Ultrasound-guided core biopsy of the parotid gland: the procedure from the Rheumatology point of view

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ABSTRACT

Ultrasound-guided core biopsy is a minimally invasive technique able to identify lymphoma accompanying Sjögren's syndrome (SS), neoplasms or infiltrative diseases, with less complications compared to open biopsy. With these images, we aim to describe the ultrasound-guided core biopsy procedure, in a female patient with rheumatoid arthritis who presented evident inhomogeneity of the parotid gland. The procedure was performed by rheumatologists, experienced in salivary gland US, using a 15 MHz linear probe (General Electric LOGIQ S8). The patient was positioned in lateral decubitus and the face skin was disinfected and draped following the standard antiseptic procedure. A correct US examination was performed, using power Doppler to mark vasculature and avoid vascular injury during the procedure. Local anaesthesia (lidocaine 2%) was injected subcutaneously around the area of the needle puncture. Under US guidance, a semi-automatic guillotine 16-gauge needle (SpeedyBell Doppia Corsa) was inserted without skin incision (Figure 1). This device has an echogenic marker on the end of the cannula that allows constant US monitoring. When the needle was in the right location, the device was triggered (with the inner needle sliding inside the outer - "guillotine-effect") and the sample was collected (Figure 2). After tissue harvesting, the sample was removed from the needle notch and fixed in formaldehyde solution. Three tissue samples were collected and sent to histological examination. The procedure was uneventful and the patient had no symptoms or signs of complications during 6-months of follow-up. Histological examination showed lymphocyte infiltration (lymphocytes B predominance), with a focus score ≥1, confirming the diagnosis of SS and excluding other differential diagnosis.

Parotid gland biopsies can identify infiltrative disorders and may play a role in predicting lymphoma in SS⁴. USCB is an effective alternative to open biopsy for these purposes and shows a higher sensitivity and specificity compared to FNAC⁵, with a lower complication rate. In a recent meta-analysis⁶, from a total of 1.315 procedures, only one case of facial weakness due

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to local anaesthesia and seven cases of local haematoma were described.

In conclusion, USCB, a minimally invasive and easy to perform procedure, is an excellent diagnostic tool, and provides useful information about salivary gland abnormalities with increased levels of accuracy and safety.

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REFERENCES:

FIGURE 1. The salivary gland biopsy procedure.

FIGURE 2. USCB of the parotid gland. A) Longitudinal ultrasound image of the parotid gland with power Doppler showing inhomogeneity with multiple hypoechoic areas. B and C) Ultrasound images with the biopsy needle in the parotid gland (black arrows).