Intraosseous Non-Hodgkin Lymphoma Mimicking a Periapical Lesion

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Abstract

Non-Hodgkin lymphomas are a group of disorders involving malignant monoclonal proliferation of lymphoid cells, which appear at extranodal sites in approximately 40% of the cases, particularly in the gastrointestinal tract. Intraosseous lymphomas of the head and neck region are extremely rare and can mimic other diseases such as periodontitis or periapical pathologies. This report presents an additional case of intraosseous lymphoma that was previously misdiagnosed as periapical disease. In addition, a literature review was made based on PubMed, and all cases of periapical lymphoma were analyzed. After the diagnosis of lymphoma, the current patient was treated with 6 cycles of chemotherapy and showed satisfactory outcome. The literature review displayed 29 cases of lymphoma affecting the periapical region, and in 51.7% of them endodontic treatment was performed previously to the diagnosis of lymphoma. Although lymphoma is uncommon in the oral cavity, some symptoms can assist the dentist to suspect malignant conditions, mainly in cases presenting numb chin syndrome. *(J Endod 2015;41:1738–1742)*

Key Words

Extranodal lymphoma, non-Hodgkin lymphoma, numb chin syndrome, periapical lesion

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Lymphomas are malignant neoplasms characterized by malignant monoclonal proliferation of lymphocytes; they occur most commonly between the fifth and seventh decades of life and are slightly more frequent in men (1, 2). Lymphomas are divided into 2 major categories: Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL). HL is histologically marked by Reed-Sternberg cells (binucleated or multinucleated cells resembling "owl's eyes") and generally provides better prognosis when compared with NHL (3, 4).

NHL is a variable group of lymphomas and appears in extranodal sites in about 20%–40% of the cases (3–6), with the gastrointestinal tract being the most commonly affected site followed by the head and neck region, subcutaneous tissue, and skin. In the oral cavity, NHL represents 2%–3% of all lymphomas (7–9) and affects mostly the Waldeyer's ring (which involves the lymphoid tissue of the tonsils, the soft palate, the nasopharynx, and the base of the tongue) but also can affect buccal mucosa, the tongue, the floor of the mouth, the retromolar area, and the jaw bones (1, 10, 11).

The main risk factors of NHL include immunodeficiency, autoimmune diseases (Sjögren syndrome, systemic lupus erythematosus, rheumatoid arthritis, and coeliac disease), infections (Epstein–Barr virus, human herpesvirus 8, hepatitis C virus, or *Helicobacter pylori*), exposure to noxious chemical agents, and hereditary factors (4, 10, 12). Some authors consider that a local inflammatory process can trigger cell division, increasing the chance of malignant transformation (13, 14). However, NHL can develop without any other related condition.

The clinical presentation of oral NHL varies from nontender swellings to ulcerated masses and may mimic some benign or malignant lesions depending on their clinical characteristics. The most important differential diagnosis includes pyogenic granuloma, periodontal disease, osteomyelitis, and malignancies such as squamous cell carcinoma and salivary gland tumors (13).

The aim of this report was to describe a rare case of a mandibular intraosseous NHL mimicking a periapical disease and to highlight the importance of differential diagnosis and appropriate treatment. Moreover, we present a review of the main cases of periapical lymphomas published in the English-language literature found using the PubMed search.

Case Report

A 48-year-old-man was referred for evaluation with a chief complaint of lower lip numbness and cold sensitivity in the right inferior premolars lasting for about 5 months. Previously, his general dentist performed the replacement of an amalgam crown filling of the first and second premolars. Because the symptoms persisted, endodontic treatment of these 2 premolars and also of the adjacent canine was performed. However, the lip numbness remained, and swelling adjacent to these teeth was noticed after the endodontic treatment. His medical history did not reveal any relevant information.

On intraoral examination, a swelling covered by normal mucosa was observed on the buccal side of the right inferior premolars and canine (Fig. 1*A*). It was asymptomatic and had a fibrous consistency on palpation. Periapical and panoramic radiographs showed a diffuse and ill-defined radiolucent image involving the right lower premolars

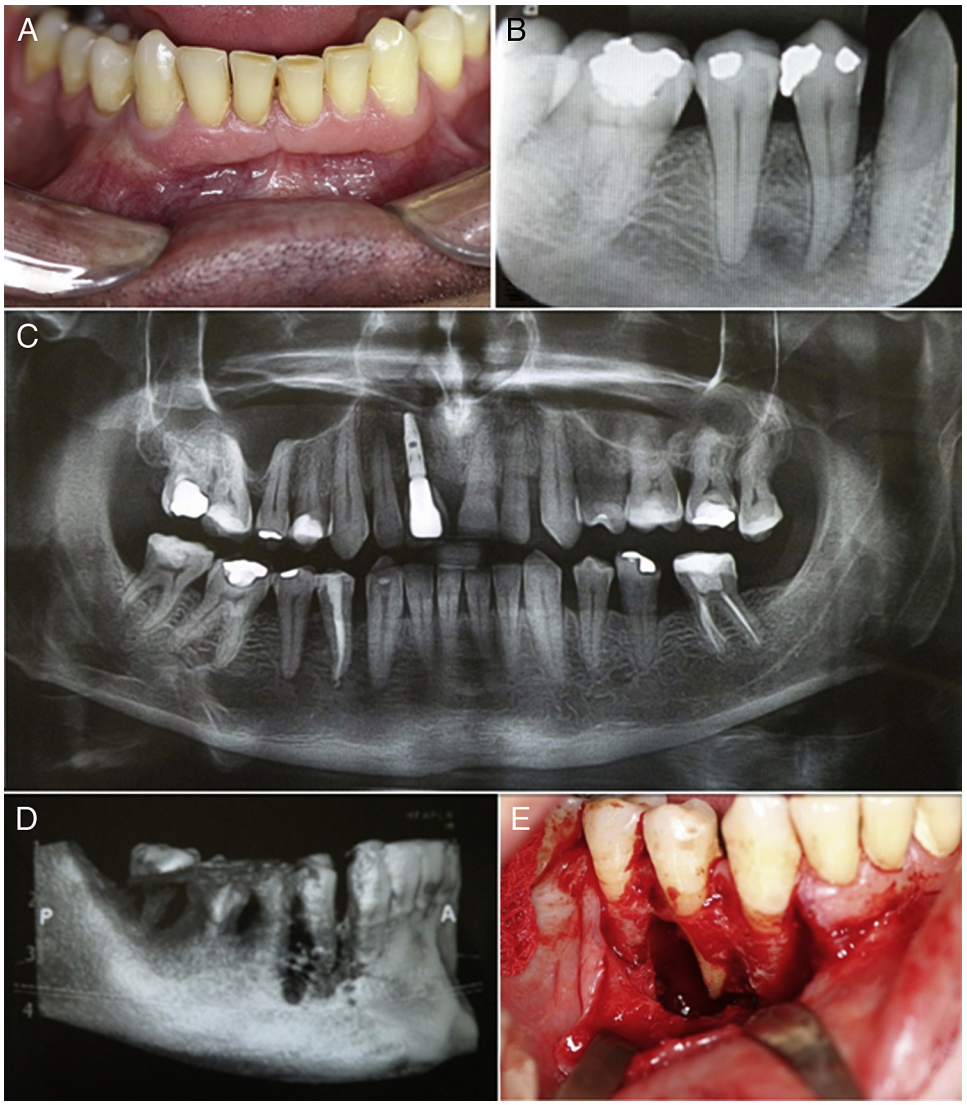

Figure 1. Clinical and radiographic aspect. (*A*) Slight swelling in the right vestibular mucosa of mandible. (*B*) Periapical and (*C*) panoramic radiographs showing a diffuse radiolucent area in the apexes of lower right premolars. (*D*) Computed tomographic imaging (3-dimensional reconstruction) showing irregular bone on right mandible and (*E*) confirmed during biopsy.

and canine apexes (Fig. 1*B* and *C*). On computed tomographic imaging, an irregular destruction of buccal cortical bone and external resorption of these 3 teeth was noted, suggesting a malignant disorder. On 3-dimensional reconstruction, bone alteration was observed (Fig. 1*D*).

An incisional biopsy was performed under local anesthesia, and during the surgical procedure bone destruction adjacent to the right mandibular premolars and canine roots was confirmed (Fig. 1*E*). Histopathological analysis showed atypical lymphocytic cells with hyperchromatic nuclei suggestive of lymphoid neoplasia (Fig. 2*A* and 2*B*). Immunohistochemical analysis revealed positivity for Leucocyte Common Antigen (2B11 + PD7/26 1:200), CD20 (L26 1:1000), CD79a (JCB117 1:1000), and high proliferative index (>80%) for Ki67 (MIB-1 1:100) (Fig. 2*C-F*). CD3 (polyclonal 1:500), CD138 (MI15 1:100), MUM-1 (MUM1p 1:500), Plasma Cell (VS38c 1:400), and EBER (CS.1-4 1:200) were negative. All antibodies and probe to EBER were provided by Dako (Dako North America, Carpinteria, CA). According to these findings, the diagnosis of diffuse large B-cell lymphoma (DLBCL) was established.

The patient was referred to a hematologist-oncologist for evaluation and several examinations were requested, including a human immunodeficiency virus serologic test and full-body positron emission tomography with 2-deoxy-2-(fluorine-18) fluoro-D-glucose integrated with computed tomographic (18-FDG-PET/CT) imaging. 18-FDG-PET/CT imaging displayed a high metabolic activity only in the right mandibular region. No tumor activity was noted in other sites on the 18-FDG-PET/CT scan (Fig. 3). Bone marrow aspiration showed no tumor cells, and the patient was classified as stage I according to the Ann Arbor staging system (15). The serologic test for human immunodeficiency virus was negative. Treatment was based on 6 cycles of rituximab, cyclophosphamide, hydroxydaunorubicin, vincristine, and prednisone chemotherapy regimen. The patient recovered well after treatment, and complete tumor remission was observed, which was confirmed by a PET scan. Slight bone recovery was noted, and an improvement of numbness in the lower lip was reported. The patient remains in close follow-up, and 7 months after the last cycle of chemotherapy, no signs of tumor recurrence have been observed.