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Introduction

- The suprascapular nerve (SSN) arises from the superior trunk of the brachial plexus C5-C6 (possibly C4); it descends posteriorly, passing through the scapular notch, innervating the supraspinatus and infraspinatus muscles.
- It provides sensation for the posterior shoulder capsule, acromioclavicular joint, subacromial bursa, and coracoclavicular ligament.

Case Report

A 42-year-old male presents with a tear of his extensor mechanism in the right elbow requiring debridement of the extensor carpi radialis brevis and ulnar collateral ligament repair. The patient had a pre-op EMG demonstrating diffuse sensory motor polyneuropathy.

Prior to surgical intervention, a supraclavicular brachial plexus block (SCBPB) was performed with ultrasound guidance via a linear transducer using an in-plane technique—approaching lateral to medial with an 18-gauge tuohy needle. 25 ml of 0.5% ropivacaine was administered and a catheter was inserted for post-op analgesia.

Case Report Cont.

During multiple post-op assessments, he reported shoulder pain and right arm weakness. Physical exam revealed atrophy of the supraspinatus and infraspinatus on the right side (**Figure 1**).

The patient displayed medial displacement of the right scapula suggesting involvement of the nerves that innervate the serratus anterior (**Figure 2**).

Electromyography (EMG) demonstrated severe active suprascapular neuropathy without voluntary motor unit activation in addition to right median neuropathy in the arm with axonal and demyelinating features. Serial EMG studies demonstrated gradual improving innervation of the muscle, including almost complete resolution of fibrillation potentials over 18 months.

Discussion

- Regional anesthesia literature is limited in describing the incidence of SSN neuropathy from SCBPB, thus it does not give valuable insight into preventative measures, nor prognosis of nerve injury recovery.
- Implementation of ultrasound guidance has greatly reduced the risk of complications with regional anesthesia, however, iatrogenic nerve injury still occurs.

Figure 1



Figure 2



Suprascapular Nerve Injury

Conclusions

- Practitioners cannot, with certainty, ensure avoidance of the SSN during a SCBPB for this reason, we recommend utilization of neurostimulation in addition to ultrasound guidance for SCBPB, whenever possible.
- Consistent utilization of both ultrasound and neurostimulation during a SCBPB, while not currently a gold standard of care, may further reduce the risk of accidental nerve injury.

References

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