

New Atlanto-Occipital Fluoroscopic Injection Technique



Agnes Stogicza 1, MD, FIPP, CIPS, Andrea M Trescot 2, MD, FIPP, DABIPP

1 Department of Anesthesiology and Pain Medicine, University of Washington, Seattle, WA

2 Pain and Headache Center, Wasilla, AK

BACKGROUND. The vertebral artery (VA) is rather torturous at the level of the cervico-cephalic junction, often covering the posterior and posterolateral aspects of the Atlanto-Occipital (AO) joint line, which makes injections from a posterior approach high risk, and a proceduralist will often encounter arterial backflow from this approach. The ideal entry to the AO joint would be from the anterolateral direction to avoid the VA. However, this point overlays the ear and/or the mastoid process. This new technique avoids this issue.

METHODS: With step-by-step fluoroscopy adjustments, the joint can be visualized from the lateral aspect, with just a minimal caudad tilt of the C-arm. The C-arm adjustments are as follows:

- Straight AP image allows easy visualization of the atlanto-axial (AA) joint. Cephalad is the “bow-tie” shaped body of C1 and the AO joint (Image 1).
- Keeping focus on the lateral aspect of the AO joint (top edge of “bow tie”), slowly oblique the C-arm laterally towards 40-60 degrees, not to overlay the ear and mastoid.
- A slight caudad tilt is often necessary to move the occiput from the needle path.
- The needle is advanced to the joint line (Image 2).
- 0.2ml contrast will outline the joint space (Image 3 and 4)
- DSA confirms lack of vascular spread (Image 4)

RESULTS: More than 20 AO joint injections have been safely performed to date without vascular uptake

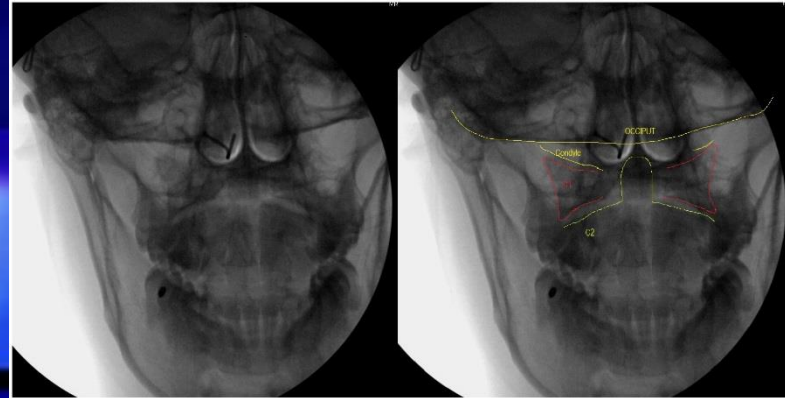


Image 1: AO joint line is visualized in AP view

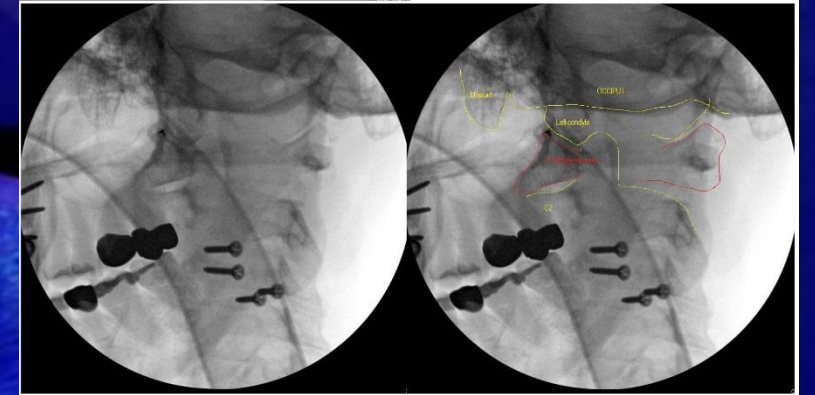


Image 2: The anterolateral opening of the AO joint is visualized in an oblique view, then a 22G, 3.5inch needle is advanced in tunnel view.

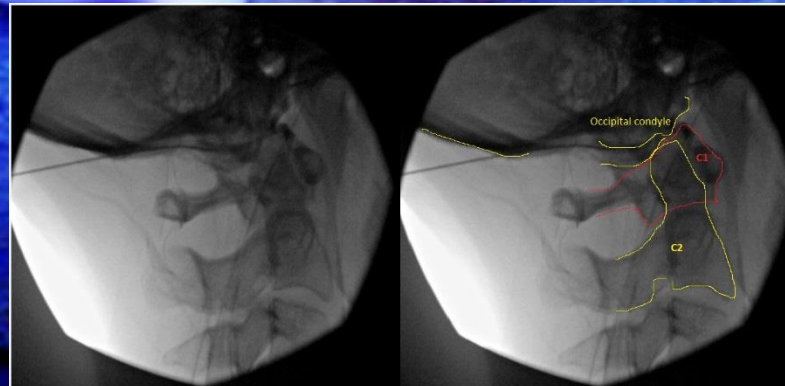


Image 3: Lateral view confirms needle position and contrast spread in the joint

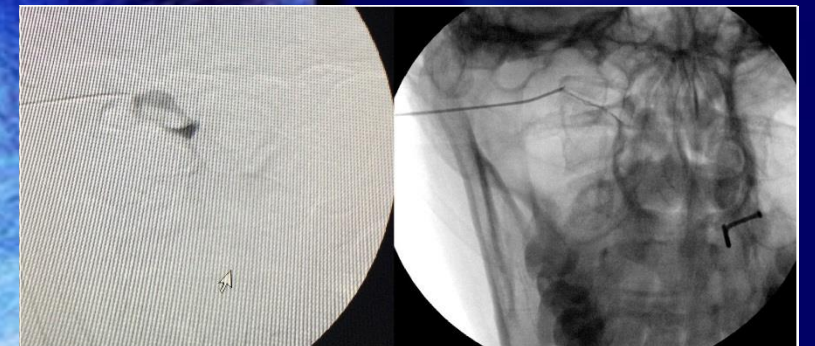


Image 4: AP view shows contrast spread within the AO joint space, DSA confirms lack of vascular uptake

CONCLUSION: With careful fluoroscopy adjustment and knowledge of anatomy, the AO joint is safely accessible.