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Clinical case

Non-Hodgkin Lymphoma of Mucosa-Associated Lymphoid Tissue in the Parotid Gland

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ABSTRACT

Introduction: Mucosa-associated lymphoid tissue (MALT) non-Hodgkin lymphoma (NHL) is a malignant neoplasm that represents between 7 and 8% of all B-cell lymphomas. It is rarely located in the parotid gland and usually presents as an asymptomatic volume augmentation, so it can be confused with benign salivary gland tumours. **Objective:** To present a case of MALT lymphoma associated with the parotid gland, diagnosed by histopathological and immunohistochemical data, as well as to present the technique for the surgical approach to the tumour. **Case presentation:** A 62-year-old female patient who came for consultation because of a slow-growing, unilateral, painless volume augmentation in the right preauricular region. The histopathological

study confirmed an atypical lymphoproliferative neoplasm morphologically compatible with NHL, which was classified by immunohistochemistry as a low-grade extranodal NHL of MALT. **Conclusions:** Complete surgical resection was both diagnostic and therapeutic. Low-grade MALT lymphoma was confirmed by immunohistochemistry, which allowed it to be differentiated from other lymphoproliferative processes, crucial for establishing an appropriate oncological protocol and highlighting the need for long-term follow-up to detect late recurrences.

Keywords: MALT lymphoma, parotid gland, B-cell lymphoma, lymphoproliferative neoplasm.

INTRODUCTION

Mucosa-associated lymphoid tissue (MALT) non-Hodgkin lymphoma (NHL) was first described by Peter Isaacson and Dennis Wright in 1983[1]. This type of neoplasm is formed by a set of non-encapsulated lymphocytes composed of monocytoid B cells[2,3]. MALT lymphoma is a malignant neoplasm that represents between 7 and 8% of all B cell lymphomas; the most frequent sites of location are the gastrointestinal tract, salivary glands, lungs, ocular adnexa, and thyroid[1,4].

When MALT lymphoma presents facial symptoms, it includes pain, paralysis, and rapid growth; however, in the early stages, it does not show symptoms[5]. Parotidectomy is essential for diagnosis, since the histopathological and immunohistochemical study of the surgical sample is the only method that allows a definitive diagnosis, as it shares clinical characteristics with other neoplasms of the parotid gland[6].

The most common histologic classifications of parotid gland lymphomas are extranodal B-cell lymphoma type MALT and follicular lymphoma[5]. The prevalence increases with age, with a female/male ratio of 2:1 and an average age of 57 years[4]; however, the reason for the female predominance is not clear. Surgery with radiotherapy and chemotherapy turns out to be the treatment of choice[5].

The objective of this work is to present a clinical case of MALT lymphoma associated with the parotid gland, describe the histopathological and immunohistochemical diagnosis, as well as the surgical approach used.

CLINICAL CASE PRESENTATION

A 62-year-old female patient who came to consultation in Guadalajara, Jalisco, for a painless, slow-growing, and unilateral volume augmentation, with no history of autoimmune diseases. The clinical evaluation extended over several months, during which an evolution of approximately one year was documented.

Extraoral examination revealed a mobile volume augmentation of approximately 5 cm in diameter in the superficial lobe of the right parotid gland (preauricular region) (Figure 1. A). The patient reported no history of night sweats, weight loss (≥10%) or history of unexplained fever (≥38°C) in the previous 6 months. Furthermore, she did not report facial paralysis (House-Brackmann score Grade I). A simple computed tomography (CT) scan of the right parotid/cervicofacial region was indicated, in which a heterogeneous solid lesion with poorly defined margins was observed in the right parotid gland, suggestive of a neoplastic process (Figure 1. B).

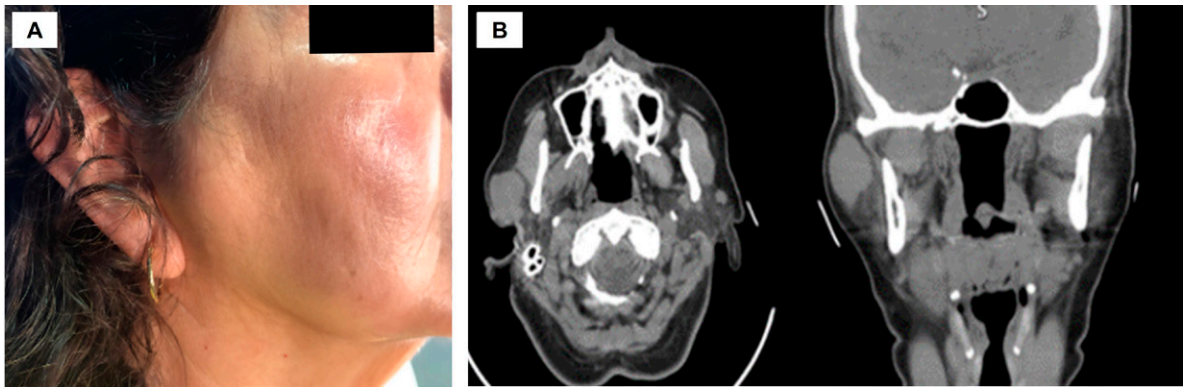

Figure 1. Initial images. A. Lateral extraoral photograph of the preauricular region showing the volume augmentation in the parotid region, without changes in the skin. B. Computed tomography in two slices at the level of the atlas for the axial view and at the level of the nasopharynx in the coronal view. The transverse view shows an isodense area with poorly defined edges associated with the parotid gland. The coronal view reveals well-defined edges in the right preauricular region.

An excisional biopsy was indicated for diagnosis due to the location and possible differential diagnoses such as infections or other neoplasms such as pleomorphic adenoma, Warthin's tumour, mucoepidermoid carcinoma, adenoid cystic carcinoma or salivary gland-associated lymphoma[7,8]. The indicated surgical treatment was a right total parotidectomy through a modified Blair incision (Figure 2. A), due to imaging characteristics suggestive of malignancy, including poorly defined margins with suspicion of tumour infiltration. This approach was justified to ensure wide surgical margins and reduce the risk of recurrence or residual disease, given the aggressive behaviour of malignant parotid neoplasms. Furthermore, the selected technique allowed for careful dissection with preservation of the facial nerve (Figure 2. B), prioritising a balance between oncological radicality and maintenance of function.

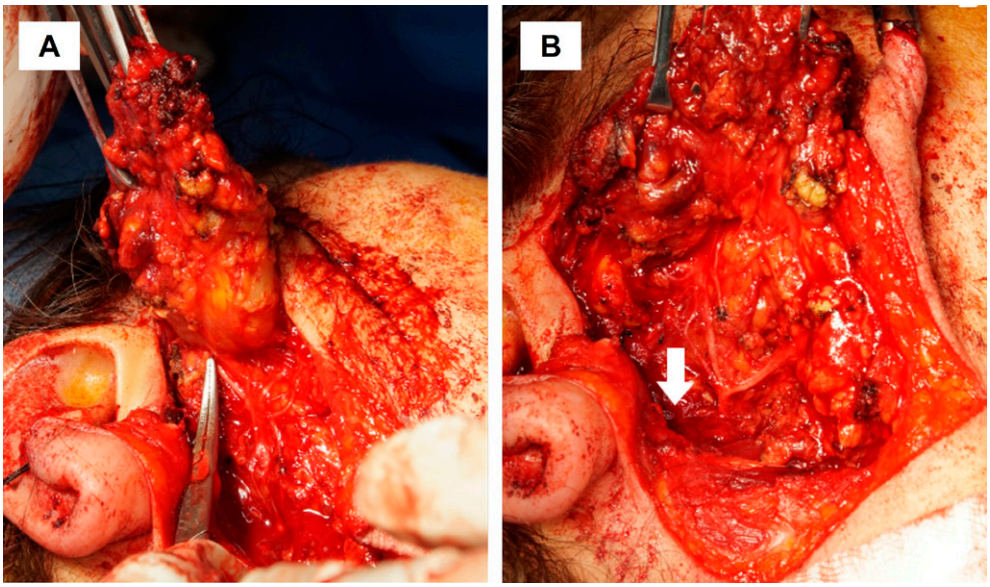

Figure 2. Intraoperative images. A. Surgical approach through modified Blair incision. B. Identification of the facial nerve as a reference point to the superior edge of the posterior belly of the digastric muscle (white arrow).

A sample measuring 6.0 x 3.5 cm was extracted with a heterogeneous external surface of rough appearance, dark brown in colour, with smooth areas of pink colour and a fragment of adipose tissue (Figure 3). The entire sample was sent for histopathological study in order to establish the definitive diagnosis. Histopathological analysis showed histomorphological data positive for atypical lymphoproliferative neoplasm, with partial preservation of the ductal portion, and the rest of the tissue replaced by a diffuse and nodular lymphoid proliferation of small cells with scant cytoplasm of centrocytic and lymphoplasmacytic appearance with occasional mantles of monocytoid cells, with clear data of lymphoepithelial lesion positive to infiltration by low-grade NHL of the extranodal marginal zone of the MALT, and positive for malignancy (Figure 4. A). Also, a complementary immunohistochemistry panel was performed for diagnostic confirmation and classification with the following results: negative to CD3, BCL6, cyclin D1, positive to CD20, BCL2 and proliferative index (Ki 67) of 30-40% (Figure 4. B), with no evidence of metastasis.

Figure 3. Tissue obtained for macroscopic description. Received in 10% formaldehyde solution, specimen labelled as right parotid tumour, serial sections showed a well-defined, smooth, shiny, homogeneous, light brown, nodular surface with pushing edges surrounded by abundant dense connective tissue.

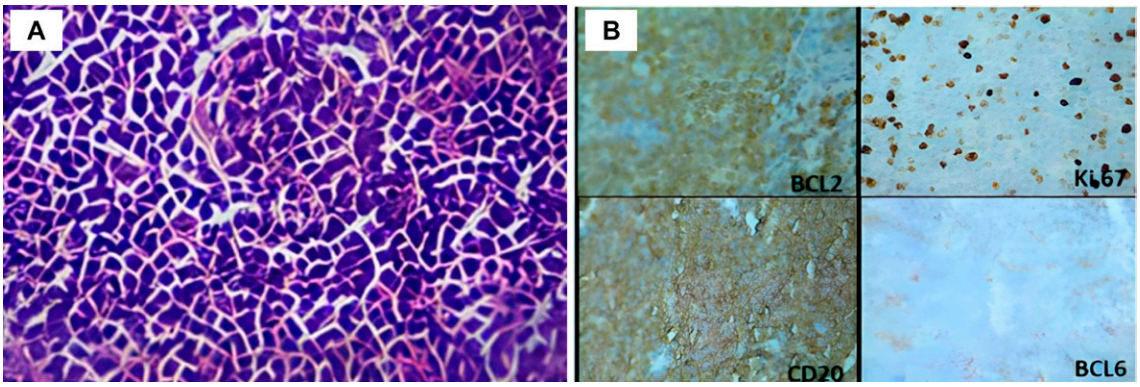

Figure 4. Histopathological report. A. Photograph of the histological sample stained with H & E where the salivary gland is identified with partial preservation of the ductal portion, the rest of the tissue replaced by diffuse and nodular lymphoid proliferation of small cells with scant cytoplasm of centrocytic and lymphoplasmacytic appearance with occasional mantles of monocytoid cells. B. Immunohistochemistry BCL2, Ki67, CD20, BCL6.

After a one-year follow-up, no evidence of tumour activity or recurrence was found, confirmed by imaging studies (CT scan) and absence of suggestive clinical symptoms (such as volume augmentation, facial paralysis or pain). Oncometric evaluation (PET-CT or specific tumour markers) was not required since there were no signs of progression that would justify adjuvant chemotherapy. Furthermore, cervical lymph node biopsy for staging (Ann Arbor system) was not performed as no suspicious lymph nodes were identified during follow-up, supporting the effectiveness of the initial surgical treatment. However, prolonged follow-up was not possible due to causes external to the medical team.

DISCUSSION

Of parotid lymphomas, 80% are non-Hodgkin lymphoma (NHL). The most frequent are diffuse large B-cell follicular lymphoma and mucosa-associated lymphoid tissue (MALT) lymphoma[8]. MALT lymphomas constitute approximately 30% of head and neck non-Hodgkin lymphomas. In salivary glands, the parotid gland is the most frequent location (75%)[9,10]. Lymphomas in the parotid gland are difficult to differentiate from other neoplasms, making a definitive preoperative diagnosis impossible[5]. The salivary glands do not possess MALT, although they may become inflamed as a result of an underlying chronic autoimmune disorder[9, 11]. The clinical presentation of lymphoma in the parotid gland is usually an asymptomatic volume augmentation in the preauricular region; however, it may be accompanied by spontaneous pain or discomfort, facial paralysis, and tumour growth[5].

In Latin American populations, data on the prevalence of parotid lymphomas are limited. A study conducted in Mexico reported that salivary gland lymphomas represent 2-5% of all NHLs in the region, with a higher frequency of MALT subtypes in patients with underlying autoimmune diseases[12].

It has been reported in the literature that MALT lymphomas of the parotid gland are often associated with autoimmune diseases such as Sjörgen's Syndrome[13], although in this case the patient had no history of autoimmune diseases. This contrasts with studies that report a high prevalence of autoimmunity in patients with parotid MALT lymphomas[14]. Additionally, the absence of systemic symptoms such as fever, weight loss, or night sweats in our case is consistent with the nature of this type of neoplasm, although these symptoms may be observed in more advanced cases[15].

There are criteria for diagnosing primary parotid gland lymphoma, such as those proposed by Hyan & Wolff, which include: a) involvement of the salivary gland as the first clinical manifestation of the disease, b) histological proof that the lymphoma affects the parenchyma of the salivary gland (rather than being limited to soft tissue and lymph nodes), and c) architectural and cytological confirmation of the malignant nature of the infiltrate[16]. In this sense, immunohistochemistry is an essential tool for its diagnosis, since it is useful to identify the specific lineage, as well as the stage of development of the lymphoma. The choice of markers will depend on factors such as the morphological differential diagnosis, which includes T cell markers (CD3 and CD5) to rule out T cell proliferations or associated translocations, such as mantle cell lymphoma, which is usually CD5+, B-cell lymphoma (CD20 and CD79a) to confirm the B-lymphoid origin (essential in the diagnosis of B-lymphomas such as MALT), or diffuse large B-cell lymphoma; BCL-2, useful for identifying *t*(14;18) translocations in follicular lymphomas or overexpression in MALT lymphomas, and Cyclin D1, key to differentiating mantle cell lymphoma (positive) from other NHLs, among others, according to cytoarchitectonic pattern[17].

In our case, the diagnosis was based on a combination of imaging studies and excisional biopsy followed by histopathological and immunohistochemical analysis, crucial to confirm the diagnosis of low-grade NHL, specifically MALT lymphoma. The diagnostic approach used in our case is consistent with what has been reported in the literature, where tomography and magnetic resonance imaging are key tools for the evaluation of parotid lesions, particularly in cases where malignancy is suspected[18]. Likewise, this diagnostic approach is consistent with the treatment of MALT lymphoma in the parotid gland, which is different from the treatment of other NHLs because most parotid MALT lymphomas involve localised neoplasms and have low malignancy and fewer systemic metastases. The treatment is primarily surgical resection with radiotherapy, chemotherapy, or rituximab after the operation, and the prognosis is very good[5, 6, 16], with a survival rate greater than 80% at 5 years[1, 11]. The decision not to administer additional treatments in this case may be justified by the complete resection and the absence of additional risk factors, although such management could be debatable in a context of greater resource availability and prolonged follow-up.

It is important to highlight that the low-grade B-cell NHL of the extranodal marginal zone that affected the patient is a rare form of NHL, with a generally favourable prognosis, although local recurrence and progression to higher-grade forms are possible, which is why continuous monitoring is necessary[19]. A Ki-67 proliferation index of 30-40% is indicative of a low-grade tumour, but the patient should be monitored for possible complications or recurrences, especially since transformations to more aggressive lymphomas have been reported in similar cases[20].

In the present case, the lack of follow-up due to the patient's personal and demographic circumstances presents a challenge in proper management, since postoperative monitoring is essential to detect any recurrence of the disease. The lack of follow-up appointments raises concerns about the long-term management of lymphoma patients, as proper follow-up can prevent the progression or recurrence of lymphoma, as well as facilitate the management of side effects from applied treatments[21, 22].

CONCLUSIONS

Our clinical case illustrates an example of the successful diagnostic-therapeutic management of a MALT lymphoma in the parotid gland using facial nerve preservation surgery. Confirmation by immunohistochemistry was a fundamental pillar that allowed the differentiation of low-grade MALT lymphoma from other benign lymphoproliferative processes or epithelial tumours of the salivary gland, which is crucial for establishing an appropriate oncological protocol. This case provides clinical evidence that supports conservative surgical management; however, it highlights the need for long-term follow-up to detect late recurrences.

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