

Long Thoracic Nerve Palsy Following Supraclavicular Catheter Placement: A Case Report

Caleb Frank, MD, Ryan Ivie, MD, Casey Luce, MD

Department of Anesthesiology at Oregon Health and Science University – Portland, OR

Introduction

- Long thoracic nerve (LTN) originates from the C5–C7 ventral rami and provides motor innervation.
- Dysfunction of the LTN results in scapular winging and impaired shoulder mechanics.
- The C5–C6 components commonly traverse within the middle scalene muscle, where the nerve may lie within the needle path during an interscalene block
- In the supraclavicular fossa, the LTN remains within the potential needle path but this risk is not well appreciated.

Case Presentation

- 60-year-old man underwent right carpometacarpal arthroplasty with suture suspensionplasty and left carpometacarpal steroid injection.
- For postoperative analgesia, a right supraclavicular catheter was placed preoperatively under ultrasound guidance with 18mL of 0.5% bupivacaine administered. No paresthesia or pain was reported.
- On postoperative day five, the patient developed tightness and pain involving the right shoulder, lateral chest wall, and arm.
- On postoperative day 12, he noted new onset of right scapular winging associated with recurrent pain and episodic shortness of breath attributed to shoulder girdle spasms; the winging persisted with progressive weakness and shoulder girdle atrophy. He was unable to lift a 20-pound weight overhead.

Images

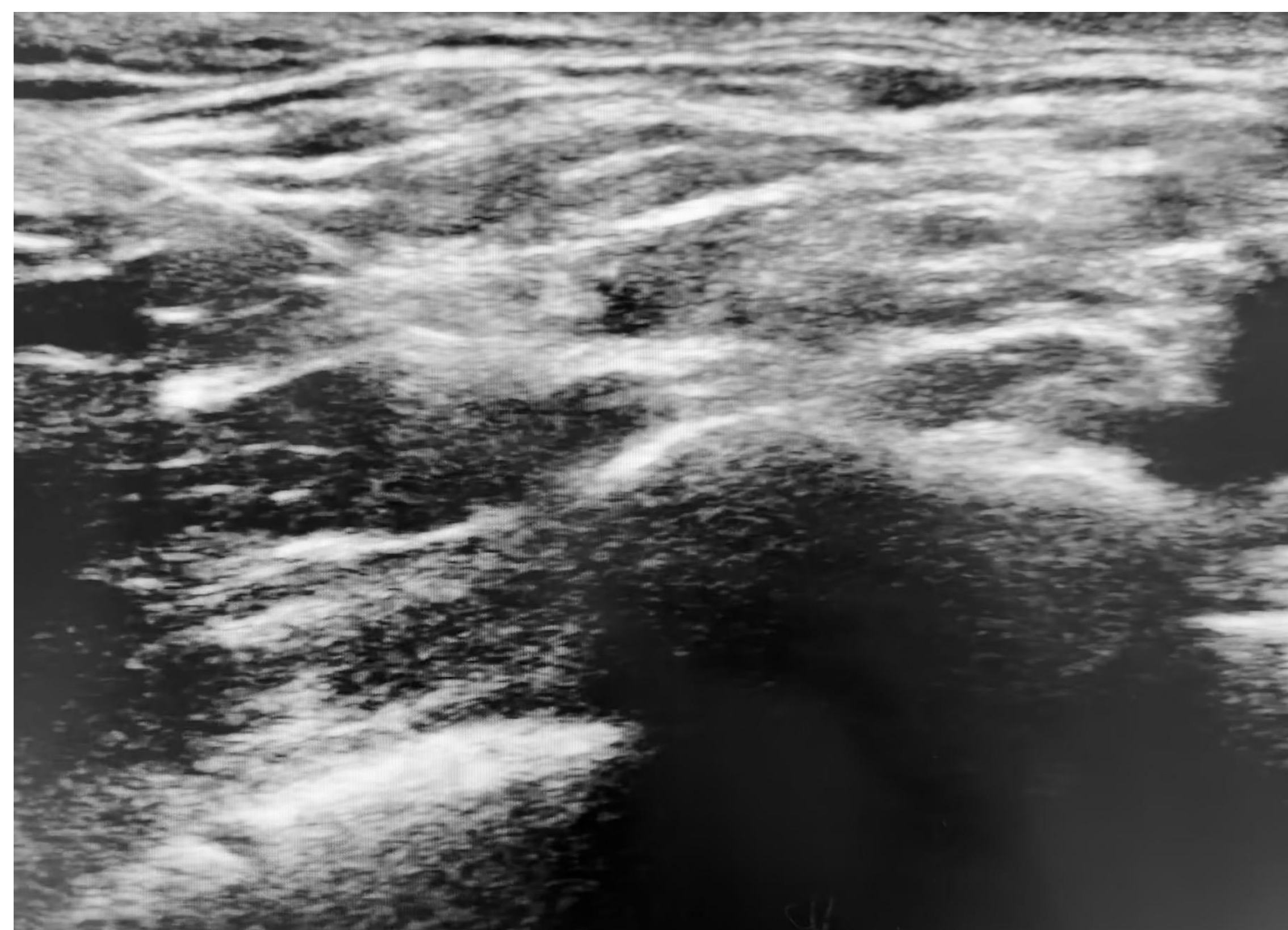


Figure 1. Ultrasound image the supraclavicular approach to the brachial plexus for this patient demonstrating needle passing through the prevertebral fascia lateral to the suprascapular nerve (SSN)



Figure 2. Ultrasound image of a supraclavicular block view in a standardized patient with suprascapular nerve (SSN) and long thoracic nerve (LTN) identified

Electromyographic Studies

- Electromyography (EMG) studies demonstrated right long thoracic nerve palsy with ongoing denervation and partial reinnervation.
- Needle examination of the right serratus anterior showed increased insertional activity with fibrillation potentials and positive sharp waves, prolonged motor unit durations, polyphasic potentials, and mildly reduced recruitment.
- No other nerve dysfunction was noted.

Discussion

- Review of procedural images demonstrated a standard supraclavicular approach with needle passage lateral to the suprascapular nerve and brachial plexus.
- In the supraclavicular fossa, the LTN lies deep to the omohyoid muscle and prevertebral fascia, superficial to the serratus anterior, and lateral to the suprascapular nerve, potentially in the needle path of a supraclavicular block.
- Long thoracic nerve injury following regional anesthesia is rare and likely unavoidable.
- Attempting to visualize LTN will often be unrevealing; hydrodissection and close attention to patient feedback remain important.
- Needle proximity to the LTN may not produce classic paresthesia despite the presence of myofascial pain afferents, making sensory warning unreliable.