

COOLED RFA FOR CERVICAL CHRONIC FACET JOINT PAIN USING A TRUE PERPENDICULAR APPROACH

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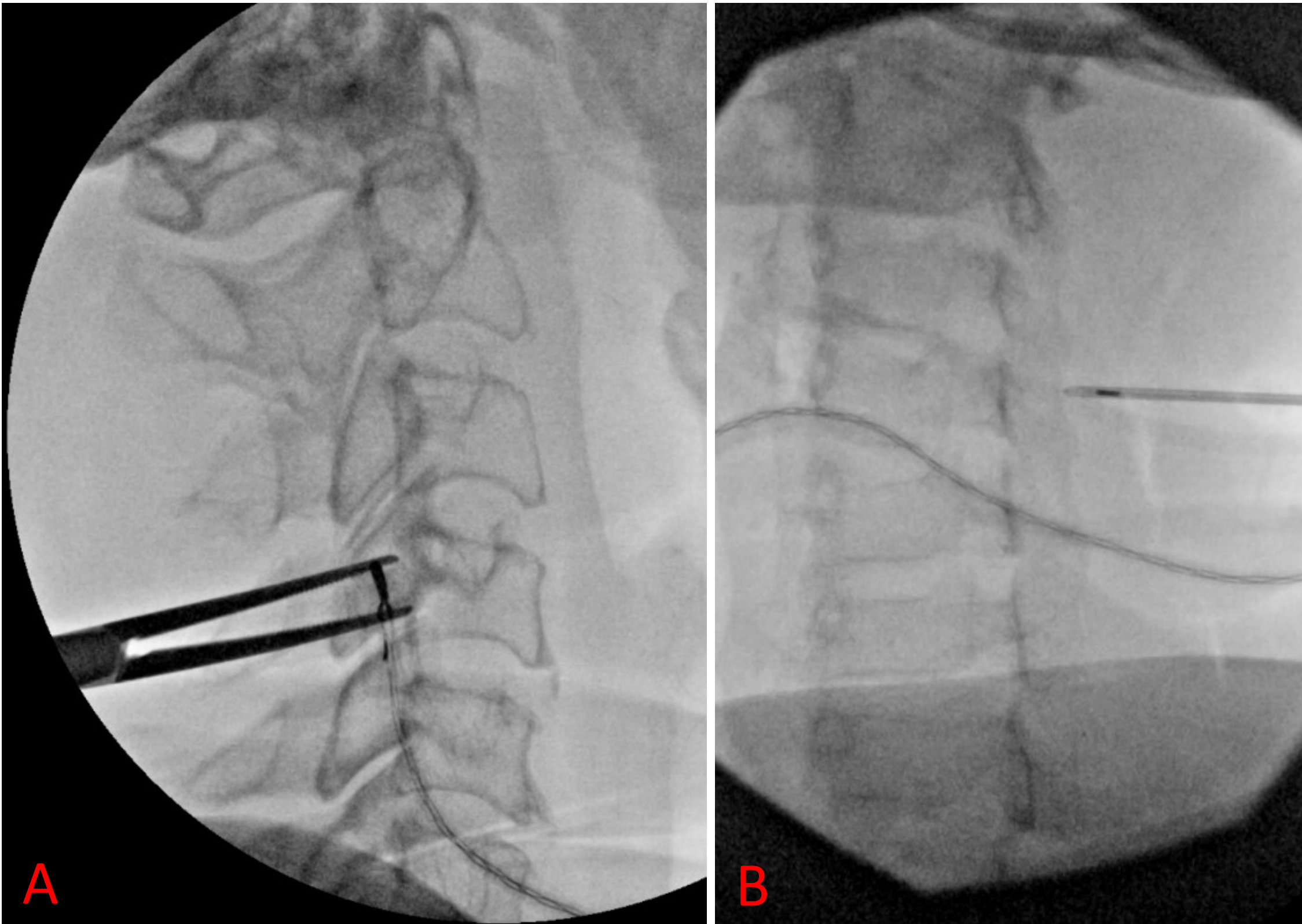
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Introduction

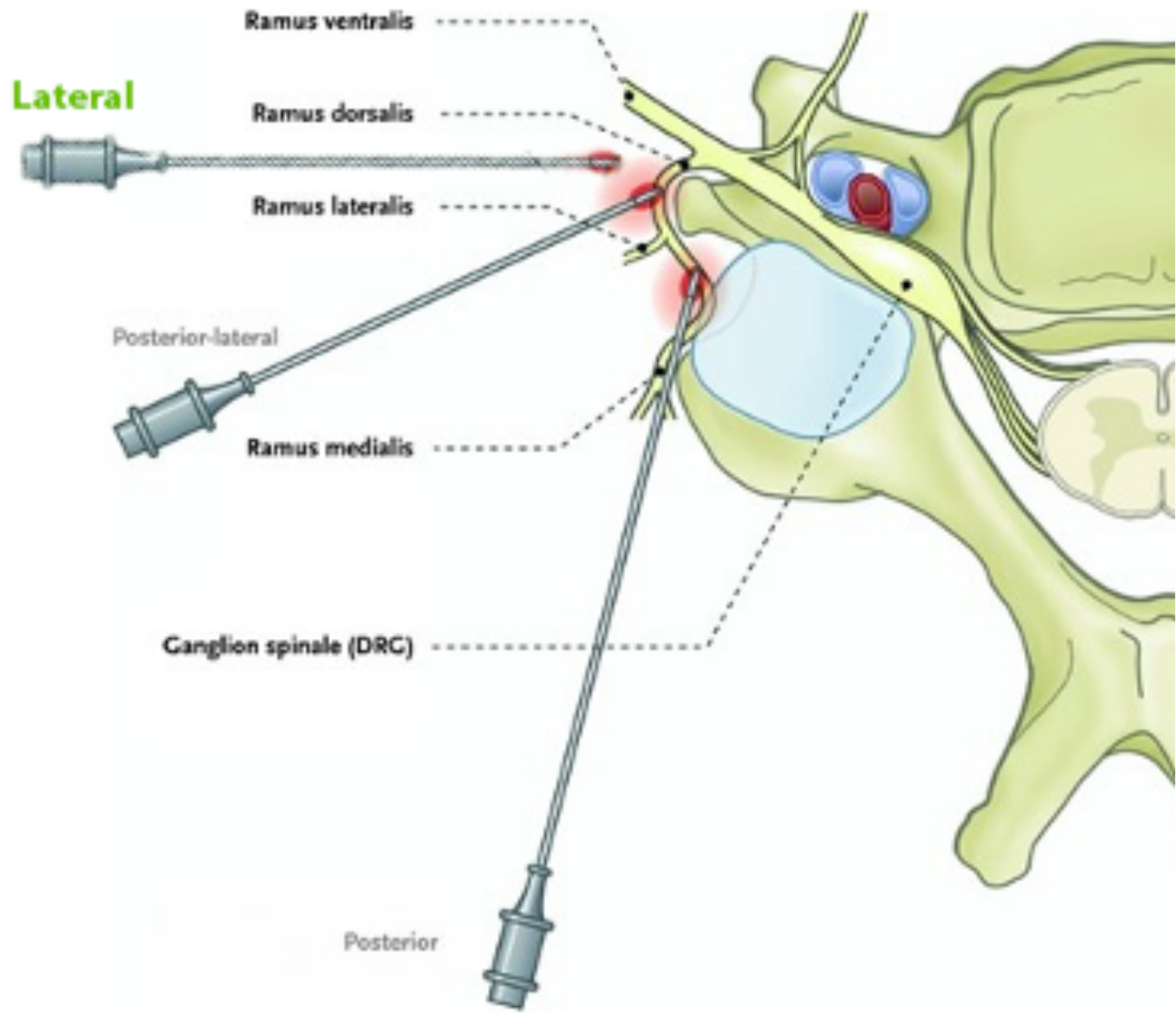
The prevalence of cervical facet joint pain has been described to vary from 20% to 35% in the general population[1]. Cervical medial branch radiofrequency ablation (RFA) is an effective treatment for facetogenic pain in patients with successful outcome (>80% pain relief) after 2 consecutive medial branch blocks (MBB) [3]. Most of the published reports are using a posterior-to-anterior approach or a posterior oblique approach to target the medial branches (MB). At our institution we routinely perform cervical RFA using a perpendicular approach to the MB[2], as in our experience we find it is easier to perform and target the nerve location on the lateral mass. To note, there are no published peer-reviewed reports of using a perpendicular approach to perform cervical RFA[4].

Materials and Methods

This retrospective cohort study was performed at a primary academic center. Local IRB approval was obtained (IRB# 2023H0199). The electronic medical records of 39 consecutive patients who underwent cooled RFA (COOLIEF , Avanos Medical, Inc., Alpharetta, GA, U.S.A.) between January 2018, and June 2023, were reviewed. At this institution we target the lateral mass of the chosen level(s) with the RFA probe using a true perpendicular approach. Inclusion criteria were 1) age ≥18 years; 2) cervical neck pain for three or more months; 3) documented ≥50% symptom relief with dual concordant MBBs before RFA. Data collected included 1) age; 2) sex; 3) most recent pre-RFA neck pain via the numeric rating scale (NRS) ; 4) percentage of pain improvement with each MBB; 5) date of RFA; 6)RFA level and laterality. Post-RFA pain was determined by 6 weeks and 6 months visits and at the last available follow up date. Primary outcomes included the proportion of patients with ≥50% reduction of pain. Secondary outcomes included the proportion of patients who reported having significant pain relief at 6 weeks and 6 months post-RFA.



A: Lateral view to demonstrate positioning of the probe. B: Oblique AP view to check the depth of the lateral mass



The lateral approach compared to the other described approaches to perform cervical RFA.

Image adapted from van Eerd, M., de Meij, N., Dortangs, E., Kessels, A., van Zundert, J., Lataster, A., ... & van Kleef, M. (2014). Long-term follow-up of cervical facet medial branch radiofrequency treatment with the single posterior-lateral approach: an exploratory study. Pain Practice, 14(1), 8-15.

References

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3. Lord, S. M., Barnsley, L., Wallis, B. J., McDonald, G. J., & Bogduk, N. (1996). Percutaneous radio-frequency neurotomy for chronic cervical zygapophyseal-joint pain. New England Journal of Medicine, 335(23), 1721-1726.
4. Hurlley RW, Adams MCB, Barad M, et al. Consensus practice guidelines on interventions for cervical spine (facet) joint pain from a multispecialty international working group. Regional Anesthesia & Pain Medicine 2022;47:3-59.

Results

Of the 39 patients initially included in the query, 9 had to be excluded due to previous RFA on the same cervical side/levels, or for being lost to follow-up. A total of 30 procedures were included. Mean age was 58y (SD 10), NRS baseline score mean 7 (SD 1), the mean improvement after 2 MBB was 85% (SD 9%), 16 patients had bilateral pain to start with, average number of days between blocks was 45 (SD 54), average pain improvement after RFA was 79% (SD 16%) at the last follow up visit available, average duration of follow up was 6 months after RFA (SD is 10 months), 5 patients had 3 levels treated, and remaining had 1 to 2 levels treated with RFA, 17 patients had their TON treated (C2-C3). At the 6-week post-procedure time point, in 23 out of the total 30 procedures, there was a significant pain relief rated at least >50% compared to the NRS score at the baseline visit. At the 6 months post-procedure time point, of 10 procedures with available notes out of the total 30 procedures there was a significant pain relief rated at least >50% compared to the NRS score at the baseline visit. No serious adverse effects or complications related to the dual MBB or RFA were noted in the patient database.

Discussion

This is the first study to report a large series of RFAs performed using a true perpendicular approach including targeting the TON, together with the prevalence of pain outcomes and patient perception of change after RFA. 23 out of 30 patients obtained >50% reduction of index pain at a mean follow-up time of 6 months after RFA (SD 10 months). Of these 23, 13 patients had RFA including C2-C3 also with perpendicular approach, and had obtained ≥80% reduction of index pain at the last available follow-up. Cervical RFA is an effective treatment in select patients. The lateral approach allows for shallower access allowing better local anesthetic coverage for needle placement, with less need to penetrate deep into paraspinals. In our experience, this allows for easier targeting of the lateral mass along the course of the medial branch nerves as they differ anatomically in location at several levels.