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Case Presentation

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Supraclavicular Nerve Lesions: A Very Common Condition Rarely Diagnosed

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Abstract

A common neurological condition presenting with shoulder pain that is mis-diagnosed, often leading to unnecessary surgery.

Introduction

Lesions of the anterior branch of the supraclavicular nerve are frequently described in relation to fractures of the clavicle, or in relation to nerve blocks. Lesions of the trunk of the SCN are said to be rare, but in fact are very common, and the diagnosis is simply being missed. These patients usually present following a shoulder injury with persistent shoulder pain for which no obvious cause can be found; the cause is frequently wrongly assumed to be due to impingement. The key to making the diagnosis is the finding of diminished sensation over the top of the shoulder in the distribution of the SCN.

Material

The material for this review is a collection of 60 cases, with an equal male to female ratio.

Mechanism of injury

A wide range of injuries is described, the most common being traction injuries, as well as falls onto the shoulder, motor vehicle injuries, and one case of a female bar tender who spends most of her working time shaking a cocktail shaker with her arm in an elevated position!

Anatomy of the Supraclavicular Nerve

The anterior rami of C3 and C4 combine to form the trunk of the SCN **(Figure 1),** which emerges from the posterior border of sternomastoid to enter the posterior triangle of the neck **(Figure 2).** The nerve divides into three main branches **(Figure 3):**

- Medial (anterior): supplying the anterior chest wall from the midline and as far down as the second rib.
- Lateral (intermediate): supplying the skin over the top of the shoulder and laterally over the acromion as far as the upper deltoid.
- Posterior: runs over the trapezius supplying the skin as far down as the spine of the scapula.

The typical area of sensory loss is shown in **Figure 4.** Note that it extends to the base of the neck.

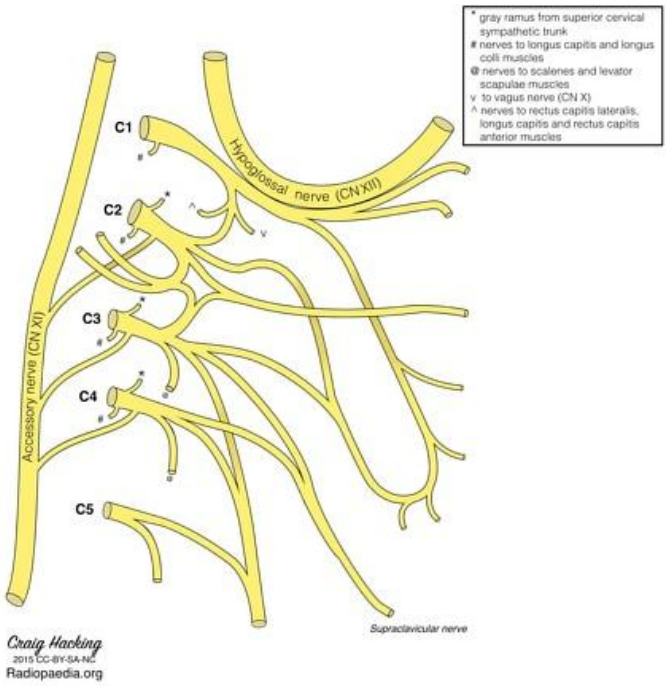

Figure 1: The anterior rami of C3 and C4 combine to form the trunk of the SCN.

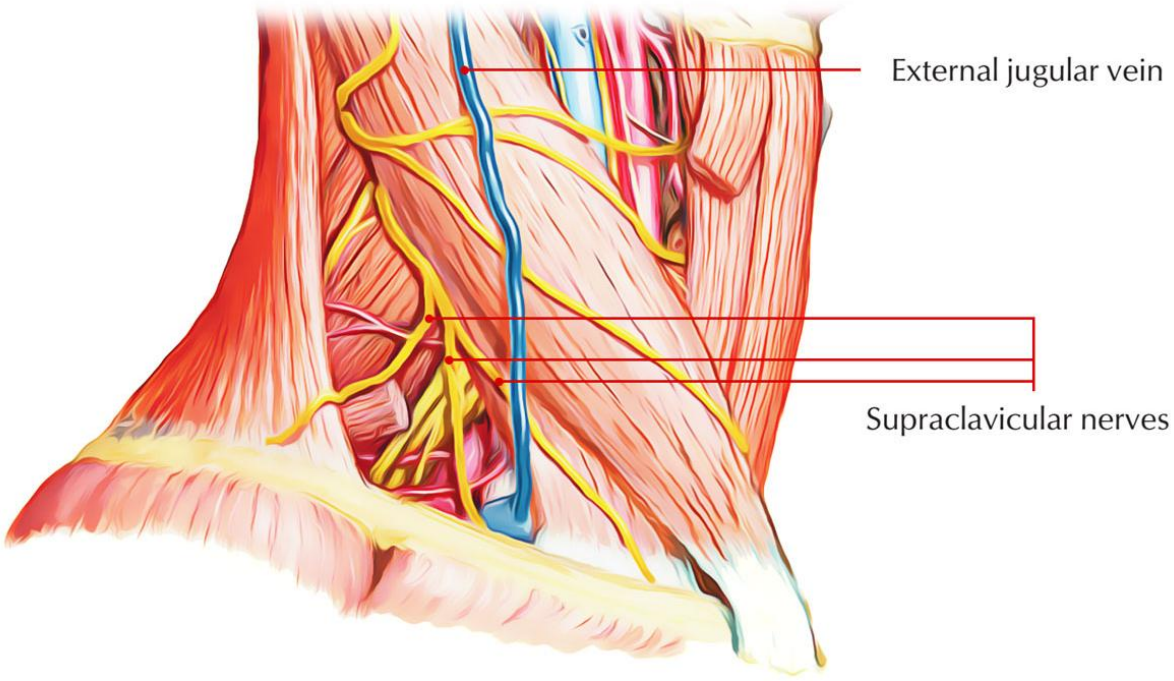

Figure 2: The SCN emerges from the posterior border of sternomastoid to enter the posterior triangle of the neck.

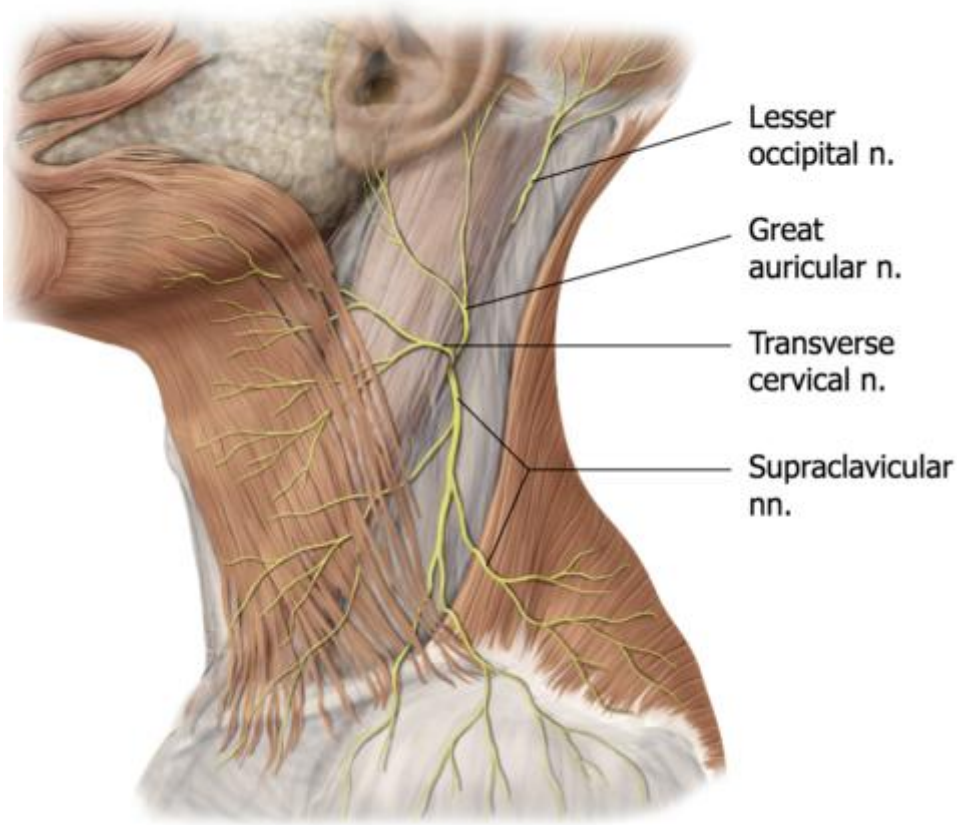

Figure 3: The three main branches of the SCN.

Figure 4: Area of sensory loss.

Diagnosis

There are three clinical signs that help to make the diagnosis:

- Diminished sensation in the area depicted in Fig 4, a sign which is present in every case; if not tested for, the diagnosis will be missed
- Localised tenderness to percussion over the posterior border of sternomastoid where the SCN enters the posterior triangle.
- In a large percentage of cases the percussion will produce parathesias radiating over the top of the shoulder (a positive Tinel's sign).

Nerve conduction studies will confirm the diagnosis. (It should be recalled that the SCN is a purely sensory nerve).

Treatment

In this series of patients conservative treatment had been unsuccessful and the majority had had decompressive surgery of the shoulder carried out without improvement. Failure to make the diagnosis may explain why ill-advised but frequently undertaken subacromial decompression for isolated so-called 'sub-acromial bursitis' reported on ultrasound or MRI, frequently fails to relieve associated symptoms (a).

The recommended tests should therefore be carried out in all cases of non-specific shoulder pain, in the hope that the correct diagnosis would save many patients from inappropriate subacromial surgery [1,2].

Conclusion

The author presents a very common condition with specific clinical signs which should always be looked for in all cases of 'non-specific' post-traumatic shoulder pain:

- ❖ Careful sensory testing over the top of the shoulder, anteriorly, laterally, and posteriorly.
- ❖ Localised tenderness, often with parasthesia on percussion, over the posterior border of sternomastoid where the SCN enters the posterior triangle of the neck.

(a) See 'Lesions of the Posterior Branch of the Axillary Nerve'. Roger Pillemer. Mega Journal of Case Reports: July 09, 2023.

References

1. Roger Pillemer. Handbook of Upper Extremity Examination. Springer. 2022:208.
2. Roger Pillemer YouTube. Supraclavicular nerve lesions. 2023.

Citation of this Article

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