

Resident fellow section: Teaching images

Ultrasound assessment of a supraclavicular lipoma entrapping the brachial plexus: a diagnostic insight

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A 63-year-old woman presented with swelling in the left supraclavicular area that had persisted for 6 months. Initially, she experienced no pain in the swollen region, but over time she began to notice intermittent soreness (without any weakness) in her left upper extremity, particularly when carrying a backpack compressing the supraclavicular region.

During the examination, a bulging area in the supraclavicular region was observed without apparent skin color changes. Palpation revealed an elastic superficial mass with no sensory or motor deficits in the left upper extremity. Following ultrasound examination of her left suprascapular region, a well-demarcated hypoechoic mass measuring 7.1 × 3.5 × 3.6 cm was identified in the subcutaneous layer, exhibiting several hyperechoic strata. The mass was located over the brachial plexus. While talking, the omohyoid muscle glided under the mass over the suprascapular nerve (Fig. 1A). Rotation of the ultrasound transducer along the long axis of the brachial plexus revealed the anterior edge of the mass, which approximated the clavicle but did not extend to the infraclavicular region (Fig. 1B). Given the impression of a supraclavicular lipoma (with potential entrapment of the brachial plexus), the patient was referred for surgery.

Ultrasound imaging is highly effective in evaluating superficial mass lesions, with lipomas being the most prevalent type [1]. They display variable echogenicity, ranging from hypoechoic to isoechoic and hyperechoic, compared to adjacent muscles. A distinct linear internal echoic pattern resembling stripes is frequently observed. Lipomas are typically well-defined, often assuming an elongated fusiform shape, and generally lack intralesional vascularity. Although lipomas are usually not painful, they may become symptomatic if their size leads to a mass effect, causing compression of nearby neurovascular structures [2].

The supraclavicular region is vulnerable to compression of the brachial plexus owing to a lack of muscle coverage. In this region, the suprascapular nerve is separated from the brachial plexus and courses superficially. It travels alongside the omohyoid muscle where the suprascapular nerve may be entrapped [3]. When a lipoma is located in the subcutaneous tissue, there is usually sufficient space for expansion without direct compression of the brachial plexus. However, external factors such as tight clothing and carrying a heavy backpack can lead to a mass effect due to the lipoma initially irritating the suprascapular nerve and subsequently the brachial plexus. Furthermore, the lipoma may be partially squeezed into the costoclavicular space upon external compression, further increasing the risk of brachial plexus entrapment and causing symptoms resembling those of

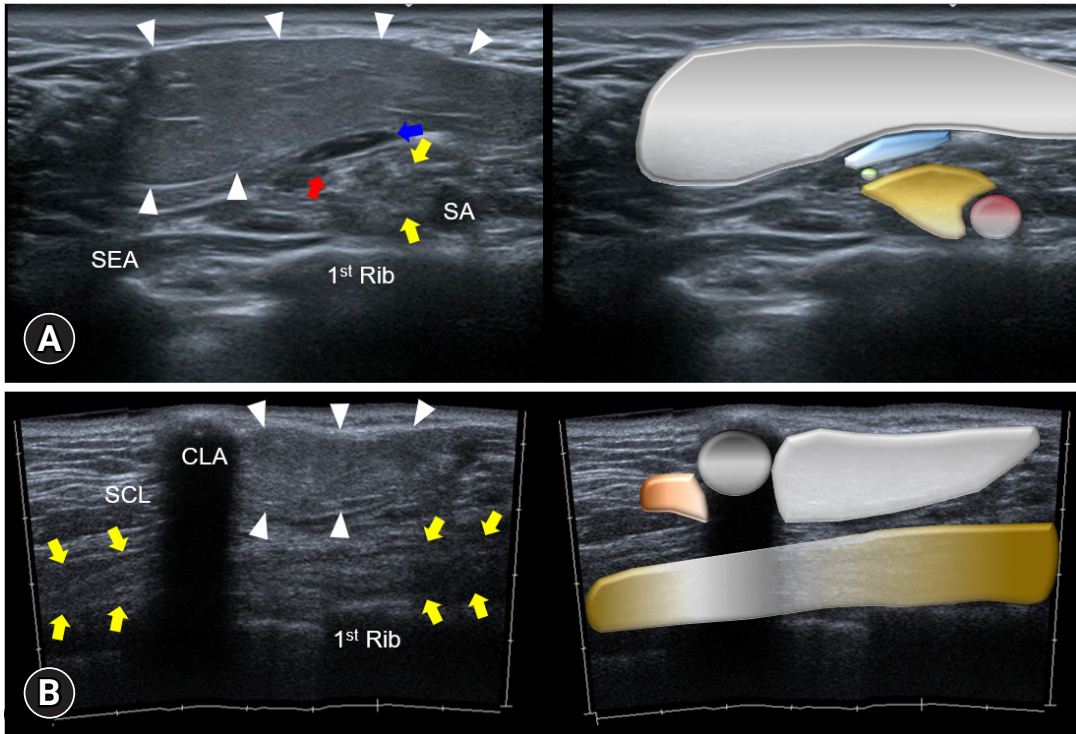


Fig. 1. Ultrasound imaging and schematic representation of a supraclavicular lipoma are depicted in both the (A) short axis and (B) long axis views of the brachial plexus. The supraclavicular lipoma (arrowheads) is a well-demarcated hypoechoic mass. The brachial plexus (yellow arrows), omohyoid muscle (blue arrow), and suprascapular nerve (red arrow) are present. SEA, serratus anterior muscle; SA, subclavian artery; SCL, subclavius muscle; CLA, clavicle.

thoracic outlet syndrome [4].

In summary, ultrasound is valuable for differentiating supraclavicular masses and identifying brachial plexus pathologies. When symptoms suggest the involvement of any neurovascular structure, elucidating the anatomical relationship between the mass, brachial plexus, and subclavian vessels is also helpful.

Learning points

- Ultrasound is highly effective in differentiating and characterizing superficial masses, particularly lipomas, offering insights into echogenicity, shape, and internal features.
- Supraclavicular lipomas, although typically non-painful, can become symptomatic, causing neurovascular compression, especially in the absence of muscle coverage. External factors, such as tight clothing and backpack use, can exacerbate symptoms.

- Anatomical considerations such as the vulnerability of the suprascapular nerve and the potential mass effect on the brachial plexus underscore the importance of ultrasound in delineating the relationship between masses, neurovascular structures, and subclavian vessels in the supraclavicular region.

Article information

Ethical statements

Written patient consent was obtained for the publication of this report.

Conflicts of interest

Ke-Vin Chang and Wei-Ting Wu have been editorial board members of *Journal of Yeungnam Medical Science* since 2021. They were not involved in the review process of this manuscript. There are no other conflicts of interest to declare.

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Author contributions

Conceptualization, Funding acquisition: KVC, WTW, LÖ; Investigation: KVC, KM, VR; Validation: WTW, LÖ; Writing-original draft: WTW; Writing-review & editing: KVC, KM, VR, LÖ.

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