Lateral Recumbent Positioning for Cervical Radiofrequency Ablation(RFA): A Novel Approach

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Introduction

Cervical RFA is the thermal denervation of medial branches of the cervical dorsal rami that innervate facet joints used to treat chronic facetogenic axial neck pain. The success of these ablations depends on placing the electrode as parallel to the nerve as possible, however current approaches with patients prone with sagittal and anterior posterior(AP) views provide limited viewing of cervical segments due to anatomic factors and placement of C-arm.[3,4]

All patient protected health information has been de-identified. As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per NuHealth policy.

Case Presentation

Pain specialists as part of a pain medicine group developed a technique utilizing lateral recumbent positioning of the patient. This technique was utilized in clinical patients' cervical facet joint procedures. Facetogenic pain was confirmed with positive medial branch blocks at target levels prior to RFA procedure. The patient was positioned in a lateral recumbent position with affected side facing up and utilizing further support equipment to stabilize the body and neck. Skin preparation performed, draping applied. Local anesthetic injected to superficial skin. The RFA electrode initially started in AP view with further lateral and oblique views utilized alongside needle advancement until the electrode was at the lateral aspect of the articular pillar. Local anesthetic given through introducer needles. Stimulation testing performed and lesioning subsequently completed.

The technique was successfully developed and applied to patients with improved fluoroscopic guided viewing and confirmed placement of the RFA electrode at the lateral aspect of the articular pillar to perform radiofrequency ablation of the medial branch nerve for the treatment of cervical facetogenic pain (see attached image). The positioning of the patient allowed for improved access and an open electrode needle pathway that could easily be adjusted according to fluoroscopic guidance. This is especially the case with patients who are obese, with broader shoulders or with shorter necks. The use of this technique confirmed RFA electrode placement and subsequent lesioning with success in later patient response.

Figure 1. Anatomy

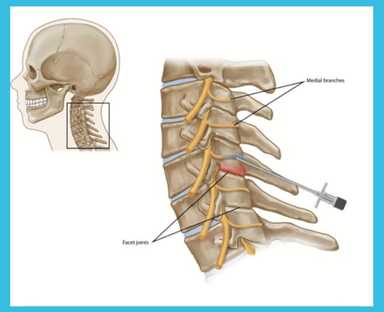


Figure 2. Traditional Approach

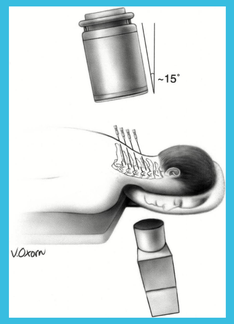


Figure 3. Lateral Recumbent Position



Figure 4. Cervical Spine in Oblique View

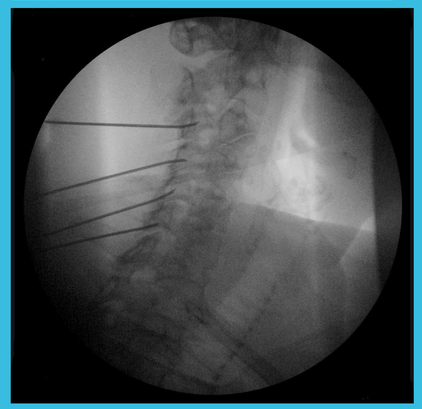
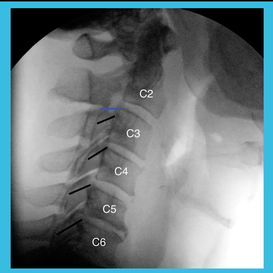


Figure 5. Cervical Spine in Lateral View



Discussion

There have been studies describing various imaging techniques, fluoroscopic device positioning, and procedural modifications to optimize cervical radiofrequency ablation (RFA). However, there remains limited literature investigating alternative patient positioning, particularly the use of a lateral recumbent approach as an alternative to the traditional prone position.[1] The lateral recumbent approach may offer a practical alternative for selected patients who have difficulty tolerating prone positioning due to discomfort, respiratory limitations, restricted mobility, or other clinical considerations. Additionally, this modification may provide procedural advantages by allowing the physician to adjust the patient's orientation relative to the fluoroscopic C-arm and optimize visualization of the cervical anatomy. Improved visualization of relevant anatomical landmarks may facilitate accurate electrode placement along the intended target nerve and potentially reduce the risk of unintended injury to adjacent structures. Nevertheless, these potential benefits require further investigation, as the effectiveness and safety of lateral recumbent positioning have not yet been established through comparative studies.

Potential limitations of this technique include increased radiation exposure, increased procedural duration, need for repositioning patient for bilateral procedures, ability of patient to tolerate laying on side and further possible equipment needs to stabilize patient in lateral recumbent position. Radiation exposure and procedural duration can be minimized with training and experience while also being potentially outweighed by the benefit of proper RFA electrode placement. Patients were able to tolerate being on their side for this procedure but can minimized,if present, by using supportive pillows.

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