

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

Silva JL¹, Azevedo S¹, Faria DS¹, Costa JT¹, Teixeira F¹

ACTA REUMATOL PORT. 2020;45:69-70

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, trained in ultrasonography of the salivary glands, demonstrating that ultrasound-guided core biopsy is an easy and safe method to obtain salivary gland tissue.

CLINICAL IMAGE

Surgical biopsy of the salivary glands has been frequently performed for the diagnosis of SS as well as for lymphoma accompanying SS, sarcoidosis, amyloidosis or other connective tissue disorders. However, open biopsies of the minor labial and parotid glands are associated with potential complications, like bleeding and facial nerve damage¹. Despite the fact that labial and parotid gland tissue have similar diagnostic potential for SS², the parotid gland is preferred for biopsy when neoplasms and infiltrative diseases are suspected.

Fine needle aspiration cytology (FNAC) of the parotid gland is an established technique that provides material for cytological analysis. An alternative is to take a core of tissue using a small cutting needle combined with ultrasound (US) guidance. US is a fast and non-invasive modality that helps in the assessment of parotid glands and to decide the best biopsy location. US-guided core biopsy (USCB) has been described as a valid method for extracting larger tissue samples from

salivary glands³.

The present images aim to describe the US-guided parotid gland core biopsy procedure, in a 63-year-old female with rheumatoid arthritis, who presented with dry mouth, weight loss and evident inhomogeneity with multiple hypoechoic areas of the parotid gland. The procedure was performed by two 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-analysis³, from a total of 1.315 procedures, only one case of facial weakness due

¹ Rheumatology, Unidade Local de Saúde do Alto Minho.

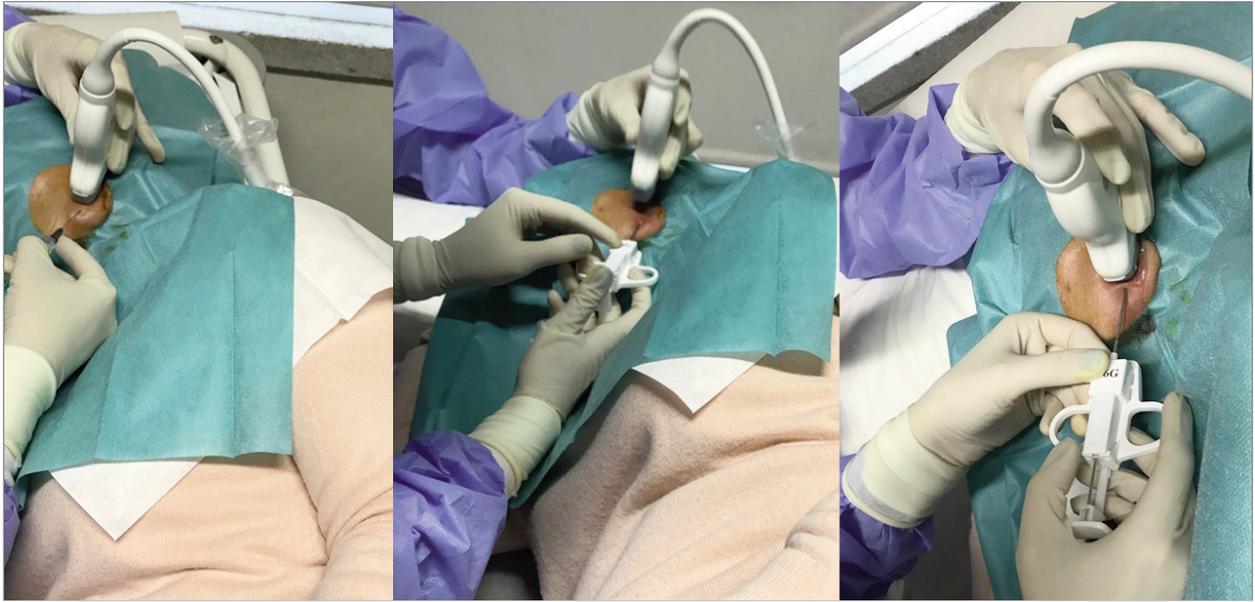


FIGURE 1. The salivary gland biopsy procedure.

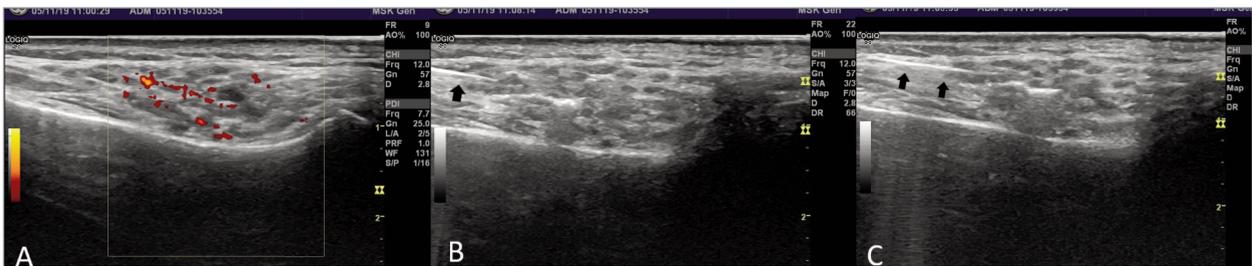


FIGURE 2. USCB of the parotid gland. **A)** Longitudinal ultrasound image of the parotid gland with power Doppler showing inhomogeneity with multiple hypochoic areas. **B and C)** Ultrasound images with the biopsy needle in the parotid gland (black arrows).

to local anaesthesia and seven cases of local hematoma 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.

CORRESPONDENCE TO

Joana Leite Silva
Hospital de Ponte de Lima
Rua Conde de Bertandos,
4990-041 Ponte de Lima
Portugal

REFERENCES:

1. Micheroli R, Wagner U, Mueller-Gerbl M, Toranelli M, Marx C, Bruyn GAW et al. Minimally invasive ultrasound-guided pa-
2. Pijpe J, Kalk WW, van der Wal JE, Vissink A, Kluin PM, Roodenburg JL et al. Parotid gland biopsy compared with labial biopsy in the diagnosis of patients with primary Sjögren's syndrome. *Rheumatology (Oxford)* 2007; 46: 335-341.
3. Kim HJ, Kim JS. Ultrasound-guided core needle biopsy in salivary glands: A meta-analysis. *Laryngoscope* 2018; 128: 118-125.
4. Theander E, Vasaitis L, Baecklund E, Nordmark G, Warfvinge G, Liedholm R et al. Lymphoid organisation in labial salivary gland biopsies is a possible predictor for the development of malignant lymphoma in primary Sjögren's syndrome. *Ann Rheum Dis* 2011; 70: 1363-1368.
5. Haldar S, Sinnot J, Tekeli K, Turner S, Howlet D. Biopsy of parotid masses: Review of current techniques *World J Radiol* 2016; 8(5): 501-505

Figure 1. The salivary gland biopsy procedure.

Figure 2. USCB of the parotid gland.