



Delayed Presentation of Horner’s Syndrome after an Interscalene Block

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Case Report

35 yo female presented to the emergency department at midnight following a right shoulder rotator cuff repair earlier in the day. She complains of a droopy eyelid, constricted pupil, unequal pupils and facial numbness on the right. Patient’s past medical history is significant for mild asthma for which she takes symbicort daily and albuterol as needed, she also has anxiety for which she takes no medications. The patient received an ultrasound guided preoperative interscalene block at 7am, for post operative pain control. The anesthesiologist injected, without difficulty, 20cc of 0.5% bupivacaine. There was good visualization of the nerve roots C5-C7. The patient stated she felt short of breath immediately after the block and felt she could not swallow or speak, even though she was swallowing and speaking clearly. She thought this may be due to her anxiety. She was able to take deep breaths and symptoms resolved quickly. The patient was taken to the operating room following the block placement and general anesthesia was induced with lidocaine, propofol and rocuronium. The patient was an easy mask and a 7.0 endotracheal tube was placed without difficulty. The patient was placed in a bench chair position. The surgery was uneventful. At the end of the case the patient was extubated and taken to the recovery room. PACU course was without issues and patient was discharged pain free with her shoulder, arm and hand completely numb. At approximately 10 pm, patient stated she noticed sudden onset of right ptosis, miosis, enophthalmos, numbness/tingling along the right side of her face, she did not notice this earlier in the day. She was concerned and presented to the emergency department with her husband. Anesthesia was consulted and asked if symptoms could be related to the block even though typically symptoms present immediately after the block and this was delayed. Her block worked well and she was just starting to regain feeling in her fingers, arm and some pain in her shoulder at the operative site. She was not short of breath, had no problems speaking or swallowing. A work up was suggested to rule out other pathology due to the delayed presentation of symptoms. A CT scan was done that was completely normal, neurology was consulted and confirmed the symptoms and the diagnosis of Horner’s Syndrome. Despite the delayed onset of symptoms, due to a negative work up, the symptoms were attributed to the interscalene block performed 20 hours earlier the patient was sent home and the symptoms resolved over the next 24 hours.

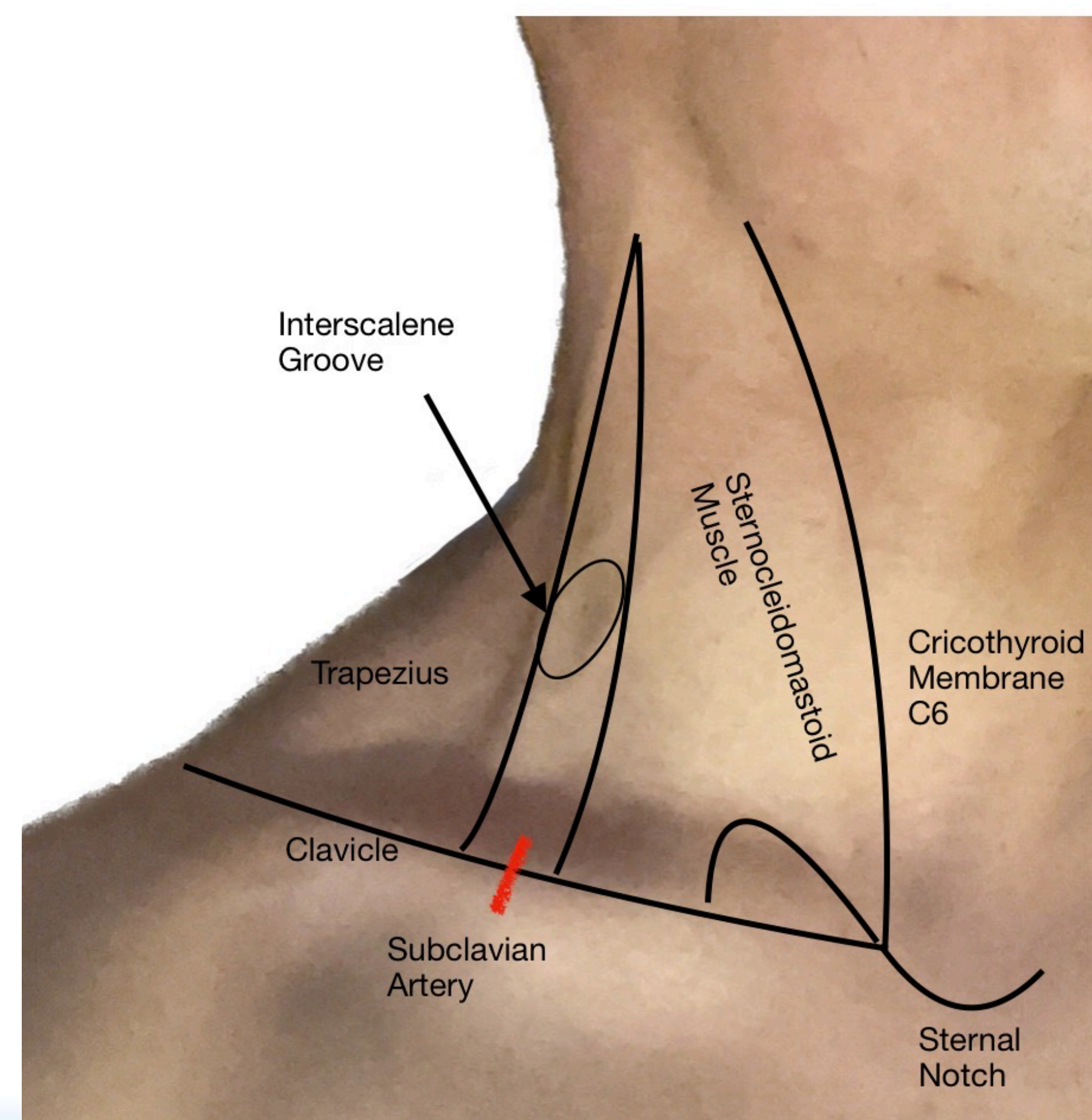


Figure 1:
Interscalene groove

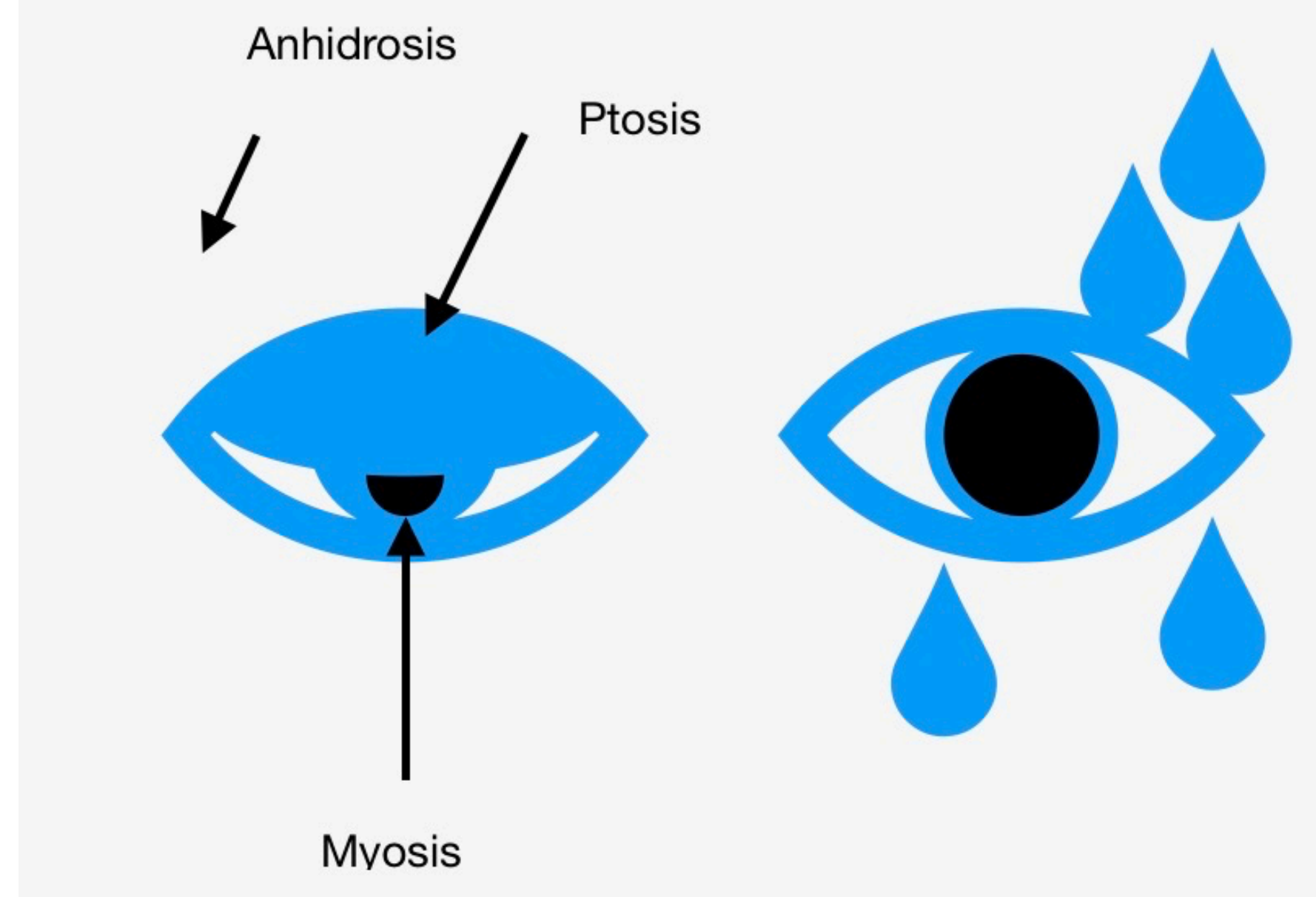


Figure 2:Horner’s Syndrome symptoms

Discussion

Interscalene blocks (ISB) are indicated for analgesia after upper arm and shoulder surgery. They work by blocking the nerve roots of the brachial plexus. ISB targets the nerve roots of the ventral rami of C5 and C6 (Figure 3). The nerve roots run in the interscalene groove at the level of the sixth cervical vertebra between the anterior and middle scalene muscles, deep to the sternocleidomastoid muscle. This is also the level of the cricoid cartilage. The ISB is a reliable block for shoulder surgery with a 99% success rate when using an ultrasound and a complication rate around 2.3 %.(1) The common complications for peripheral nerve blocks apply to interscalene nerve blocks as well. These include potential local anesthetic toxicity, hematoma and bleeding as well as nerve injury. The most common complication with an ISB is phrenic nerve paralysis, with reports as high as 90-100% with nerve stimulation guidance versus about 45% using an ultrasound and lower volumes of local anesthetics. Lowering local anesthetic volumes and injecting into the interscalene groove,(figure 1) which is at the level of the cricothyroid membrane at C6, and covering only C5 and C6 nerve roots can limit phrenic nerve palsy to as low as 21%. (2,3). Other known complications of the ISB are Horner’s syndrome, hoarseness, pneumothorax, total spinal/epidural anesthesia and numbness in the posterior auricular nerve area. Horner’s syndrome is caused by local anesthetic (LA) spreading to the cervical sympathetic chain causing an ipsilateral stellate ganglion block. Hoarseness is due to LA numbing the recurrent laryngeal nerve and can occur in 40-60% of patients(4,5). Both are self-limiting and should resolve as the block wears off. The stellate ganglion and the recurrent laryngeal nerve are both in close proximity to the brachial plexus in the lower part of the neck, easy to numb when doing an interscalene block.

There have been several case reports of delayed presentation and long-lasting symptoms of Horner’s syndrome following continuous interscalene nerve catheter placement lasting a year and a few case reports of long-lasting symptoms after a single injection lasting up to 6 months. (6). Studies have shown the incidence of Horner’s syndrome ranges from 6-12% with the lowest numbers reported using an ultrasound and nerve stimulator together for block placement (7).

Typically Horner’s syndrome symptoms appear immediately after the block is placed, with some reports of delays of up to 40 minutes. The symptoms usually last less than 3 hours with no sequelae. Symptoms are ptosis, miosis, anisocoria, anhidrosis, and enophthalmos. (Figure 2). There are case reports of delayed presentation of Horner’s syndrome and prolonged duration following a single-shot ISB, but that is uncommon and not well known.(8) There is no treatment and it is self-limiting. Patients need to be reassured that the symptoms will resolve and there are no long-term sequelae. Other causes need to be ruled out, especially with a delayed presentation. Horner’s syndrome can also be due to a TIA or stroke, neck hematoma, infection, or some kind of mass or trauma to the area. Symptoms can be caused by trauma to the carotid artery, subclavian artery, or jugular vein. Imaging such as CT or MRI is indicated to rule out other causes.(9) Poor surgical positioning of the neck could be another cause of Horner’s syndrome symptoms (10).

This patient presented with Horner’s syndrome 12 hours after the nerve block, which was concerning. There was another cause for her symptoms. She had imaging which was negative, and her symptoms resolved after 24 hours. She did have some subjective problems with talking and swallowing immediately following the block, which could indicate a block of the right recurrent laryngeal nerve, as well as a delayed right-sided Horner’s syndrome, which indicates a block of the right stellate ganglion.

Conclusion

This is a case of delayed onset of Horner’s syndrome in a patient that had an interscalene block for shoulder surgery. It is possible the patient did not notice her symptoms after surgery due to residual sedation from the anesthesia, but the anesthesia team and PACU nurses did not document any symptoms or concerns before she was discharged. This is an unusual timing for this complication, but nonetheless, no other diagnosis was given. Consideration should be given to rule out other causes of the symptoms before assuming it is from the block, but one should not rule out a delayed onset of symptoms and prolonged duration of symptoms after a one-shot interscalene block, as in this case.

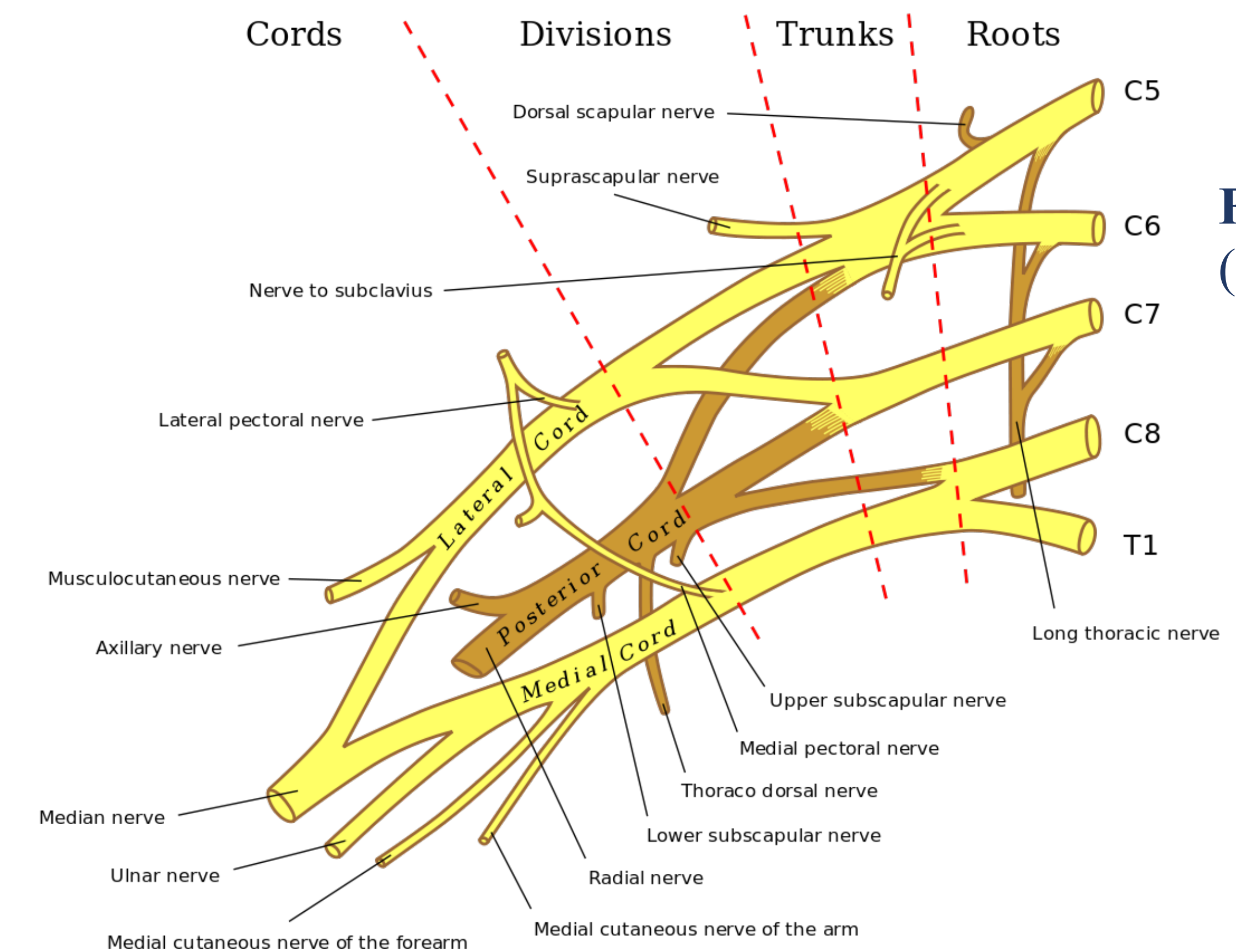


Figure 3: Brachial Plexus (12)

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