

Ipsilateral hearing loss after retroclavicular approach to infraclavicular catheter placement for index finger amputation.

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Introduction

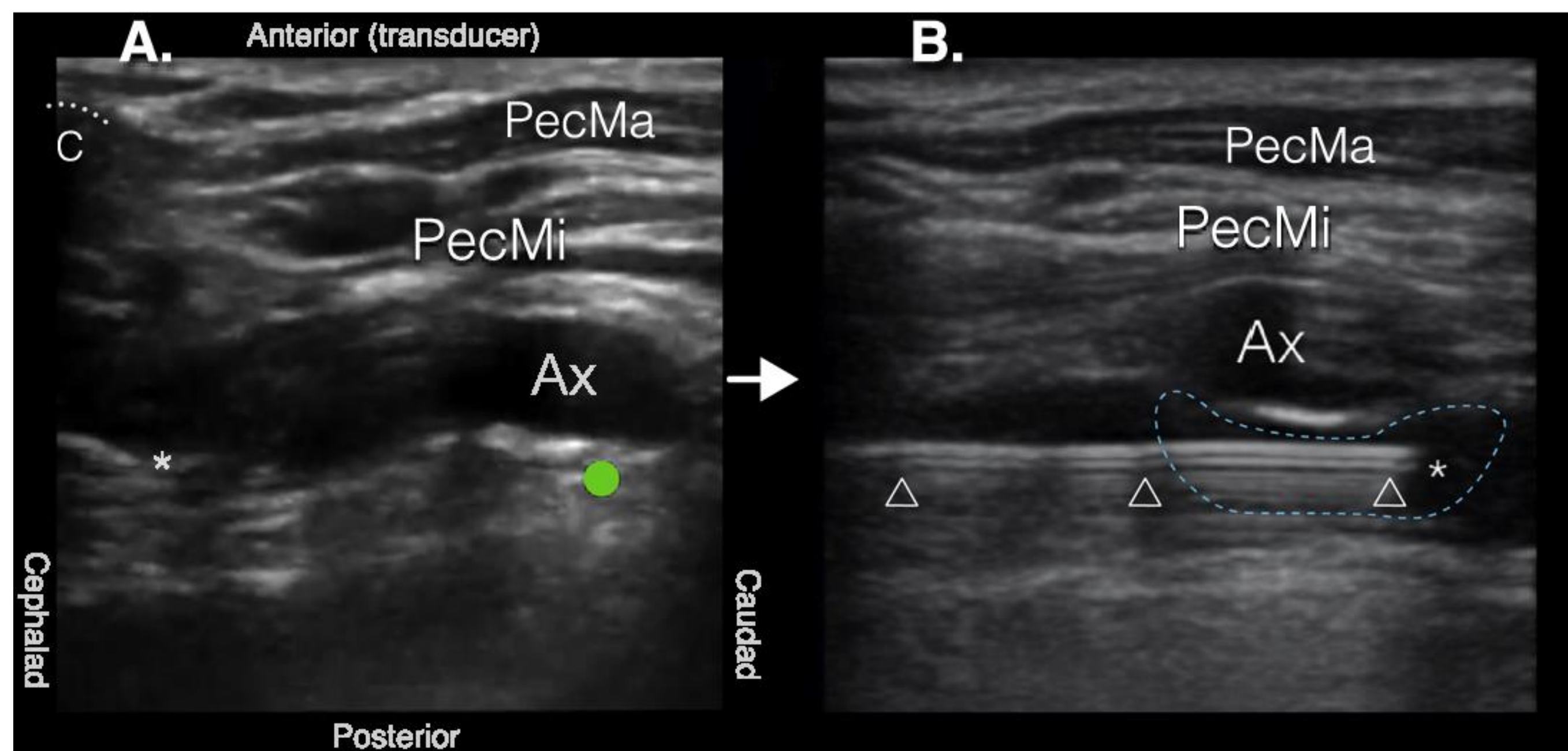
Infraclavicular nerve block catheter placement is a frequent practice in our institution. Patients undergoing upper extremity surgery that will require multiple dressing changes or washouts are believed to be ideal candidates for this technique which is considered a moderate-risk procedure.

The most mentioned complications related with block placement are infection, bleeding, nerve injury, and in rare cases Horner's syndrome, pneumothorax, or hemidiaphragm paralysis.

We present a case of ipsilateral hearing loss following a retroclavicular nerve block catheter placement.

Material and Methods

According to our institutional guidelines, the patient was called and consented in person to present current cases. Consent has been saved in a locked storage where all informed consents are archived.



Case report

-A **60-year-old female** with a BMI of 24 kg/m² with a past medical history of CREST syndrome, coronary artery disease, hypertension, dysautonomia, and Raynaud's Syndrome, developed osteomyelitis of the L hand and presented to the operating room for amputation of the left index finger.

-The patient received a **retroclavicular catheter under US guidance** for perioperative pain management. An 18G needle (Pajunk, Touhy tip, 10 cm) was inserted in the retroclavicular space and then directed to the posterior side of the axillary artery next to the posterior cord.



-A total of **20 ml** of a mixture of 10 ml of Bupivacaine 0.25% and 10 ml of 1.5% mepivacaine was injected with even spread surrounding the artery. An epidural catheter (Braun perfix multiport) was inserted and secured at 5 cm at the skin, therefore 0.5 cm at the space.

-The surgery was completed uneventfully under regional anesthesia and the patient was transferred to PACU and an **infusion of bupivacaine 0.125% at 6ml/h was started**.

-On postoperative day **(POD) 0**, the patient reported **left-sided ptosis and decreased hearing** on the left side. On assessment, ptosis had resolved, but the patient's left-sided hearing loss was still present. She denied local anesthetic toxicity symptoms, and her vitals were stable. On exam, a complete motor block of the left upper extremity was present. Therefore, the infusion rate was decreased to 3ml/h. Once this change was made, the patient's **hearing improved in the left ear, but not back to baseline**.

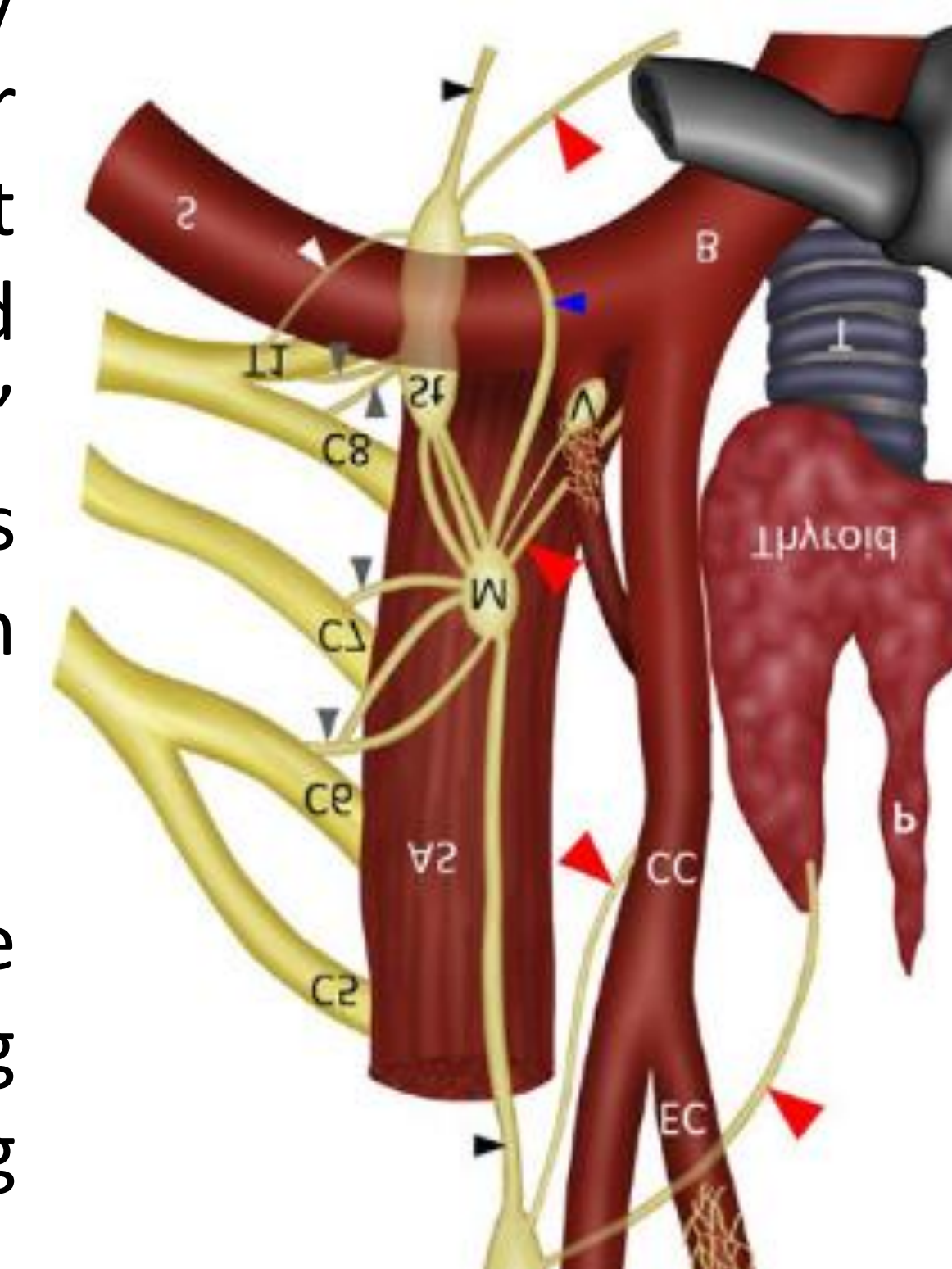
-**POD 1** the patient's left-hand pain increased, so the infusion was increased back to 6 ml/h and continued until POD4. She did not experience any further episodes of L-sided ptosis, and her hearing remained stable on the left side. The catheter was stopped and pulled uneventfully on POD 4. **Currently patient reports mild hearing loss**.

Discussion

The retroclavicular nerve approach has been used over the last 10 years in our institution, usually associated with fewer adverse effects due to its distance from the phrenic nerve and a lower chance of pneumothorax (1). There are reports of Horner's syndrome (1) secondary to the spread of local anesthetic into prevertebral spaces involving the sympathetic nerves and communicating with cervical nerve trunks. (2-3) Hearing loss has been reported after an interscalene nerve block. It is thought to be **secondary to the sympathetic block that produces vasodilation and edema of the mucosal layer of the middle ear** and eustachian tube with subsequent deterioration of hearing. (4)

This phenomenon was demonstrated by Rosenberg (4) who assessed patients after interscalene nerve block for different audiometric threshold measurements and found variable frequencies at which patients' hearing impairment occurred, but it was transitory and returned after the infusion was stopped.

We hypothesize that during this case the sympathetic chain might be reached during this approach and cause the hearing deficiency.



Works Cited

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