Labial Biopsy of Minor Salivary Glands: Indications in Clinical Diagnostics

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ABSTRACT

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Introduction

The Labial Biopsy of the Salivary Minor Glands (LMSGB) is a complementary examination frequently performed in oral surgery since 1968 [1]. It participates in the diagnosis of many systemic pathologies including autoimmune diseases, amyloidosis, sarcoidosis, lupus erythematosus, Parkinson’s and tuberculosis [2-8]. The plurality of pathologies involved, associated with a significant sensitivity and specificity of this additional examination justify its frequency of implementation. We discuss the different pathologies for which this complementary examination is requested.

LMSGB and Systemic Pathologies

The LMSGB participates in the diagnosis of many systemic pathologies, and may allow early diagnosis, diagnostic orientation or confirmation of a presumptive diagnosis based on clinical symptoms. This examination may also support conventional diagnostic. Amyloidosis is a rare disease due to a deposition of proteins that present a conformational defect resulting in the formation of amyloid fibrils. Its prevalence is unknown although estimated at 1/100000. More than twenty different proteins can be involved in the formation of these deposits, which is why it is more accurate to talk about amyloidosis. The majority of amyloidosis are localized forms. The most common forms are AL (immunoglobulin), AA (inflammatory) and ATTR (transthyretin) amyloidosis. The presence of fibrillar amyloid protein during salivary gland biopsy is performed by Congo Red or Crystal Violet stains [9-11]. This additional examination has a very high sensitivity (83%) and a positive predictive value of 100% [12]. Sjogren’s syndrome or sicca syndrome is an autoimmune pathology characterized by dry eye and buccal (xerophthalmia, xerostomia) related to inflammation of the exocrine glands and the prevalence is 1-5 / 10000 [13]. The biopsy makes it possible to highlight the presence of numerous markers or inflammatory factors such as: B-Cell Activator Factor (BAFF), B-Cell Activator Factor Receptor (BAFF + R), CXC Motif Chemokine Ligand 13, chemoattractant B-lymphocyte, B-cell attracting chemokine-1 (CXCL13), Chemokine receptor type 5 (CXC5), Fk-Like tyrosine kinase 3 (Flt3), Fl-like tyrosine kinase 3 (Flt3L), Interleukin 6 (IL-6), Interleukin 6 Receptor (IL-6R), Interleukin 22 (IL-22) Interleukin 22 Receptor (IL-22R) [14].

All these markers confirm the suspected diagnosis based on clinical observation. LMSGB has a sensitivity and specificity of 80% for Gougerot-Sjogren Syndromes but decreases with age since there are many cases of false positives in elderly patients [15]. Mucosa Associated Lymphoid Tissue (MALT) [16] lymphoma is a rare form of non-Hodgkin’s lymphoma that affects B cells and lymphoid tissue.
Although LMSBG is not recognized as a reliable complementary examination for the primary diagnosis of sarcoidosis, it provides a reliable differential diagnosis between Sjögren and Sarcoidosis and therefore appropriate management [26]. The diagnosis of Sarcoidosis with LMSBG is based on the presence of tuberculoid granulomas without caseous necrosis. The LMSBG appears as a key diagnostic confirmatory test before a possible treatment [4]. Tuberculosis is an infectious disease caused by the bacterium Mycobacterium tuberculosis, contagious, with varying clinical signs. It is the leading infectious cause of death globally [27]. A recent study has highlighted the low sensitivity of the LMSBG for the diagnosis of tuberculosis or even the diagnostic orientation of tuberculosis [8].

Thus, this study of 65 patients with diagnosed tuberculosis was able to demonstrate the presence of granulomas in the LMSBG comparable to those found in 20 to 60% of cases of Sarcoidosis [28]. Thus, the vigilance to make a clear differential diagnosis between tuberculosis and sarcoidosis is essential, taking corticosteroids (treatment of sarcoidosis) can be fatal in case of tuberculosis. Neurological diseases are now the leading cause of disability and the second leading cause of death in the world [29]. Among them, Parkinson’s disease has more than doubled since 1990. Parkinson’s disease is a neurodegenerative pathology related to the degeneration of dopaminergic neurons. It is mainly manifested by a drop in postural stability, tremors, motor rigidity, although many other symptoms can be associated [30,31]. Recent studies indicate an interest in LMSBG as a confirmation element for early diagnosis of Parkinson’s disease since it is found in 69% of patients diagnosed with alpha-synuclein in peri-acinar areas [7]. Although Alpha Synuclein is physically present in the brain, Parkinson’s disease is found in other tissues or around nerve endings of the trigeminal nerve.

**Conclusion**

To conclude, biopsy of the minor salivary glands is a simple surgical procedure that is indicated in the confirmation or diagnosis of many pathologies. However, the number of glands to be collected and the method of preservation (paraformaldehyde, freezing, physiological fluid) must be indicated according to the anatomopathological analysis technique. In fact, antibody labeling is often not compatible with formalin fixation, unlike histological staining.

**References**
