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Non-Hodgkin's lymphoma of mandible in a young male

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ABSTRACT

Non-Hodgkin's lymphoma is a tumor which occurs with diverse clinical presentation. A 19-year-old male presented with a swelling in the oral cavity, was misdiagnosed as periodontal infection of the tooth. Biopsy and subsequent immunophenotypic analysis helped in the diagnosis of B cell lymphoma with T cell rich areas.

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1. Introduction

Malignant lymphomas constitute a group of neoplastic proliferation process of the lymphocytes and their precursor cells. Hodgkin's disease is characterized histopathologically by presence of multinucleated Reed-Sternberg cells. All other neoplasms of lymphoid system are referred to as non-Hodgkin's lymphoma (NHL) and are derived predominantly from the cells of B-lymphocyte series.[1] 40% of NHL arises from extra nodal sites. NHL detected primarily in the bone is quite rare, but among jaws lesions, they are more frequently present in the maxilla than in the mandible.[2] There are no classical characteristic clinical features of lymphomas involving the jaw bones. In addition, the jaws have a number of unique pathologic entities as compared with other bones. Swelling, ulcer, or discomfort may be present in the region of the lymphoma, or it may mimic periapical pathology or a benign condition. This case report describes about primary NHL involving the mandible of a 19-year-old male.

2. Case report

A 19-year-old male presented with pain and a diffuse swelling in lower left posterior mandible of 1-month duration. One node in submandibular region was enlarged and appeared to be matted. FNAC of the lymph node was done which revealed lymphoid hyperplasia. Panoramic radiograph revealed a lytic lesion with resorption of buccal and lingual cortical plates (Fig. 1). Horizontal alveolar bone loss in 35 and 36 with grade II mobility was seen. He presented to his dentist and initially received treatment for suspected periodontitis but because of progressive nature of the swelling, curettage in the region of 35 and 36 was done and was sent for histopathological examination (Fig. 2). Hematoxylin and eosin stained sections showed areas of infiltration by histiocytes, plasma cells. However focal areas of lymphoid infiltration containing large vesicular nucleus with prominent nucleoli were seen (Fig. 3A and B). As the biopsy fragments available for histopathological examination were extremely small, so it was only possible to

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Fig. 1 – Panoramic radiograph showing a lytic lesion with resorption of buccal and lingual cortical plates: mandible.



Fig. 2 – Photograph of incisional biopsy fragments.

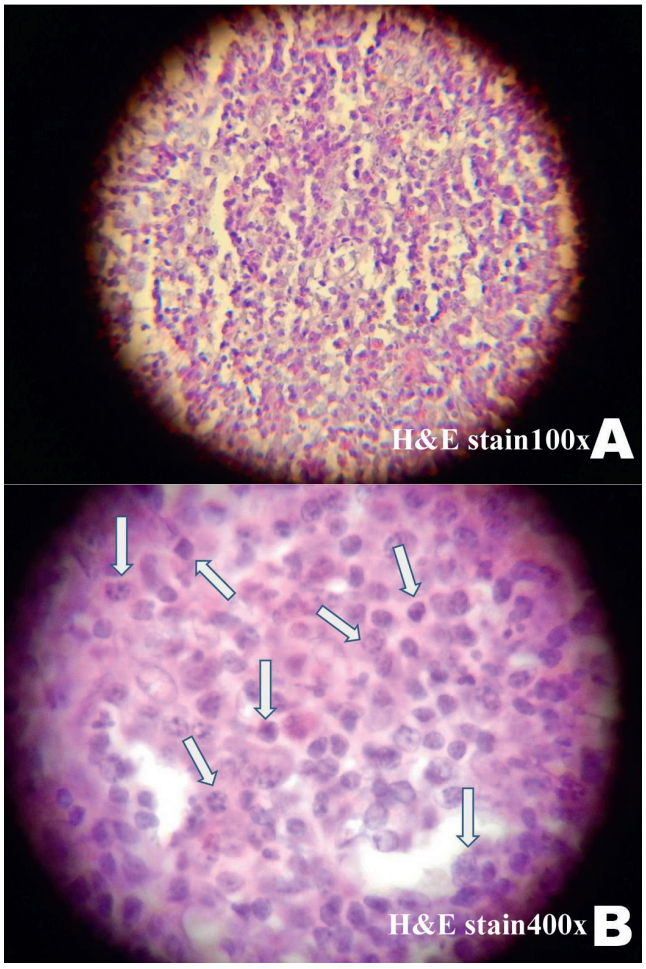


Fig. 3 – (A) Sheets of round cells composed of histiocytes, plasma cells, and numerous lymphoid cells (Hematoxylin & Eosin stain 100×). (B) Numerous atypical lymphocytes with large vesicular nucleus with prominent nucleoli (Hematoxylin & Eosin stain, 400×).

render a diagnosis of malignancy of lymphoid tissue and biopsy tissue was further subjected to immunophenotypic analysis. Immunopositivity of leukocyte common antigen (LCA), CD20 (B-lymphocyte specific antigen B1), and CD3 (specific for T-cell derivation) were reported (Fig. 4). Immunostains for CD31 (marker for tumors of endothelial origin), CD138 (marker for plasma cell lines), and TdT (marker for human lymphoblastic lymphoma) were negative. Since there was a positive reaction to T cell and B cell markers, a diagnosis of diffuse NHL B cell type with T cell rich areas were made. Patient was further advised for a full body scan and was referred to an oncologist for further treatment.

3. Discussion

NHL of the bone was first described by Parker and Jackson in 1939.[3] It has been defined as a lymphoma arising in the medullary cavity of a single bone with no visceral or lymphatic involvement or distant metastasis for at least 6 months following diagnosis.[4] Primary malignant NHL of the mandible represent about 8% of all the tumors in this bone[5] and about 0.6% of all malignant NHL. These neoplasms are generally diagnosed in the jaw bones of adults in the fourth and fifth decade of life[4] with a 1:2 male–female ratio.[6] Owing to their low frequency and to their not so specific symptoms, primary malignant NHL of the mandible is often misdiagnosed.[7] Our patient was a young male of 19 years and presented with dental pain, swelling, tooth mobility, and bone loss in left mandibular 35 and 36 regions. NHL account for approximately 7% of cancers diagnosed in patients less than 20 years of age, with approximately 800 cases being diagnosed in the United States each year. There is an increased risk in children who have immune system problems, radiation exposure, and infection with Epstein Barr virus.[8]

Lymphoma in head and neck region is most frequently associated with bone swelling, tooth mobility, unexplained dental pain, and ill-defined lytic osseous changes.[9] These signs may lead to an incorrect diagnosis because of its clinical resemblance to other common dental diseases such as

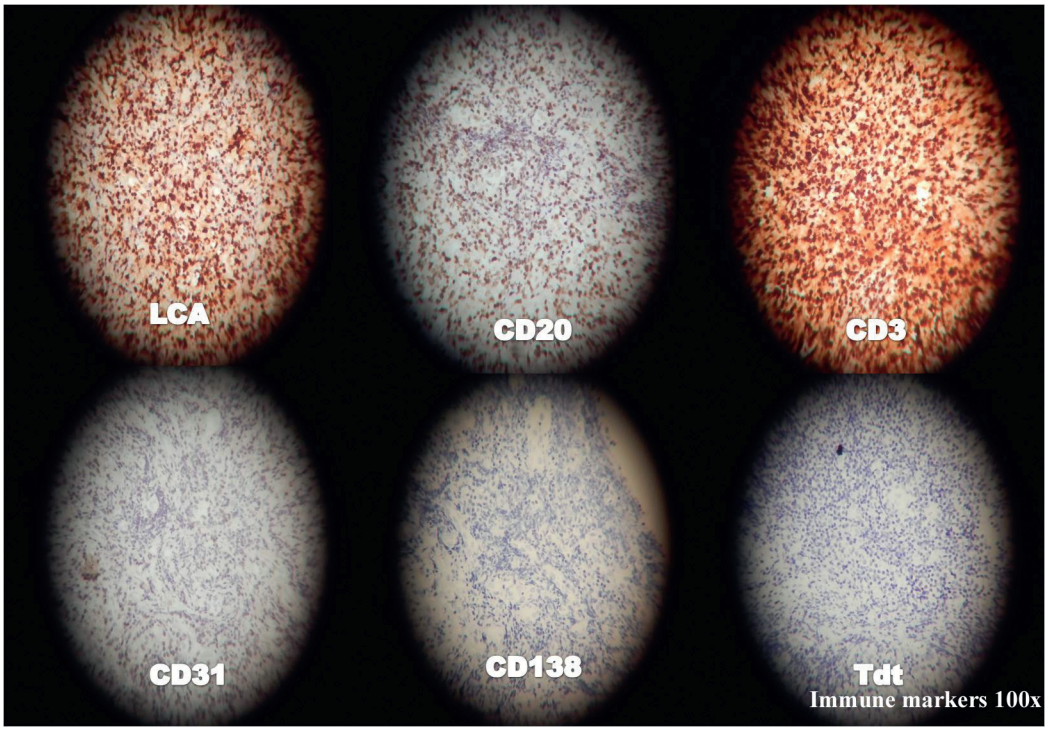


Fig. 4 – Immunopositivity for LCA, CD20, and CD3 but tumor cells are immunonegative for CD31, CD138, and TdT (100× each).

odontogenic tumor, cyst, or infection. Radiographically, it appears as a radiolucent area that may mimic endodontic lesion, periodontal infection, or odontogenic cyst or tumor. This might account for the fact that on average there is about a 10 weeks delay between the first presentation and the diagnosis.[7] For the same reason inappropriate treatment of the lesion is likely until a correct diagnosis is made.[5] Our patient also was initially treated for suspected periodontitis but as the swelling was progressive, he underwent an incisional biopsy. As the biopsy fragments available for histopathological examination were extremely small, so it was only possible to render a diagnosis of malignancy of lymphoid tissue and the biopsy tissue was further subjected to immunophenotypic analysis that confirmed the pathology to be a diffuse NHL B cell type with T cell rich areas. A positive reaction to CD20, LCA diagnosed it as a B cell lymphoma and positivity to CD3, indicated it to contain T cell rich areas. Co-expression of B and T cell markers has been documented in 10% of cases.[10]

The diagnosis of NHL can be one of the most difficult in surgical pathology and the pathologist's ability to correctly differentiate benign from malignant lymphoproliferations is hampered not only by the inherent morphologic complexity of these lesions, but also by the difficulty in reliably obtaining the exquisite histology required for diagnosis and by the increasing requests of clinicians for the pathologists to make diagnosis on ever smaller specimens.

NHL can be managed by chemotherapy, radiotherapy, and surgery in various combinations. NHL arising in bone is best treated by chemotherapy and may not require radiotherapy. Survival is excellent in localized disease, whereas disseminated disease seems less favorable.[11] Our patient was referred to the oncologists for the subsequent course.

4. Conclusion

Lymphoma of mandible is rare, but it must be considered in differential diagnosis of gingival swellings when common causes are ruled out. The diagnosis of lymphoma is challenging in the oral cavity as the size of biopsy is very small. Also superficial incomplete sampling is a major hurdle. So, in difficult cases or in those with poor histology or limited material for examination, immunophenotypic analysis may be the only means of making a diagnosis. Dentist, pediatricians, and oral maxillofacial surgeons should be aware of this rare possibility, as early diagnosis will improve the prognosis. So, it has become very important for present age dentist to properly investigate any swelling of orofacial region and treat it judiciously.

Conflicts of interest

The authors have none to declare.

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