Clinical History:

The patient presented with chronic bilateral parotid swelling. Ultrasound suggested bilateral Warthin tumours and was histologically confirmed with uncomplicated right-sided core biopsy. Twenty days later the patient represented with right parotid pain and swelling, and after abscess drainage the Warthin tumour showed regression in size confirmed at follow up.

Imaging Findings:

At initial presentation B-mode ultrasound demonstrated two lobulated, microcystic, hypoechoic masses measuring 39x28 mm on the left and 37x40 mm on the right. Colour doppler ultrasound demonstrated a vascular lesion (Fig. 1) and core biopsy was performed (Fig. 2). Twenty days following core biopsy the patient presented again; B-mode ultrasound demonstrated a heterogenous mass encompassing the histologically confirmed right Warthin tumour with overlying soft tissue oedema. Colour Doppler imaging did not show any signal (Fig. 3). Contrast-enhanced ultrasound defined an avascular abscess within the parotid gland but also showed the Warthin tumour to be avascular (Fig. 4). The collection was drained using an 18 gauge cannula yielding 10 ml of pus (Fig. 4). At 6-week follow up, B-mode ultrasound demonstrated atrophy of the lesion which measured 18x14 mm (Fig. 5). Interrogation with colour Doppler ultrasonography demonstrated no vascularity within the lesion and was confirmed on CEUS (Fig. 6).

Discussion:

Warthin’s tumours are a benign neoplasm which make up 6% of all salivary gland tumours, and are the second most common salivary gland tumour [1]. They are more common in males, smokers and are bilateral in up to 10% of cases [1, 2], and often will require surgical excision and potentially parotidectomy for larger lesions and. FNA’s and core biopsies of the parotid gland provide a safe and fast evaluation of superficial lesions helping to differentiate malignant from benign aetiologies [3]. Complications are uncommon and rarely include infarction [4].
This case demonstrates infarction of a suspected Warthin’s tumour post core biopsy with exceptional clarity due to the the spatial resolution and purely intravascular nature of CEUS. CEUS is often advocated in the assessment of salivary gland lesions [5] as it can accurately demonstrate the microvasculature of the capillary beds through excellent spatial resolution, thereby also guiding intervention [6, 7]. With this level of vasculature being visible, true infarction can be confirmed by the absence of microbubble motility throughout the lesion. The aetiology of spontaneous infarction post core biopsy is unknown. One theory is that core biopsies can sever a lesions-feeding artery [8] resulting in the immediate loss of tissue perfusion. The sudden loss of a feeding artery post core biopsy could account for iatrogenic infarction demonstrated in this case but is unconfirmed.

This case documents potential utility for CEUS-guided drainage of parotid abscesses as well as the rare occurrence of tumoral infarction following core biopsy in a Warthin tumour.

**Differential Diagnosis List:** Post-biopsy infarction and regression of a warthin tumour, Infarcted warthin tumour, Parotid abscess

**References:**


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Description: B mode and colour Doppler ultrasound of the right parotid gland demonstrating a hypoechoic lesion (arrow) with internal colour Doppler signal. Origin: Yusuf GT, King’s College Hospital, London
Description: B mode ultrasound image of an 18 gauge core biopsy (arrowhead) performed of a right-sided Warthin tumour (thin arrow). Origin: Yusuf GT, King's College Hospital, London
**Description**: Colour Doppler ultrasound image of the right parotid lesion 20 days post biopsy. The lesion (arrow) demonstrated no internal colour Doppler signal. **Origin**: Yusuf GT, King’s College Hospital, London.
Figure 4

Description: Simultaneous b-mode and CEUS image. The hypoechoic lesion (arrowhead) shows no enhancement. The known Warthin tumour (thick arrow) also shows no enhancement. An 18 gauge cannula is within the abscess (thin arrow). Origin: Yusuf GT, King's College Hospital, London
Figure 5

Description: B mode ultrasound 6 weeks post drainage of abscess shows marked reduction in size of the known Warthin tumour (arrow). Origin: Yusuf GT, King's College Hospital, London
Figure 6

Description: Simultaneous b. mode and CEUS image. The known Warthin tumour (arrow) shows no internal enhancement and a marked reduction in size. Origin: Yusuf GT, King’s College Hospital, London