for tricortical pedicle screw fixation in adult thoracic spine: an imaging study using the three-dimensional reconstruction technique
- Preoperative Planning for Cervical Pedicle Screw Placement: Identifying Key Morphological Parameters
- 3D-printed guide template for cervical stabilization surgery: A case report
- Comparison of accuracy in C1-C2 pedicle screw placement: O-arm, 3D guides, and C-arm fluoroscopy
- Translaminar Screw Fixation for Giant C1 Lateral Mass Metastasis From Hepatocellular Carcinoma
- Influence of variations of craniovertebral junction anatomy on safe C1 lateral mass and C2 pedicle screw insertion: a cadaveric and radiologic study
- Neuronavigation-guided Judet screw technique for C2 pedicle fractures: how I do it
- A surgeon-controlled mode of robotic assistance with posterolateral approach helps achieve highly medialized cervical pedicle screw placement to avoid vertebral artery injury

see also [C1 pedicle screw placement](#).

[Cervical pedicle screw placement](#).

Check CT scan or MRI to rule-out aberrant location of [vertebral artery](#) or unusual location of [foramen transversarium](#) before placing [C2 pedicle screws](#). Some find [intraoperative image guidance](#) systems to be helpful.



Technique

1. ENTRY palpate the medial and superior aspect of the pars with a Penfield 4 dissector. Enter at the estimated center of the surface projection of the C2 pars at the midpoint medio-laterally in the supero-medial quadrant of the surface of the C2 isthmus
2. TRAJ 20–30° medially (through the central axis of the C2 pedicle), 25° superiorly (on lateral fluoroscopy, place the screw parallel to the pars). To assist with trajectory, expose the proximal upper and medial border of the C2 pars interarticularis, and use a Penfield 4 to palpate during drilling
3. drill a shallow entry point, then drill with drill-stop set at 12 mm, monitoring progress at intervals under fluoro and palpating with probe, and if no breakout, then complete drilling by gradually increasing drilling depth by 2 mm increments either up to 15–20 mm to stay in the pedicles, or up to ≈ 30 mm depth to perform osteosynthesis for a hangman's fracture. If withdrawal of the drill is followed by brisk bleeding, the screw should be inserted immediately to stop the bleeding. This bleeding may be from the vertebral artery; however, it is usually due to injury to the venous plexuses, and will not have any ill effects. In such cases it is best to not place the contralateral screw and to obtain an angiogram very soon post-op
4. SCREWS 3.5 mm dia. Screw length is not critical except when attempting to bridge a fracture gap (osteosynthesis) e.g. with a hangman's fracture in which case screws of 20–30 mm length are placed to avoid penetrating anterior C2 cortex (lag screws are used for this, or the proximal bone can be overdrilled); for most purposes screw lengths of 15–20 mm length are used. Shorter screws (15–16 mm length) can still grip the pedicle with lower risk of injury.

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