

Salivary Gland: Oncologic Imaging

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KEYWORDS

• Salivary gland • Neoplasm • Ultrasound • Ultrasound-guided biopsy

KEY POINTS

- Salivary gland neoplasms constitute a wide range of benign and malignant disorders and imaging constitutes an integral part of the initial assessment of a suspected salivary gland lesion.
- Because of their location, the salivary glands are readily accessible with high-resolution ultrasound, which is considered the first-line imaging modality in many centers.
- By providing information regarding the site, nature, and extent of disorder, ultrasound can characterize a lesion with a high degree of sensitivity and specificity.
- Ultrasound can also be used for image-guided interventions with fine-needle aspiration cytology or core biopsy.
- Ultrasound provides a guide if further imaging with computed tomography or magnetic resonance imaging are required.

ANATOMY OF THE PAROTID SPACE

The parotid gland lies in the retromandibular fossa and is bordered posteriorly by the sternocleidomastoid muscle and posteromedially by the mastoid process. The masseter and medial pterygoid muscles are located anteromedial to the gland, along with the mandibular ramus. The gland consists of superficial and deep lobes, which are defined by the path of the facial nerve traveling through the gland. The superficial lobe is readily imaged with high-frequency ultrasound, although the deep lobe cannot be easily visualized in its entirety, because it is partially obscured by the mandible.¹ The facial nerve is also not usually identified on ultrasound; however, its position can be inferred because it passes in a plane just superficial to the adjacent retromandibular vein (RMV). Hence, identification of the RMV allows compartmentalization into superficial and deep lobes. Lying inferior to the retromandibular vein is the external carotid artery, which

branches into the maxillary and superficial temporal arteries within the gland (Figs. 1 and 2).

The parotid duct, or Stensen duct, exits the gland anteriorly, passes above the masseter muscle, and perforates the buccal fat and buccinator muscle to open into the oral cavity at the level of the second upper molar. Accessory parotid tissue may be found along the course of the parotid duct, arising in approximately 20% of the population.² The parotid gland is predominantly a serous gland.

The parotid gland becomes encapsulated later embryologically than the submandibular and sublingual glands, and therefore intraglandular lymph nodes may be found within it. These nodes tend to be located in the preauricular portion of the gland or within the parotid tail. A normal parotid lymph node is oval or kidney shaped with a smooth contour; has a central, echo-bright fatty hilum; and contains a feeding hilar vessel that can be seen on color Doppler ultrasound.

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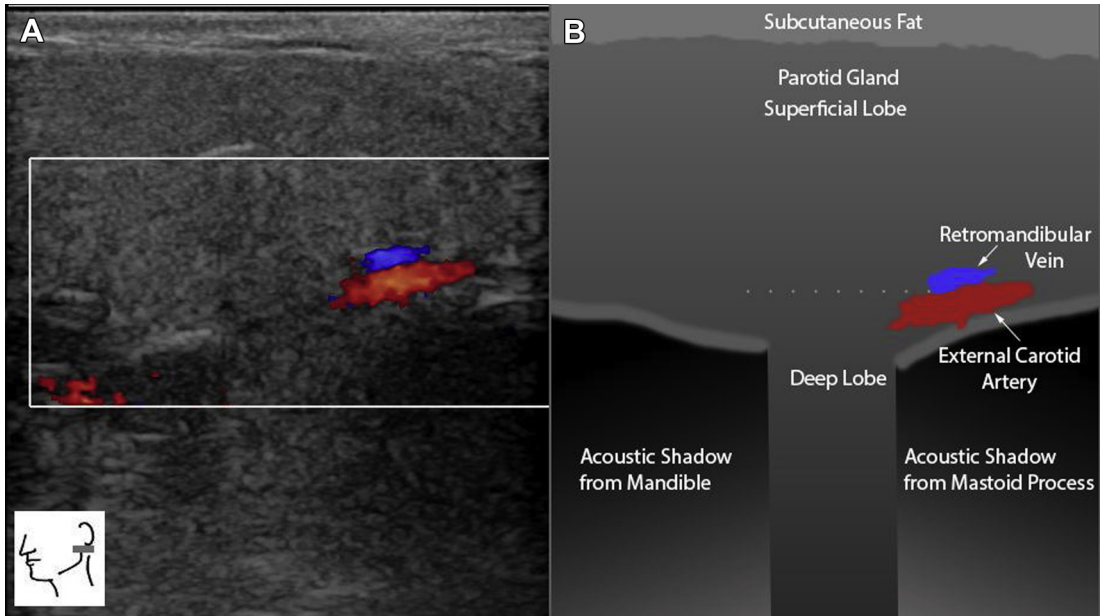


Fig. 1. Transverse sonogram of the left parotid (A) with corresponding schematic diagram (B), showing the position of the retromandibular vein, allowing compartmentalization into superficial and deep lobes. The probe position is seen in the inset diagram.

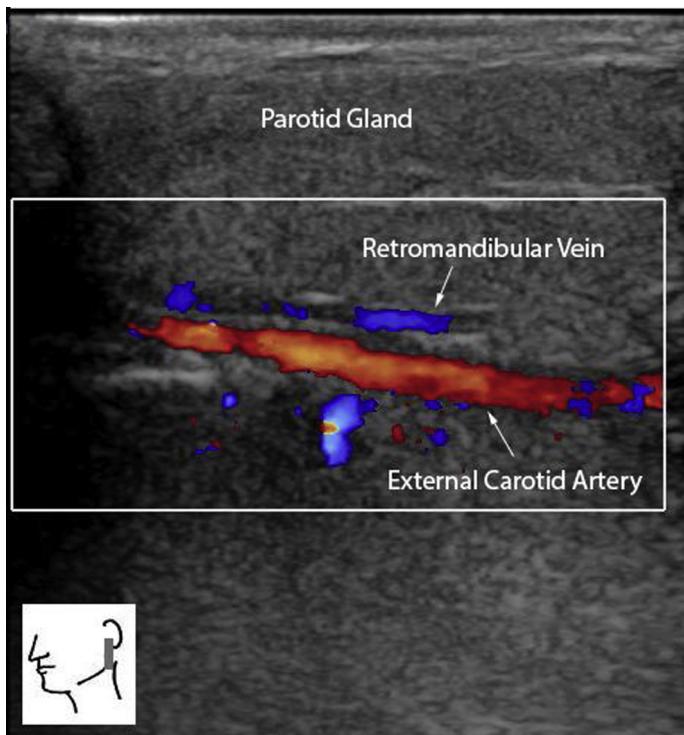


Fig. 2. Longitudinal sonogram of the left parotid showing normal anatomy of the retromandibular vein and external carotid artery.

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