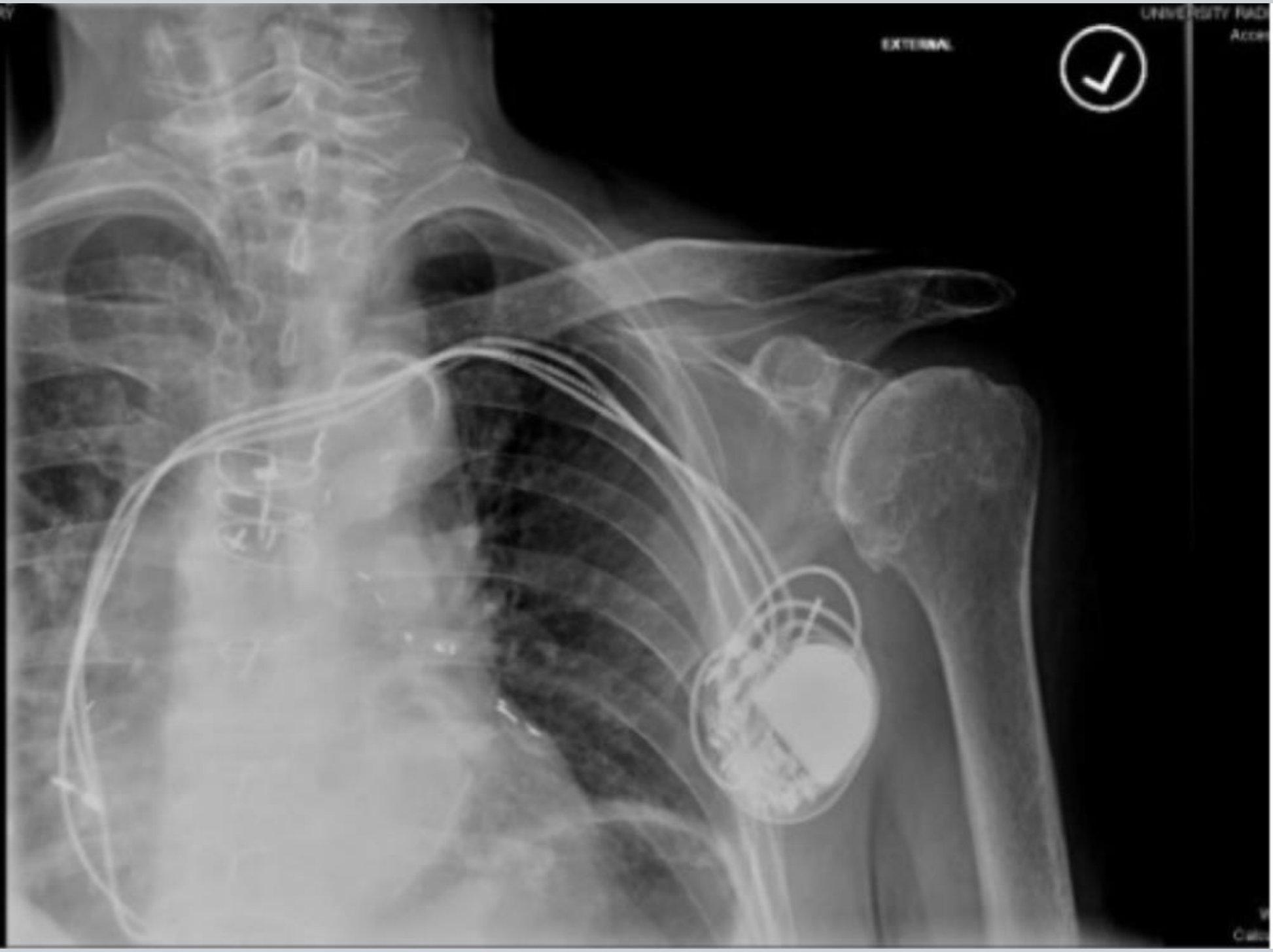
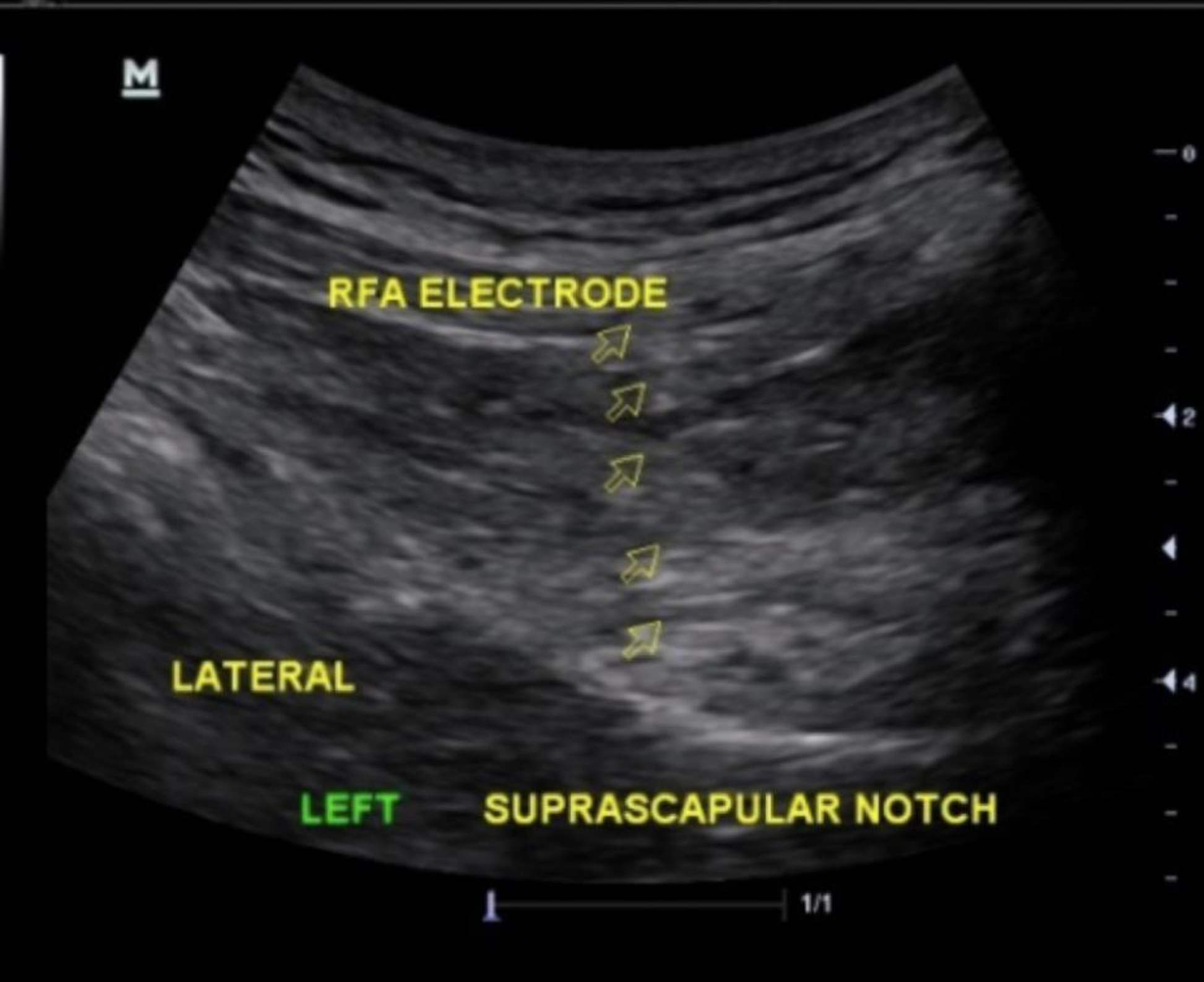
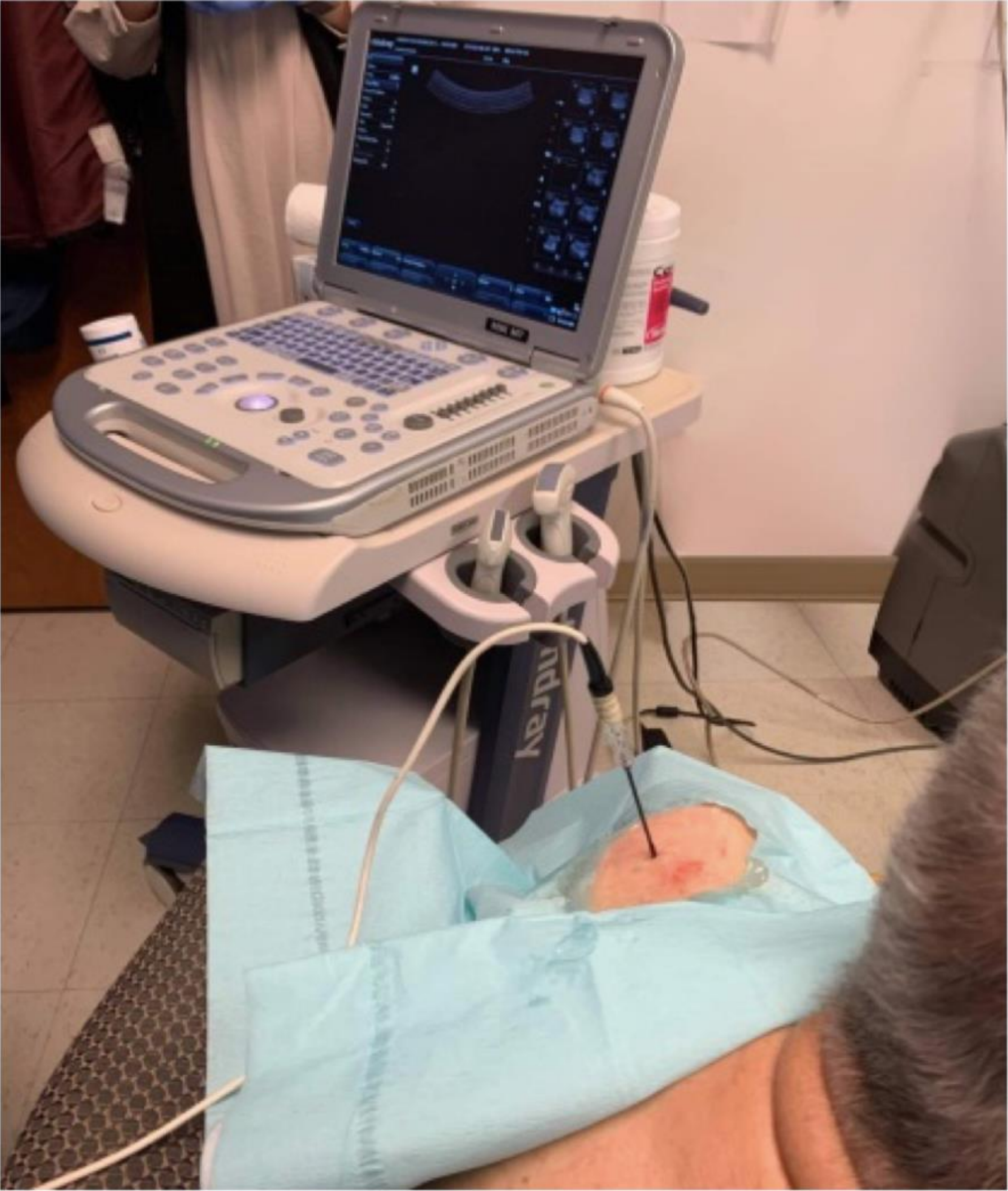


| Introduction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Methods & Results                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                   | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <ul style="list-style-type: none"><li><b>Shoulder osteoarthritis (OA)</b> is 2<sup>nd</sup> most common cause of chronic shoulder pain and disability in up to 20% of adults &gt;65 years old<sup>1</sup>.</li><li>Standard management: physical therapy, lifestyle modification, and NSAIDs; surgery reserved for advanced cases.</li><li>Many patients experience <b>persistent, refractory pain</b> despite conservative care (Activity modification, NSAIDs, PT, Intra-articular corticosteroid).</li><li><b>Pulsed radiofrequency (PRF) neuromodulation</b> provides analgesia without the neurodestructive risks of continuous radiofrequency ablation (CRF)<sup>2</sup>.</li><li>Evidence for PRF in shoulder OA is limited, highlighting the need for further clinical evaluation.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <p><b>Technique:</b><br/>Ultrasound-guided (Mindray M7 with a curvilinear transducer C5-2S) PRF of <b>suprascapular nerve</b> at the suprascapular notch.</p> <ul style="list-style-type: none"><li>16-gauge 10 cm RF electrode, <b>2 Hz at 40 V (20 ms active, 480 ms silent)</b>, temperature maintained <b>&lt; 42 °C</b>.</li><li>Two lesions applied with electrode tip rotation 180° to ensure circumferential coverage.</li></ul> |                                                                                                   | <p>CRF utilizes temperature between 60-90° C for 60-90s</p> <ul style="list-style-type: none"><li>Results in selective destruction of pain-carrying <b>unmyelinated A delta and C fibers</b>.</li><li>RFA with <b>temperatures &gt;65°C can result in axonal injuries</b><sup>3</sup>.</li></ul> <p>PRF offers a <b>safe, minimally invasive</b> option for refractory shoulder OA pain, particularly in elderly patients who are not candidates for surgery.</p> <ul style="list-style-type: none"><li><b>Mechanism:</b> Sub-ablative <b>temperature (&lt;42 °C)</b> allows <b>neuromodulation</b> rather than neural destruction of <b>C fibers</b><sup>4</sup></li><li>Advantages: reduced risk of neuritis or motor deficit compared with CRF.</li><li>Demonstrated significant pain reduction and functional improvement.</li></ul> <p><b>Conclusions:</b></p> <ul style="list-style-type: none"><li>Supports growing evidence for <b>suprascapular nerve PRF</b> as a viable analgesic intervention.</li><li><b>Further studies</b> warranted to clarify mechanisms, durability, and broader clinical efficacy.</li></ul> |
| <h3>Case Description</h3> <p><b>Patient:</b> 91-year-old man with 3-year history of severe left shoulder pain (10/10), limiting activity and sleep.</p> <ul style="list-style-type: none"><li>Sharp achy pain</li><li>Denies injuries or trauma, no prior surgery</li><li>No fevers, chills, weight loss, night sweats, bowel/bladder incontinence, numbness, neck pain</li></ul> <p><b>Findings:</b></p> <ul style="list-style-type: none"><li>X-Ray showed Advanced glenohumeral degeneration (Fig 1) as well as PPM, non-compatible with MRI</li><li>Failed conservative therapies (NSAIDs, PT, ultrasound-guided shoulder injection with 20mg Kenalog)</li><li>Diagnostic suprascapular nerve block resulted in <b>80% temporary relief</b>, confirming pain source.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | <p>Fig 1</p>                                                                                                                                                                                                                                                                                                                                          | <p>Fig 2</p>  | <p>Fig 3</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <h3>References</h3> <ol style="list-style-type: none"><li>Davies MR, Musahl V, Forsythe B, Calcei JG, Ma CB. Glenohumeral Osteoarthritis: Disease Burden, Current Understanding, and Gaps in Knowledge and Treatment. Orthop J Sports Med. 2025 May 19;13(5):23259671251339428. doi: 10.1177/23259671251339428. PMID: 40395677; PMCID: PMC12089719.</li><li>Cosman ER, Jr, Cosman ER., Sr Electric and thermal field effects in tissue around radiofrequency electrodes. Pain Med. 2005;6:405–424. doi: 10.1111/j.1526-4637.2005.00076.x.</li><li>Wray JK, Dixon B, Przkora R. Radiofrequency Ablation. [Updated 2023 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK482387/">https://www.ncbi.nlm.nih.gov/books/NBK482387/</a></li><li>Chua, N.H.L.; Vissers, K.C.; Sluijter, E.M. Pulsed Radiofrequency Treatment in Interventional Pain Management: Mechanisms and Potential Indications—A Review. Acta Neurochir. 2011, 153, 763–771.</li></ol> <p>IRB Status: Case report exempt from IRB review per institutional policy (no identifiable patient data).<br/>Patient Consent: Written informed consent obtained for both treatment and publication.</p> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |