Atypical presentation of non-Hodgkins lymphoma of the mandible: A rare case report and literature review

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Abstract

Non-Hodgkin’s lymphoma (NHL) and HL are neoplasm’s originating from cells of the lymphoid lineage. It is the third most frequent childhood malignancy, and NHL accounts for about 7% of malignancy in children younger than 20 years. Lymphoblastic lymphoma is a type of NHL largely affects children and teenagers. It begins when lymphocytes, a form of white blood cell, grow bizarrely. Malignant NHLs of the mandible are regularly misdiagnosed owing to their low frequency and non-specific symptoms. This paper reports of an unusual presentation of NHL in the mandible and reviews the current literature.

Keywords
B-lymphoblastic lymphoma, mandible, non-Hodgkin lymphoma

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Received 01 Jun 2015; Accepted 28 Jul 2015
doi: 10.15713/ins.jcri.74

Introduction

Lymphomas are a diverse group of neoplasm’s affecting the reticuloendothelial and lymphatic system. It begins when lymphocytes, a variety of white blood cell, develop abnormally; most often affect lymph nodes and other lymphatic tissues, resembling the thymus or tonsils. They can also impinge the bone marrow and further organs, and can instigate diverse symptoms depending on the site of growth. They cause symptoms including fever, weight loss, weakness, sweats, and distended lymph nodes within the neck, armpit, or groin.[1]

Lymphomas are divided into two major groups, Hodgkin and non-Hodgkin lymphoma (HL and NHL), based on an array of pathologic and clinical features. Hodgkin disease (also known as HL), was first described by Dr. Thomas Hodgkin.[1,2]

Hodgkin’s disease frequently presents as nodal disease, commonly involves cervical, axillary and inguinal nodes, whereas non-Hodgkin’s disease develops extranodally, occurs in stomach, salivary glands and rarely in head and neck region.[3] This uncommon localization always poses significant difficulty in diagnosis.

We report a case of a 13-year-old girl who presented with symptomatic swelling in the mandible. The patient visited various hospitals and institutions where she was misdiagnosed as a dentoalveolar swelling initially but was finally diagnosed as malignant lymphoma. This case report focuses on the prevalence of this rare malignancy, clinical presentation, histopathologic features, immunologic profile, management protocols, and prognosis. According to English language literature, not many reports are accessible on this condition.

Case Report

A 13-year-old female reported to the Department of Oral Medicine and Radiology, Bangalore Institute of Dental Sciences with a complaint of pain since 1-year and swelling in lower cheek region since 6 months. The swelling was insidious in onset and gradually increased to present day size. The pain was moderate in intensity, localized, gradual in onset, intermittent in nature with no associated symptoms. The pain was moderate in intensity, localized, gradual in onset, intermittent in nature with no associated symptoms. Her medical history and family history were not contributory. There was no history of consanguineous marriage of her parents.

On extraoral examination a diffuse swelling was evident in anterior region of the mandible, measuring approximately 4 cm x 5 cm in size [Figure 1a and b]. Overlying skin appeared considerably stretched with loss of paresthesia over chin region. On Palpation, there was no local haul up in temperature and the swelling was tender. It was firm to hard in consistency and the surface was shiny. Overlying skin was pinchable. Bilateral submandibular, submental lymph nodes were palpable, tender, firm in consistency and not fixed to underlying tissue.
On intraoral assessment the swelling extended from 36 to 46 regions obliterating the buccal and lingual vestibule [Figure 2a]. Buccal and lingual cortical plates were expanded and were tender on palpation. The teeth in the region were mobile w.r.t 74 and 85, erupting 44 was evident and carious tooth seen w.r.t 46. Pulp vitality test was done for all mandibular teeth suggested of vital teeth.

Intraoral radiograph and orthopantomogram (OPG) revealed absence of follicular space, multiple unerupted permanent teeth w.r.t 13, 24, 25, 23, 24, 25, 34, 35, 45. Trabecular pattern appeared to be sparse with increased spacing giving appearance of ground glass pattern [Figures 2b and 3]. Based on the clinical history provisional diagnosis of fibro-osseous lesion was made. The patient was referred for complete blood examination and radiographic examination of the long bone to rule out polyostotic lesions. The blood examination values were within normal limits. Long bone radiographs did not reveal any abnormality.

Computed tomography (CT) neck and chest showed expansion and heterogeneous altered lytic density involving the angle and body of the mandible, with no evidence of periosteal bone reaction [Figure 4a and b]. There was enhancing soft tissue density lesion involving submental, submandibular and premandibular regions with a maximum thickness of 1.7 cm. Surrounding hazy fat planes with the floor of mouth appeared maintained. Multiple enlarged bilateral level IB, IA lymph nodes were noted, largest one measuring 1 cm × 0.9 cm in level IB on the right side.

CT abdomen and pelvic showed bilateral small inguinal lymph nodes, no other significant abnormality detected, following which ultrasonography of abdomen and pelvic was done, which revealed, multiple well-defined discrete non-necrotic mesenteric, pre-paraortic lymph nodes measuring approximately 10 mm × 11 mm [Figure 5].

On the basis of Ann Arbor and St. Jude/Murphy staging system, the patient was diagnosed with advanced stage NHL involving lymph nodes both sides of the diaphragm.

Incisional biopsy of the submental lymph nodes revealed extensive crush artifacts composed of medium sized monomorphic cells admixed with tingible body macrophages giving starry sky pattern. Foci of necrosis were noted. These cells were seen invading the adjacent skeletal muscles suggested of malignant lymphoma [Figure 6a].

Immunohistochemistry was positive for CD34, Tdt, Pax5 and negative for CD20, CD3, CD10, and LCA. Ki-67 proliferative marker was in the crushed fragment which proved conclusively the lesion to be as a B-cell lymphoblastic lymphoma [Figure 6b].

Management

The main goal of the management is early diagnosis and recognition of the condition and further preventing the complication. Swellings in the mandibular region are a common entity associated with odontogenic causes in the majority of the cases. This report highlights the other possible conditions to be kept in mind before final diagnosis.
The patient was referred to an oncology center where the pediatric oncologist started up with chemotherapy and patient is responding well to the treatment.

Discussion

NHL of the head and neck comprises of several unique malignant lymphoid disease entities which vary in clinical behavior, morphologic appearance, immunologic, and molecular phenotype. The body has two foremost types of lymphocytes: B-lymphocytes (B-cells) and T-lymphocytes (T-cells) that can advance into lymphomas. B-cell lymphomas grow from aberrant B-lymphocytes and credit for 85% of all NHL. T type of lymphomas develops from aberrant T-lymphocytes and report for the residual 15% of all NHLs.\(^5\)

B-lymphoblastic lymphoma (BLBL) is a type of NHL, and uncommon form of high-grade aggressive lymphoma accounts for smaller than 10% of the lymphoblastic lymphoma and 0.3% of NHL. BLBL commonly seen in bone, lymph nodes skin, and soft tissue. It grows very quickly and can often impede breathing, so it desires to be diagnosed and treated promptly and rapidly.\(^5,6\)

Epidemiology

Lymphoma (HL and NHL) is the third most usual childhood malignancy, and NHL accounts for nearly 7% of cancers in children younger than 20 years. NHL has leisurely grown from an uncommon cancer to the fifth most common cancer in the world.\(^5\)

In India, its incidence is on the upsurge with the current figure standing at 5.1/100,000 in urban registries. BLBL accounts for smaller than 10% of the sum cases of lymphoblastic lymphoma and 0.3% of NHL in adults, together with a male predominance.\(^6\)

The occurrence of NHL observed in children and adolescents varies depending on age, gender, histology, and race. NHL and Hodgkin neoplasm occur about evenly in children and teens. NHL tends to appear in younger children though Hodgkin disease is more likely to influence older children and teens.\(^7\)

NHL entails a heterogeneous group of over 40 lymphoproliferative malignancies with diverse patterns of behaviors and responses to treatments. It is much less predictable than HL and prognosis depends on the histological type, stage, and treatment. NHL presents up to 40% of the time at an extranodal site. In addition, 2-3% of these extranodal cases might arise primarily in the oral cavity and jaws. It is generally acknowledged that the most common site of NHL in orofacial region is Waldeyer’s ring. Jaw involvement by NHL is unusual, but among jaw lesions, maxilla is more common involved than mandible.\(^8\)

Malignant NHLs of the mandible are frequently difficult to diagnose due to their low frequency and non-specific symptoms. The clinical features resemble that of a bone tumor or fibro-ossseous lesion or localized osteomyelitis. Lesions are occasionally thought to be inflammatory or infectious, thus delaying diagnosis is often found in these patients.

The clinical appearance of mandibular NHL usually involves painless persistent enlargement of lymph nodes, bone swelling, loose teeth, pathologic fracture and usually associated with paresthesia. Fever of unknown cause, weight loss, malaise, sweating, and abdominal or chest pain also evident.

In our case, patient presented with painful mandibular swelling, persistent enlargement of lymph nodes, teeth mobility, paresthesia along the distribution of the mental and inferior alveolar nerve. Paresthesia in mental region indicated compression or infiltration of mandibular nervous tissue.

Radiographic features do not have definite characteristics, however shows an osteolytic area and sometimes calcification are seen within masses. OPG and CT are utilized to exhibit local extension of NHL, whereas total body CT scan are used to rule out other sites and to stage the pathology.\(^9\)

Histopathological examination, together with immunohistochemistry studies, elucidates the diagnosis. Immunohistochemistry plays a unique role in diagnosing specific types of cancers based on molecular markers by identifying cell types.

In our case, immunohistochemistry revealed neoplastic cells positive for CD34, Tdt, Pax5 and Ki-67 proliferative marker positive.\(^3,6\)
fragment which proved conclusively the lesion to be as a B-cell lymphoblastic lymphoma.

NHL are generally treated with radiotherapy in stage I and II disease, whereas in intermediate to high grade aggressive and complex disseminate forms of the disease combination with chemotherapy is advocated. It includes cyclophosphamide, hydroxydaunomycin, vincristine, and prednisone and is regarded as the standard combined chemotherapeutic treatment. In this present case, the patient was posted for chemotherapy.

**Conclusion**

We report our case of a patient with an advanced stage NHL of BLBL subtype which is been managed by aggressive chemotherapy. Considering in mind that BLBL comprises <0.3% of all NHL and extranodal NHL as a primary tumor accounts for <1% of entire head and neck tumors, its occurrence in mandible with low frequency and non-specific symptoms pose a real challenge. At this juncture, we as professionals should emphasize on the significance of early detection and judgment of this atypical though potentially treatable disease.

**References**