

Introduction

- Cervical Facet Joint Syndrome (CFJS)** is a leading cause of axial neck pain in the elderly. Management becomes particularly challenging when conventional therapies fail to provide durable relief.
- Peripheral Nerve Stimulation (PNS) offers a **neuromodulatory alternative** for patients with refractory focal neuropathic pain, aiming to "reset" pain signaling pathways.¹
- PNS operates on the principles of the **Gate Control Theory**.²
- We report a unique case of an 87-year-old male with CFJS refractory to multiple interventions who received a 60-day SPRINT cervical PNS implant. He **did NOT achieve significant relief during the implant period**, but ultimately achieved significant and sustained analgesia (**60-70% relief**) **only after the PNS lead was removed**.

Case Presentation

- Patient: **87-year-old male** with PVD, OSA, and history of C4-C7 decompression.
- 1-year history of constant right neck pain** radiating to the occiput; **no upper extremity radiculopathy**.
- Aching, throbbing tightness.
 - Baseline: 6/10 (rest) to 8/10 (activity).
 - Aggravators: Cervical extension ("looking up") and rotation.
- Failed Interventions:** C6-C7 & C7-T1 ESIs, C3-C6 MBBs, C3-C6 RFAs, Trigger point injections, & C4-C7 decompression
- Intervention: **Placement of 60-day percutaneous SPRINT PNS system**, targeting C2-3 medial branch nerves.
 - 0-60 days: Limited relief (~25%) obscured by occasional "sharp jolts of pain."
 - Post-Explant: **60-70% sustained relief** and restored ROM (Pain score 3-4/10).

Results

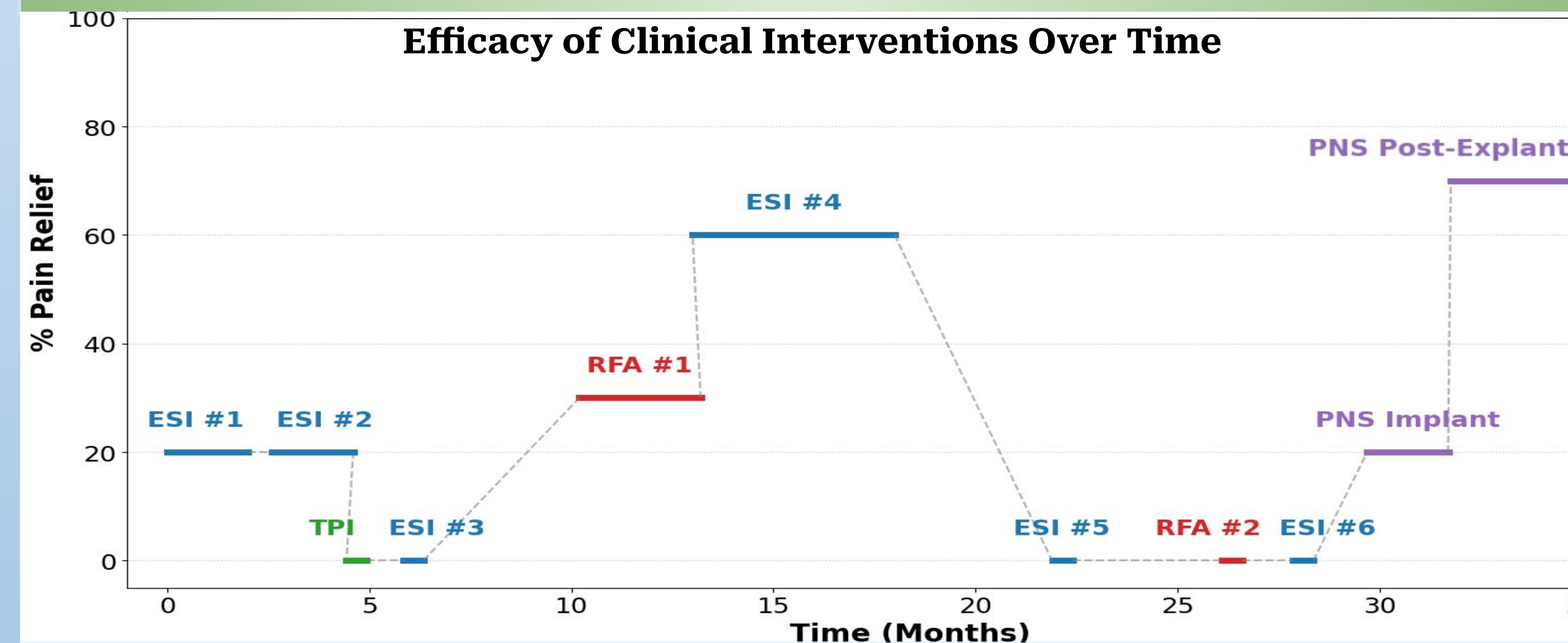


Figure 1. Timeline illustrating the various procedures administered and their efficacy over the course of this patient's disease.

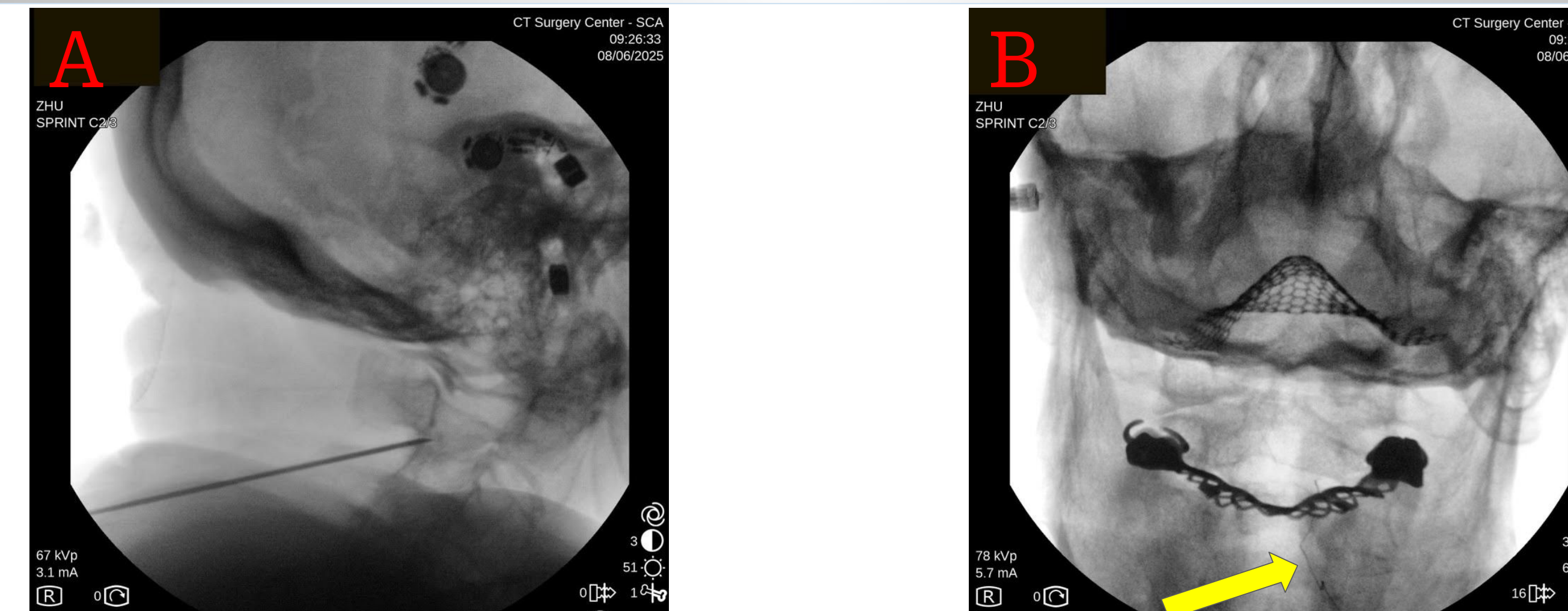


Figure 2. A. Lateral fluoroscopy image of the patient's heavily arthritic cervical spine along with the guiding needle. B. AP view of the cervical spine with the SPRINT PNS lead marked with an arrow.

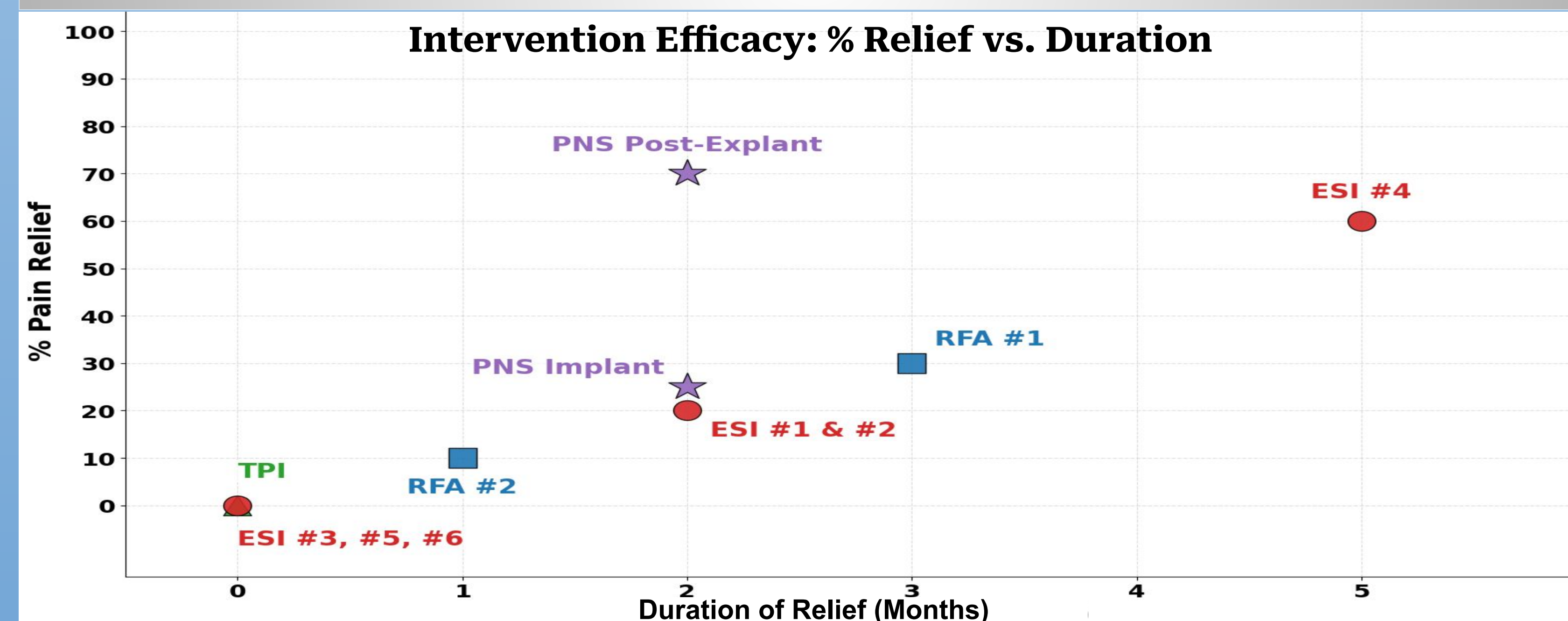


Figure 3. Graph illustrating efficacy (% pain relief) and duration of relief from various interventions for this patient.

Discussion

- Prior interventions yielded only **transient, sub-optimal analgesia** or failed to provide any clinical benefit at all
- The **“carry-over” effect** of PNS after lead removal has been well documented.³
- Masking Effect:** Positional "sharp jolts" suggested **mechanical lead irritation** in the thin cervical tissue.
- Clinical Pearl:** Mechanical lead irritation can mask the ongoing neuromodulatory benefit, or lead to subjective changes in pain scores.
- Clinical Takeaway:** In elderly patients with refractory pain, a technically successful PNS implantation should be evaluated by its **post-explant outcome** as the true "carry-over effect" may be unmasked only after mechanical irritants are removed.

Conclusions

- The **post-explant outcome** must be fully evaluated when assessing for treatment success to account for delayed **carry-over effects**.
- Mechanical Pain is a Confounding Factor:** Positional discomfort from lead irritation can **mask** therapeutic benefit.
- PNS is a Robust Option for Refractory Facet Joint Pain.**

References

- Kapural, L., et al. Percutaneous Peripheral Nerve Stimulation (PNS) for the Treatment of Chronic Low Back Pain: One-Year Follow-Up of a Randomized Controlled Trial. Pain Practice, 2016; 16(3): 297-303.
- Mendell LM. Constructing and deconstructing the gate theory of pain. Pain. 2014 Feb;155(2):210-216. doi: 10.1016/j.pain.2013.12.010. Epub 2013 Dec 12. PMID: 24334188; PMCID: PMC4009371.
- Gilmore CA, Deer TR, Desai MJ, Hopkins TJ, Li S, DePalma MJ, Cohen SP, McGee MJ, Boggs JW. Durable patient-reported outcomes following 60-day percutaneous peripheral nerve stimulation (PNS) of the medial branch nerves. Interv Pain Med. 2023 Mar 13;2(1):100243. doi: 10.1016/j.inpm.2023.100243. PMID: 39239603; PMCID: PMC11372989.