



CASE REPORT ARTICLE

## Oral cavity large B-cell lymphoma: an unusual case report

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### ABSTRACT

**Introduction:** Lymphomas represent a heterogeneous group of solid malignant neoplasms of the immune system. Although they primarily affect lymph nodes, extranodal presentations in the oral cavity are rare, often leading to diagnostic delays due to their ability to mimic common dental infections.

**Case presentation:** This report describes the case of a 66-year-old male who presented with an asymptomatic volume increase in the right upper jaw, initially interpreted as a failed endodontic treatment. Clinical and radiographic evaluation revealed an aggressive bone destruction that was later confirmed by biopsy as a diffuse large B-cell lymphoma. The patient underwent chemotherapy and radiotherapy but experienced significant oral sequelae.

**Conclusion:** Diffuse large B-cell lymphoma should be considered in the differential diagnosis of atypical oral swellings. Early detection by dental professionals is vital to improve prognosis and minimize the morbidity associated with aggressive treatment.

**Keywords:** Non-Hodgkin lymphoma, maxillary neoplasia, jaws cancer, extranodal, oral cancer, maxillary tumor.

## Introduction

Lymphomas are a group of solid malignant neoplasms of the lymphoid system, characterized by the proliferation of cells at various stages of differentiation. These tumors are traditionally classified into two broad categories: Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL). Non-Hodgkin lymphoma accounts for the majority of cases and frequently involves extranodal sites. In the head and neck region, the Waldeyer's ring is the most common site of involvement; however, the oral cavity is affected in only about 2% to 3% of all extranodal cases.<sup>1,2</sup>

Diffuse large B-cell lymphoma (DLBCL) is the most prevalent histological subtype within the oral cavity. It is characterized by an aggressive clinical course and a rapid growth pattern. Despite its severity, the initial presentation often lacks pathognomonic features, frequently presenting as a painless swelling, tooth mobility, or bone loss that mimics periodontal disease or periapical pathology.<sup>3,4</sup> This diagnostic ambiguity often results in patients receiving unnecessary dental treatments, such as endodontics or extractions, before a definitive malignant diagnosis is reached. Recent literature emphasizes that the increasing incidence of these lesions in both immunocompromised and immunocompetent patients necessitates a high index of suspicion among oral health providers.<sup>5,9</sup>

## CASE REPORT

We report a patient referred to the Master of Oral Medicine, Surgery and Implantology (Hospital Odontológico Universidad de Barcelona, Universidad de Barcelona, Spain) by his dentist presenting an inflammatory lesion in the right maxilla that appeared one and a half month-prior to the first visit appointment which does not decrease despite antibiotherapy and it is associated with a possible affectation of the first

and second right upper premolar recently treated endodontically. The anamnesis highlights a history of right cervical actinomycosis in 2000, tobacco dependency (20 cig / day) and occasional cannabis.

Upon examination, the patient presented a tumor in the right hemiface that included from the mucobuccal fold of 1.3 - 1.6 to the infraorbital, nasolabial and zygomatic region (Figures 1a and 1b). It does not present flush or facial heat. Consistency upon palpation is woody, immobile and painless, as well as hard and with a smooth surface texture (Figure 1b). Grade 1 and grade 2 mobility is detected in 1.4 and 1.5, respectively. Mobile and painless submandibular lymphadenopathies (1 to 2 centimeters) are seen. The patient reported a slight sensation of localized numbness, which we confirmed by performing light punctures (in a mapping of the area every 2 mm +/- ) with a 30G needle. Poor level of oral hygiene and a mild adult chronic periodontitis are observed clinically. The patient provides an orthopantomography prior to root canal treatment (Figure 2). Periapical radiological examination revealed periapical radiolucency in 1.4 and 1.5 as well as extrusion of filling material beyond the apical region of both teeth (Figure 2). The orthopantomography did not show any other interesting fact (Figure 2). There is also generalized bone support loss, compatible with periodontal disease. To complete the global assessment, a Cone-Beam Computed Tomography (CBCT) was performed and revealed "periapical bone resorption from tooth 1.3 to 1.5, with a permeative process of the adjacent alveolar ridge and erosion of the anterior wall in the right maxillary sinus. Bone involvement is accompanied by soft tissue growth of the mucobuccal fold and preantral mucosa. There is also a slight growth in the mucosa of the anterior half of the right maxillary sinus. Increased density of subcutaneous cell tissue in the upper part of the right cheek" (Figure 3).

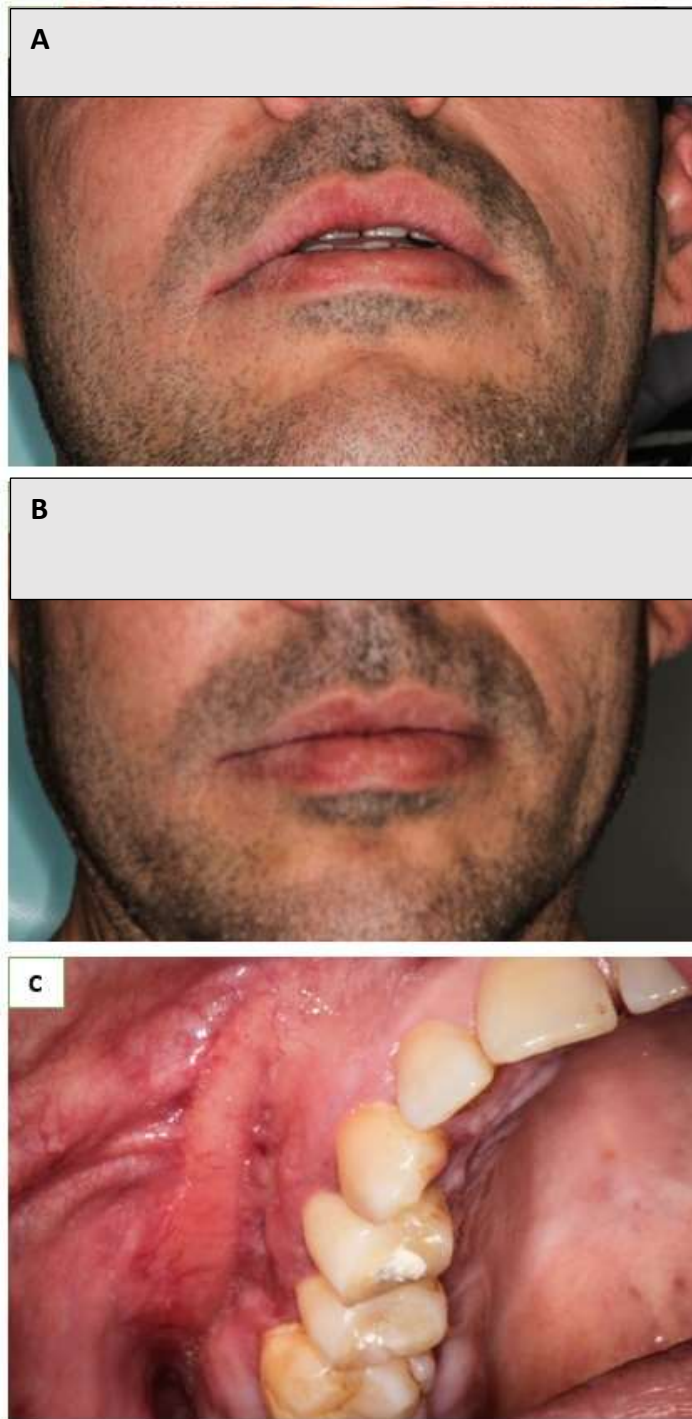


Figure 1. A & B: Mild deformation of the right hemiface and nasolabial sulcus is blurred. C: Intraoral photograph of the lesion, hard consistency, superficial mucosa is not affected.

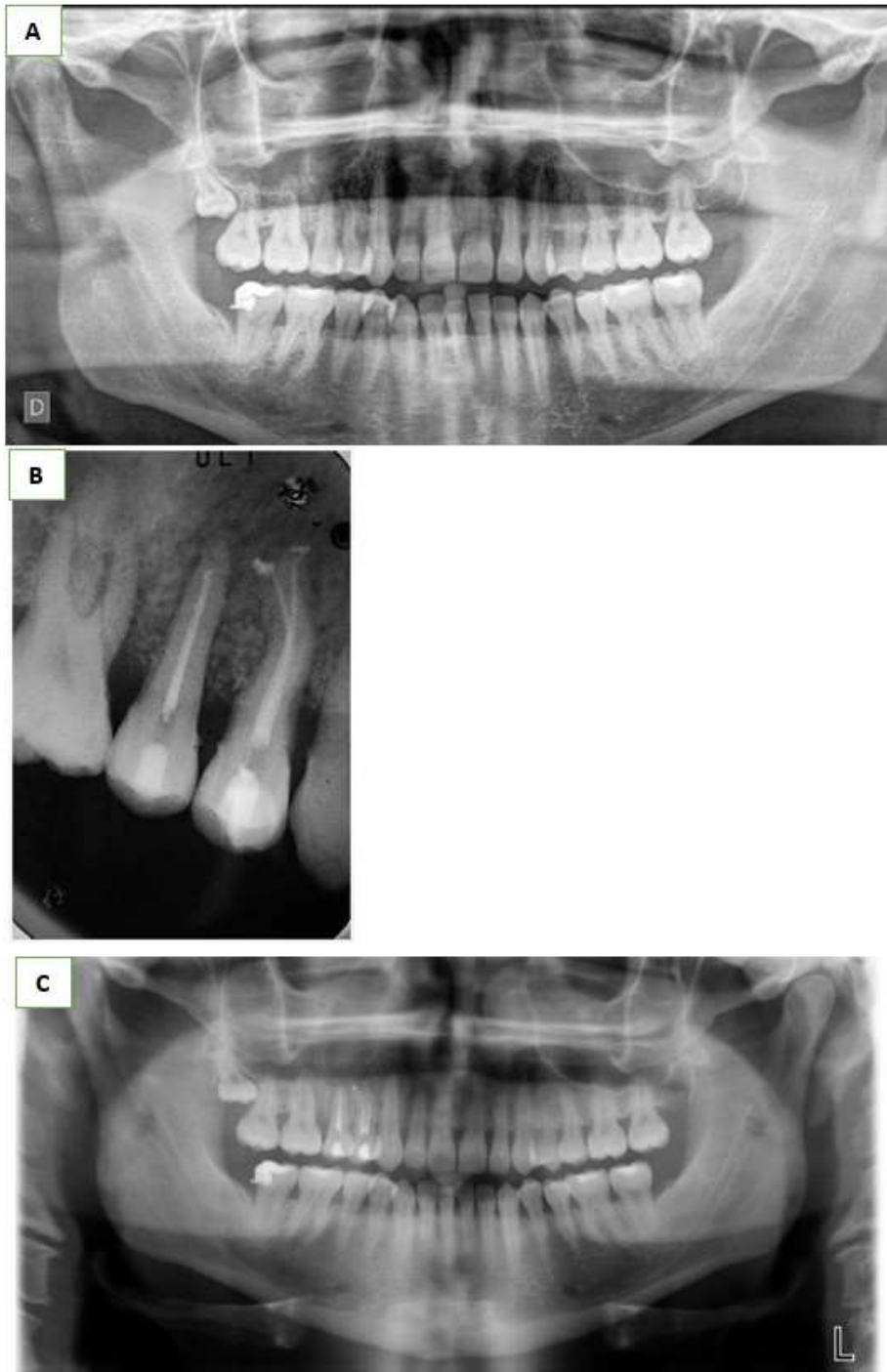


Figure 2. A Orthopantomography provided by the patient, previous to root canal treatment. B: Diagnosis periapical X-ray. C: Diagnosis orthopantomography taken the day the patient was referred.



Figure 3. Most significant CT slices.

Based on the clinical and radiological examination, the following differential diagnoses were considered: i) congestive / inflammatory process with infectious origin, ii) pathology secondary to a neoplasm, iii) foreign body reaction by cement (Dentsply AH Plus®) extrusion during root canal treatment of 1.4 and 1.5. We requested analytical and serological tests and an incisional biopsy of the apical area was performed on 1.5 by local infiltrative anesthesia (Articaine hydrochloride 4% / epinephrine 1% solution, 1.8 ml carpule) and the cold scalpel technique. The specimen obtained by

incision and curettage was fixed in 10% diluted formaldehyde. During the intervention, the absence of buccal cortex and bone support loss was obvious in 1.4 and 1.5 (Figure 4). The requested analysis shows values within the normal range with a slight monocytosis ( $0.78 \times 10^9 / L$ ) and negative serologies for HBV, HIV, and *Treponema Pallidum*. The histopathological report reflects connective tissue with a chronic inflammatory infiltrate and the immunohistochemical study shows B lymphoid proliferation (Figure 5).

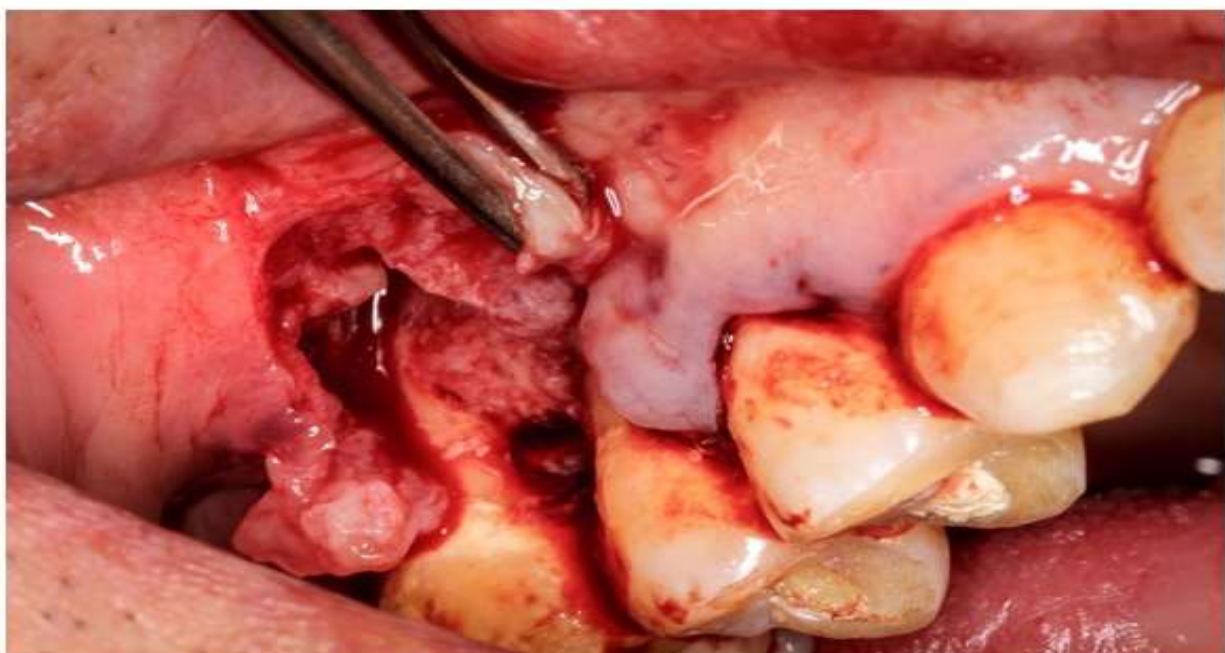


Figure 4. Intraoperative biopsy image. Absence of buccal cortical is visible.

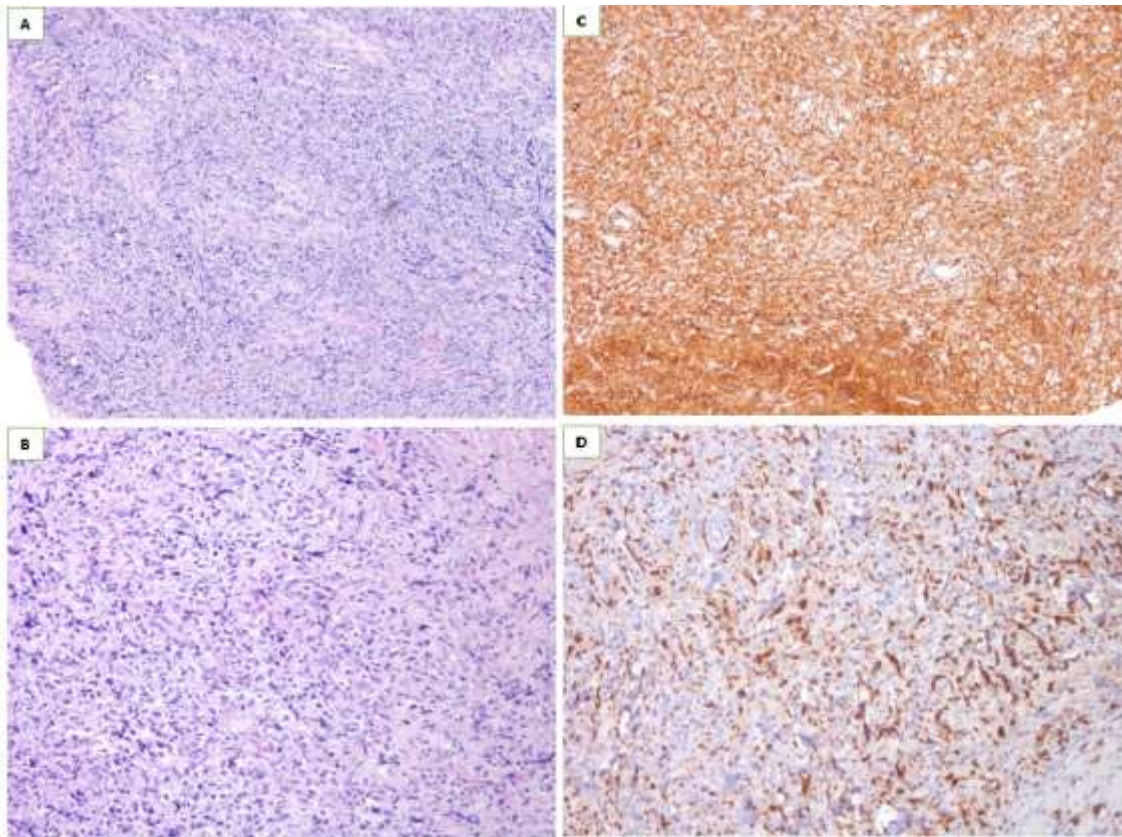


Figure 5. A B, C & D: Histopathological study.

Given this result, the patient is referred to the Maxillofacial Surgery Department and Hematology Department of the Bellvitge University Hospital, Barcelona, Spain. In this departments, a Positron Emission Tomography and Computed Tomography (PET/CT) is performed and shows bilateral submandibular lymphadenopathies less than 3 cm-sized without involvement of the mediastinal or abdominal-pelvic nodes. Besides, a bone marrow biopsy was performed, revealing that there is no evidence of lymphomatous infiltration.

Based on the information collected, the patient is diagnosed with primary extranodal large B-cell non-Hodgkin lymphoma T4aN2bM0 stage IV-A. Over the course of the different tests (approximately 3 weeks) new signs and symptoms appeared: i) pain in the area and increased size and number of lymphadenopathies; ii) increased edema and swelling and iii) spontaneous loss of 1.5

with local bone sequestration. From the hemato-oncological point of view, treatment is established with: i) opioid analgesics (fentanyl and tramadol), ii) CHOP (cyclophosphamide + doxorubicin + vincristine + prednisolone), iii) Rituximab and iv) complementary radiotherapy (30 Gy in 2 Gy / day sessions).

One-year dental follow-up showed a clinical remission of the process and a health status of the patient compatible with normality. The intraoral examination showed 1.4 having a grade 3 mobility and 1.6 exposing the mesiobuccal root due to recession of the periodontal tissue and responding positively to the pulp vitality test, without mobility (Figure 6). Regarding facial aspects, he suffers from mild paresthesia in the tumor affected region and mild muscular hypotonicity that blurs the nasogenian sulcus (Figure 7).



Figure 6. Clinical intraoral appearance after 17 months. Mesiobuccal root of 1.6 has suffered a periodontal recession and its response to pulp vitality test is positive. Tooth 1.4 has grade 3 mobility. Bacterial plaque is evident due to poor local hygiene.



Figure 7. Clinical appearance after treatment.

Radiological examination using orthopantomography (Figure 8a), periapical X-ray (Figure 8b) and CBCT (Figure 8c) shows major bone resorption of the neoplasm area that severely affects 1.4 and 1.6 mesial root, as well as loss of the

inferior cortex of the right nasal sinus continuity. Subsequently, the patient lost tooth 1.4 which was lacking bone support, orthopantomography (Figure 8) and periapical X-ray (Figure 8e) were performed for an appropriate follow-up.



Figure 8. A: Follow-up orthopantomography after 17 months. Loss of tooth 1.5 is observed. B: Periapical X-ray confirms tooth 1.4 status, completely devoid of bone support as well as mesial root of tooth 1.6. C: CBCT image after 17 months. D: Follow-up orthopantomography taken some days after spontaneous loss of tooth 1.4. E: Follow-up periapical X-ray taken some days after spontaneous loss of tooth 1.4.

The decision not to rehabilitate the edentulous space in order to have a correct follow-up and avoid manipulation of the area was made between the dentist, the maxillofacial surgeon and the oncologist.

After 6 years, the patient is in complete remission of the pathology and has stable oral health, being followed-up in the Master of Dentistry in Oncological and Immunocompromised Patients

(Hospital Odontológico Universidad de Barcelona, University of Barcelona, Spain).

## DISCUSSION

Although not very frequent, primary extranodal NHL have been described to have higher incidence in patients with Acquired Immune Deficiency Syndrome (AIDS) with an atypical morphology and an aggressive clinical evolution.<sup>5</sup> Corti et al.

presented a case series of 24 patients with primary extranodal head and neck NHL in AIDS patients.<sup>5</sup> On the other hand, Shamloo et al. retrospectively studied 126,450 biopsies and found a 0.4% incidence of head and neck lymphomas (513 cases) of which, 200 (0.15%) were HL and 313 (0.25%) were NHL.<sup>6</sup> They concluded that diffuse large B-cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin lymphoma and its most frequent locations are tongue, palate, vestibular mucosa, and maxillary bones.<sup>6</sup>

The diagnostic challenge observed in our case, where the lesion was initially associated with a failed endodontic treatment, is consistent with recent literature. Maxillary DLBCL can often be misdiagnosed as chronic osteomyelitis or dental infections, leading to significant delays in treatment.<sup>10</sup> Furthermore, recent reviews emphasize that aggressive oral lymphomas frequently present as non-specific swellings, making the dentist's role in early detection through biopsy essential when lesions do not respond to standard treatments.<sup>9,12</sup>

Regarding immunohistochemical advances, recent studies have explored the expression of CD30 in oral DLBCL, suggesting it as a potential biomarker where positive expression might correlate with better survival outcomes.<sup>11</sup> While our patient presented an aggressive stage IV-A lymphoma, it is also important to differentiate these cases from other B-cell subtypes like MALT lymphoma, which,

although rare in the masticator space, presents a much less aggressive clinical course.<sup>13</sup>

In a similar way to our findings, Bhattacharyya et al. reported a series of 13 cases of primary extranodal NHL in the jaws without any immune deficiency or HIV infection.<sup>7</sup> Many cases in this study appeared in intraosseous locations, five of them around the alveolus or extraction sockets.<sup>7</sup> Seven cases were presented as soft tissue swelling, six in the maxilla and one in the mandible.<sup>7</sup> The buccal surface was one of the most common locations where this lesion appeared.<sup>7</sup> Finally, NHL cases have also been reported in glandular structures, such as the parotid gland, as shown in the meta-analysis by Jamal et al.<sup>8</sup>

## CONCLUSIONS

i) Tumors with lymphoid origin should be included in the differential diagnosis of tumor lesions of the oral cavity. ii) Malignant lesions in the head and neck area have an incidence with an evident upward trend. iii) Early diagnosis in cancer is essential. iv) The dentist must be acquainted with tumor pathology of the oral cavity, its characteristics and the diagnostic techniques available. v) Any injury that does not respond to clear patterns must be promptly diagnosed.

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