

Ultrasound imaging of the hypoglossal nerve: tools and techniques

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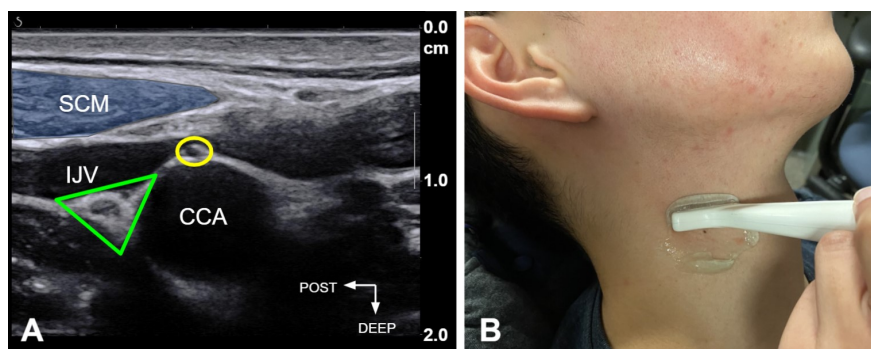
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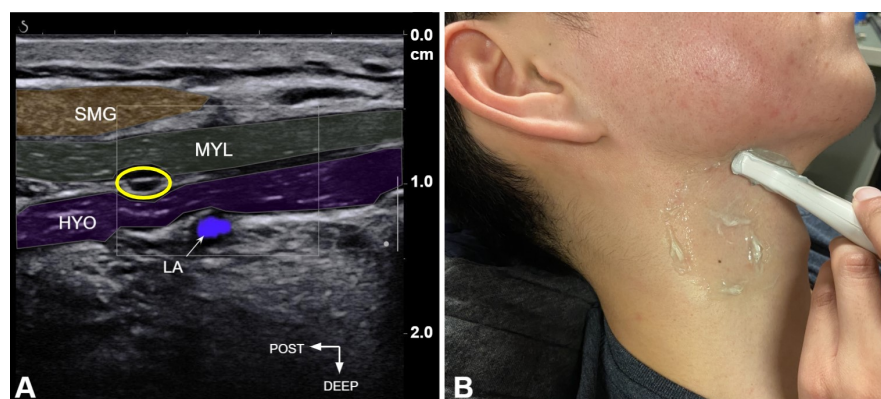
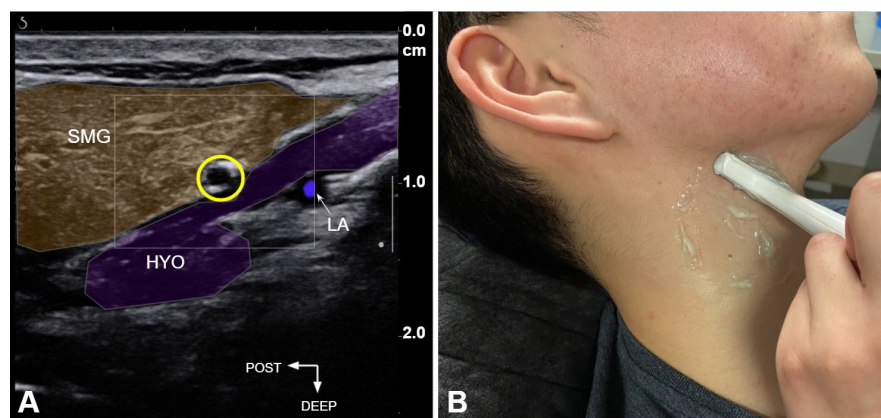
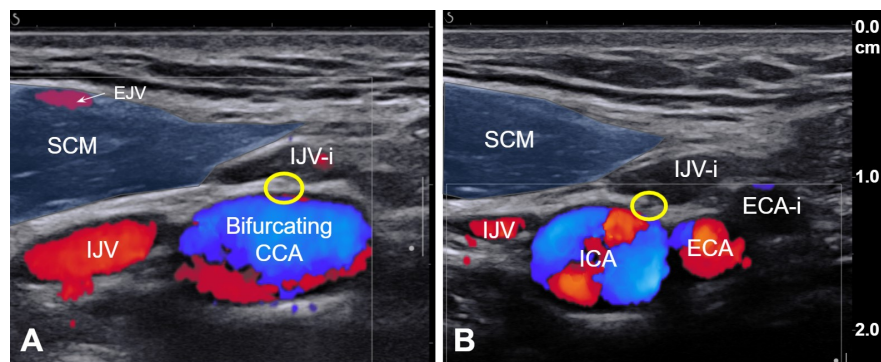
Abstract

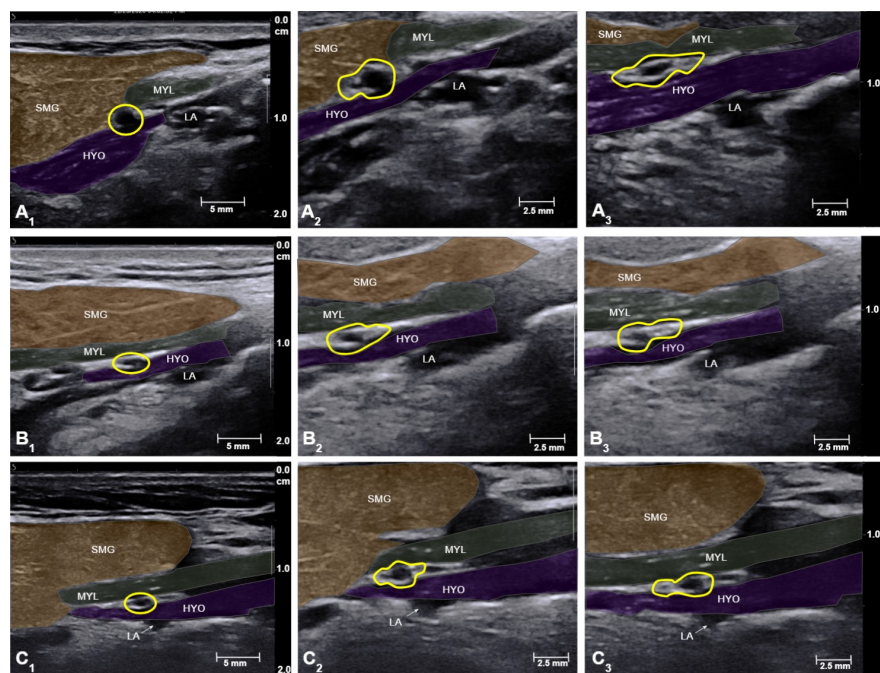
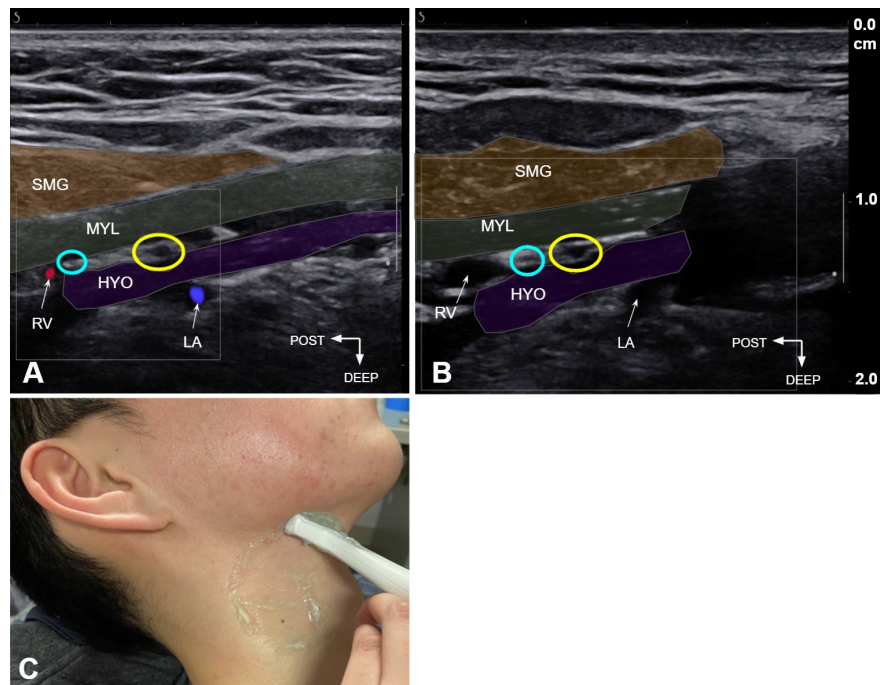
Abstract Objectives: The hypoglossal nerve (HN) represents an important stimulation target for treating obstructive sleep apnea. Here, we demonstrate use of diagnostic ultrasound to identify and track the HN, including its distal branches. **Methods:** Standard ultrasound imaging, supplemented with Doppler ultrasound, was used on five participants to identify the HN from its proximal aspect adjacent to the carotid artery to its branching in the submandibular space. Participants were between the ages of 21-25 and were imaged at the University of Washington. **Results:** We successfully imaged and tracked the HN, including the main distal branches, and identified relevant landmarks in all five participants. We observed the greatest variance in HN structure near the mandibular branch point, as well as variable manifestation of the first cervical spinal nerve. **Conclusion:** Diagnostic ultrasound, with Doppler, can identify and track the HN, including to its distal branches. This technique may improve surgical planning for head and neck procedures including the placement of stimulation devices for the HN.

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