Oral and Maxillofacial Surgery Cases 5 (2019) 100130

Contents lists available at ScienceDirect

Oral and Maxillofacial Surgery Cases

journal homepage: www.oralandmaxillofacialsurgerycases.com

Primary extranodal non-Hodgkin's lymphoma of the mandibular condyle: A case report and literature review

Lijuan Ma [a], Zhankui Xing [a], khaled Alkebsi [a], Lan Yang [a,*], Tingying Xiao [a], Zhiqiang Wang [a], Essam Ahmed Al-Moraissi [b]

[a] Department of Oral Maxillofacial Surgery, The Second Hospital of Lanzhou University, Gansu Provence, China
[b] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Thamar University, Yemen

ARTICLE INFO

Keywords:
Primary extranodal non-Hodgkin's lymphoma
Mandibular condyle
Anaplastic large cell lymphoma

ABSTRACT

Lymphoma is considered as cancer of the lymphoid tissue that exists in two main categories, including Hodgkin's and non-Hodgkin's lymphoma. Primary extranodal non-Hodgkin's lymphoma of the mandibular condyle is extremely rarely reported. Comprehensive examination is required to establish more possible diagnosis for every patient. To learn more about this lesion, this case report of a patient with anaplastic large cell lymphoma occurring in the mandibular condyle has been presented. The pathological examination of this tumor included diffused atypical lymphocytic cells infiltrating, hyperchromatic nuclei and atypical mitosis. The patient has been treated chemotherapeutically by 6 cycles of EPOCH (Pirarubicin 20mg d1-2,10mg d3-4 and 151 Etoposide 50mg d1-4 and Vinorelbine 10mg d1-4 and Ifosfamide 1.5g d5 and 152 Prednisone 100mg d1-5) and has been followed up to 13 months. Considerable bone regeneration progressed through the follow up time. In conclusion, the primary extranodal non-hodgkin's lymphoma of the mandibular condyle should not be excluded from the differential diagnosis and this disease can be treated by chemical therapy.

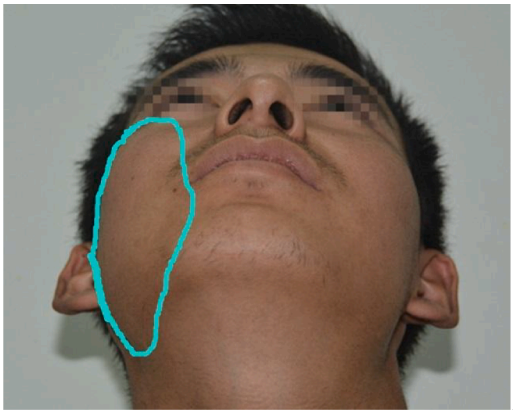
1. Introduction

Depending on the Reed-Sternberg cells, lymphoma of the lymphoid tissue is classified into Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL), 90% of lymphomas are NHL [1]. The NHL can subgrouped to B and T-cell types, which in turn the T-cell type represents 25%. Anaplastic large cell lymphoma has been classified by the World Health Organization as a subtype of peripheral T-cell lymphoma [2,3]. Most of NHLs arise in lymph nodes, 25%–40% of patients with NHL present with extranodal involvement [4]. 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 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 [5].

The majority of primary bone lymphomas are NHL [6]. It was first described by Oberling in 1928 [7], and further reported by Parker and Jackson 1939 [8] in their series on primary reticulum cell sarcoma of bone [6,9]. The mechanism of the NHLs occurrence is

* Corresponding author. Department of Oral Maxillofacial, Surgery, The Second Hospital of Lanzhou University, Lanzhou University School of Stomatology, NO 222, Tianshui Street, Lanzhou, Gansu province, China.
E-mail addresses: xzkgansu@126.com (Alkebsi), ylan2005@163.com (L. Yang).

https://doi.org/10.1016/j.omsc.2019.100130
Received 25 May 2019; Received in revised form 20 September 2019; Accepted 28 September 2019
Available online 8 October 2019


A


B

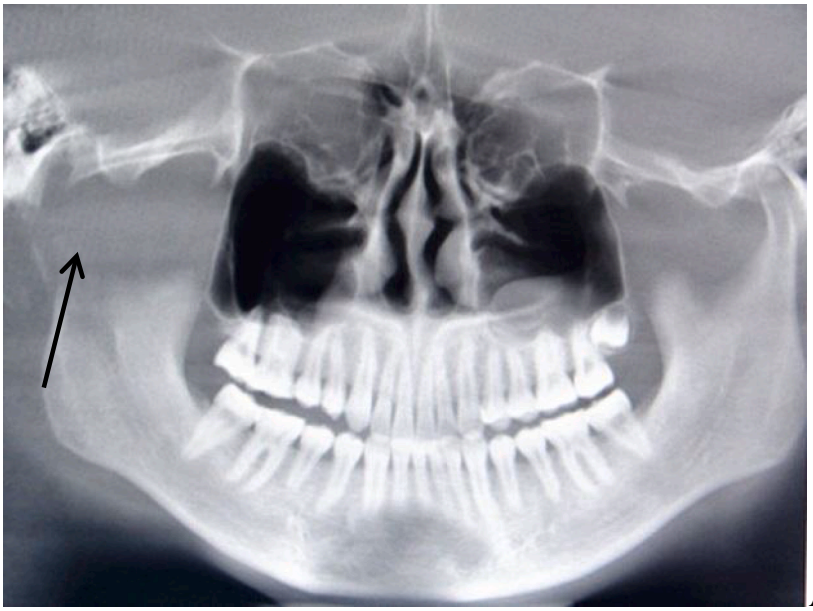

C


D

(caption on next page)

Fig. 1. (A) Maxillofacial asymmetry with swollen right side; (B) limited mouth opening about 2.5 cm; (C) normal intercuspal position; (D) abnormal Bennett movement.

not clear, the most common factors include immunodeficiency, autoimmune diseases, infections, exposure to noxious chemical agents, radiation chemotherapy and hereditary factors [10]. Sometimes, the NHL can develop without any other related conditions. The clinical presentation of oral NHL varies from non-tender swellings to ulcerated masses, with varying degrees of mouth opening limitation and may mimic some benign or malignant lesions depending on their clinical characteristics such as parotid gland adenoid


A

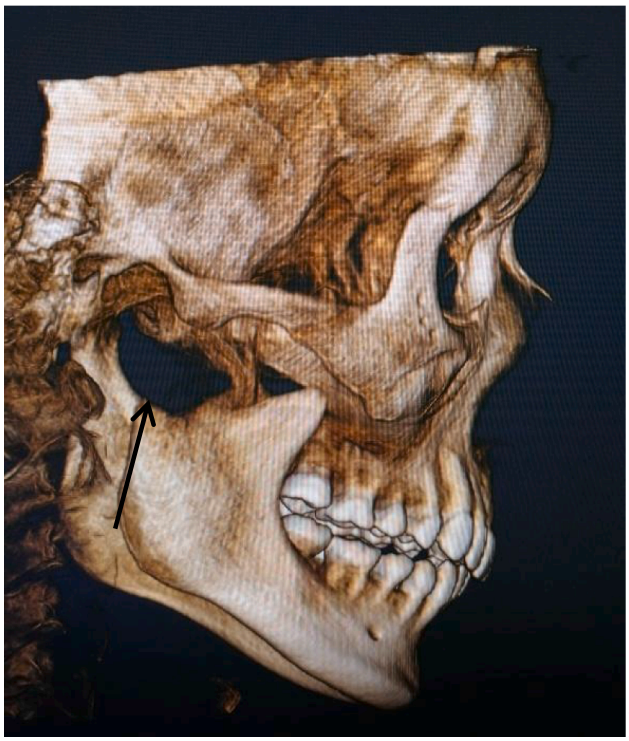

B

Fig. 2. (A) Diffuse and ill-defined radiolucent image at the right mandibular condyle area; (B) absorbed mandibular condyle.

cystic carcinoma that can lead to limit opening mouth [11].

The aim of this report is to describe a rare case of primary extranodal NHL of the mandibular condyle and to get more knowledge about this lesion.

2. Case report

A 19-year-old male patient was referred to our department for consultation of a swelling and painful lesion on his right cheek with mouth opening limitation that started 30 days prior to his visit. The patient did not reveal any medical or family history, and denied tobacco smoking and betel nut chewing. Upon clinical examination, there was facial asymmetry with swollen right side, extending below and above the zygomatic arch and to the anterior temporal region, inferiorly to the lower border of the mandible, and from the commissure of the mouth to the ear [Fig. 1A]. Examination of the lesion revealed normal color and temperature of the skin, mild

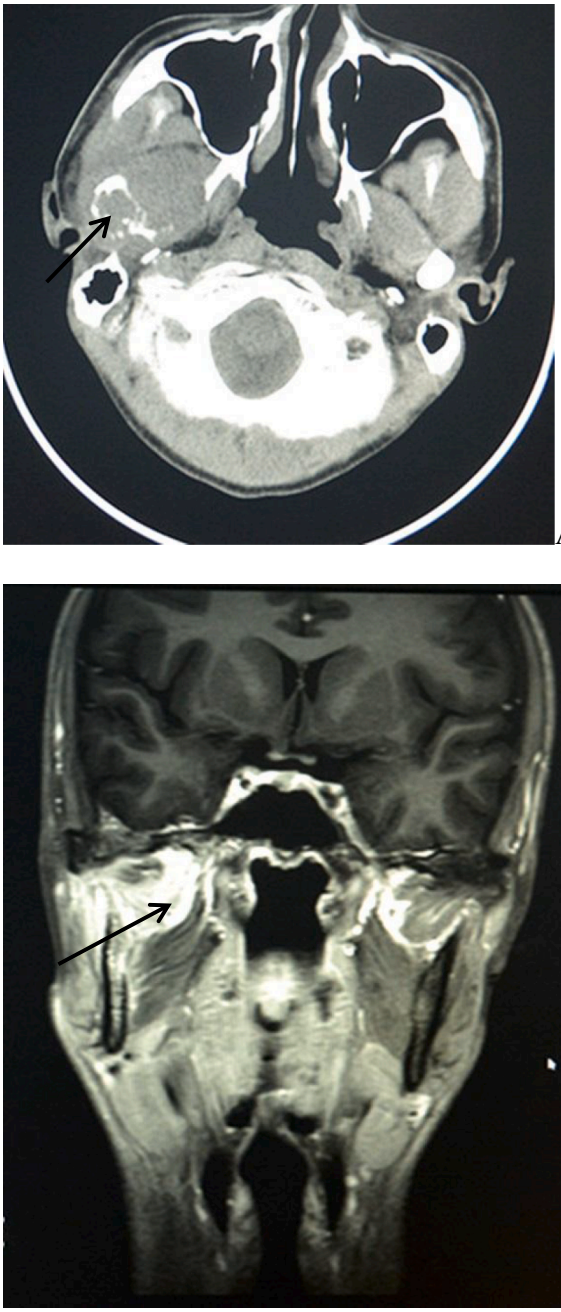


Fig. 3. (A) Lytic destruction and swollen soft tissue; (B) hyperintensity on T2-weighted imaging as diffuse increase.

tenderness on palpation, clicking on the right TMJ, and limited mouth opening about 2.5 cm [Fig. 1B]. The intercuspal position was normal [Fig. 1C], but the Bennett movement was found to be abnormal [12] [Fig. 1D]. No palpable nodes were found.

Initial panoramic radiographs showed a diffused and ill-defined radiolucency at the right mandibular condyle [Fig. 2A]. On CBCT the whole mandibular condyle was obviously absorbed [Fig. 2B].

Axial CT showed a large mass with diffused destruction in the right mandibular condyle involving surrounding muscles [Fig. 3A]. Lytic destruction was found at the center of the mandibular condyle. The cortical destruction and soft tissue swelling (lateral pterygoid, temporalis, masseter) were obvious in the right side of the face. MRI demonstrated bone marrow involvement and swelling of the surrounding soft tissues. The lesion showed diffused hyperintensity on T2-weighted imaging. The lateral pterygoid, temporalis,

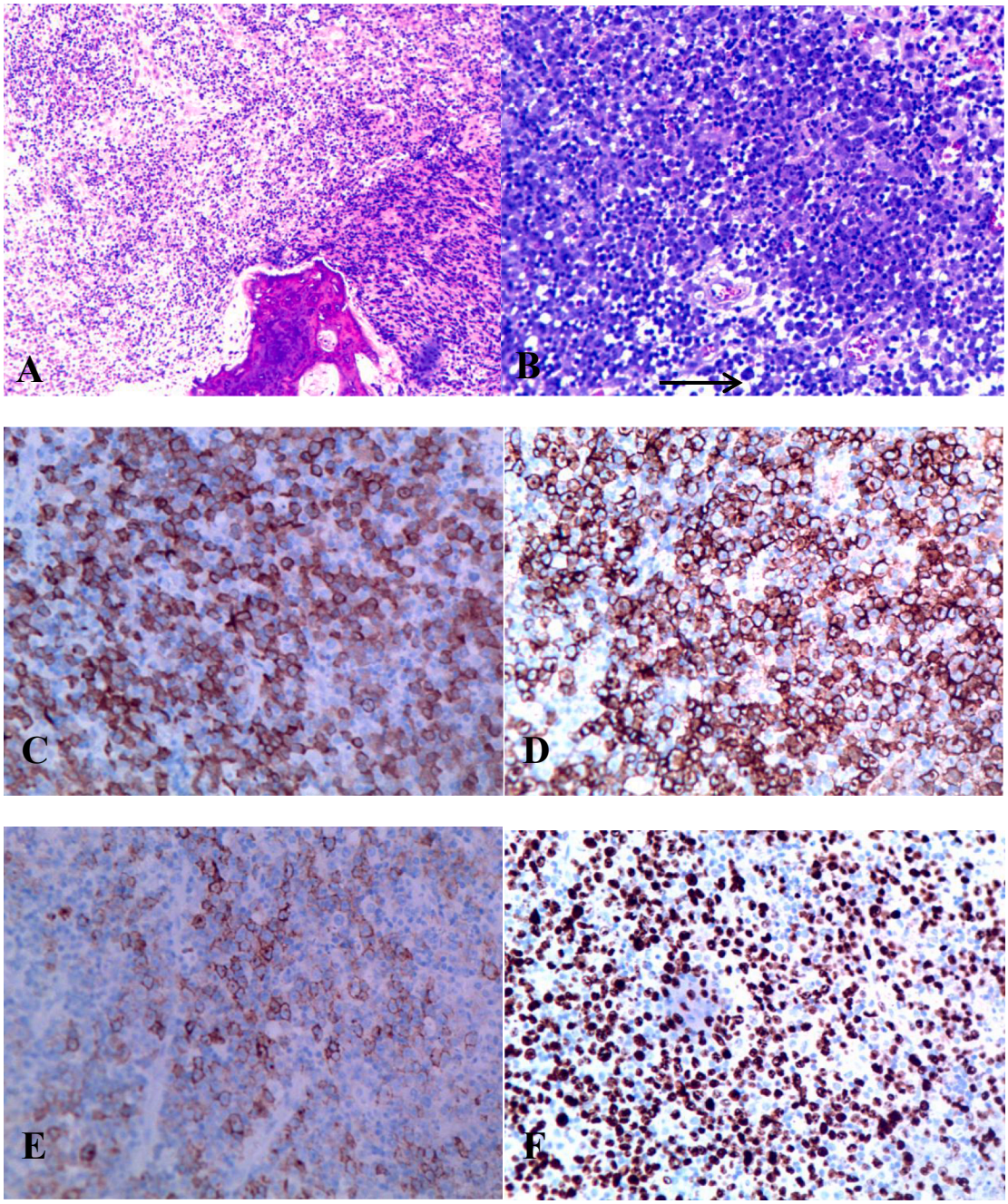


Fig. 4. (A, B) Hematoxylin-eosin staining showing diffused atypical lymphocytic cells infiltrating bone tissue with hyperchromatic nuclei and atypical mitosis (magnification: A, × 100; B, × 200); (C–F) immunohistochemistry staining was performed to show the positivity for ALK (C), CD30 (D), EMA (E) and the high proliferation of Ki67 index >85% (F) (magnification × 200).

masseter and medial pterygoid muscles were obviously swollen with streaky shape of the surrounding soft tissue [Fig. 3B].

Small sample was taken by preauricular approach. During the surgical procedure, destructed bone with granulation tissue has been seen and the boundaries were not clear between bone and soft tissue. From the histological examination, the hematoxylin-eosin staining showed diffused atypical lymphocyte cells infiltrating bone tissue with hyperchromatic nuclei and atypical mitosis [Fig. 4A and B]. By the immunohistochemical and the extensive immunohistochemical staining the tumor cells stained positive for ALK T-cell markers, CD30, EMA, GB (part), TIA-1 (part) and negative for B-cell markers CD20, CD79a, CD5 and CD7. The Ki-67 proliferation index is >85% [Fig. 4C–F]. A panel of markers is decided based on morphological differential diagnosis (no single marker is specific). This case seems very interesting based on the synchronous positive expression of CD30 and partial expression of TIA-1). Recognition with the immunohistochemical staining pattern of the normal lymph node and the variety seen in lymphoma, and Perceiving the distinctive distribution pattern of the positive CD20 and CD3 lymphocytes between normal and lymphoma conditions are crucial to know the accurate determination of lymphoma. As well as, B cell lymphoma-2 (Bcl-2) positivity in the follicular focus must be assessed by the number and circulation pattern of germinal center T cells that is essential in differentiating follicular lymphoma from reactive proliferation [13].

According to the American Joint Committee on Cancer and Union for International Cancer Control, the patient's lesion was classified as stage IVE.

Chemotherapeutic treatment with EPOCH (pirarubicin 20 mg day 1–2 and 10 mg day 3–4; etoposide 50 mg day 1–4; vinorelbine 10 mg day 1–4; ifosfamide 1.5 g day 5; prednisone 100 mg day 1–5) was decided according to the lesion's stage. The EPOCH regimen's


A


B

Fig. 5. (A) Maxillofacial symmetry; (B) mouth opening about 3.5 cm.

side effects are effective for inhibition of tumor cell growth. The patient received 6 cycles of EPOCH in about one a month. The patient did not have obvious myelosuppression, gastrointestinal reaction, increase of bone destruction, marasmus, and distant metastasis [13].

After the 6 cycles of EPOCH treatment, no tumor cell proliferation, facial symmetry [Fig. 5A], improved mouth opening (3.5 cm) [Fig. 5B], Condylar bone regeneration [Fig. 6A], and increased Bone density [Fig. 6B]. The bone has been grown obviously after 9 months and 13 months [Fig. 7A and B- 8].

Periodic check up (such as blood, biochemistry, lymphocyte subset analysis, blood β-2 microglobulin, MR skull CT plain diffusion-weighted imaging DWI) [14] was carried out to insure no recurrence of the lesion.

3. Discussion

This case report involves a 19-year-old male with non-Hodgkin's lymphoma of the right mandibular condyle extravasated into the adjacent tissues. Diagnosis was based on the histopathological examination associated with a partial removal and debridement of the mandibular condyle and adjacent areas. Confirmation of the tumor initiated medical management of the tumor and the patient was medically treated with six cycles of EPOCH with a positive result at 13 months post-surgery. There is radiographic evidence of new bone formation in the condylar head and neck area. Long-term follow-up will be necessary to monitor for recurrence. Extranodal NHL accounts for 25%–40% of the reported cases, but less than 1% rises in oral cavity. The head and neck are the second most common sites for extranodal NHL, following the gastrointestinal tract [15]. In 1972 the first case series of NHL of oral cavity was published [16]


A

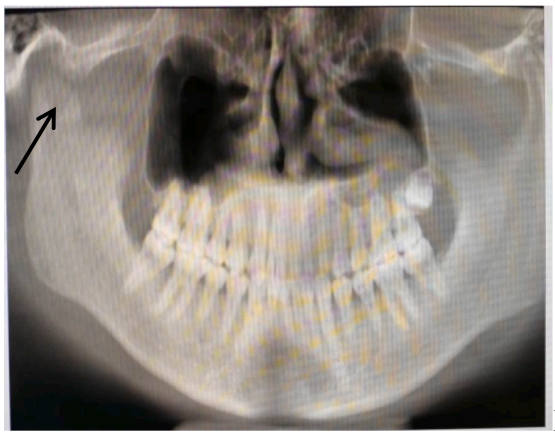
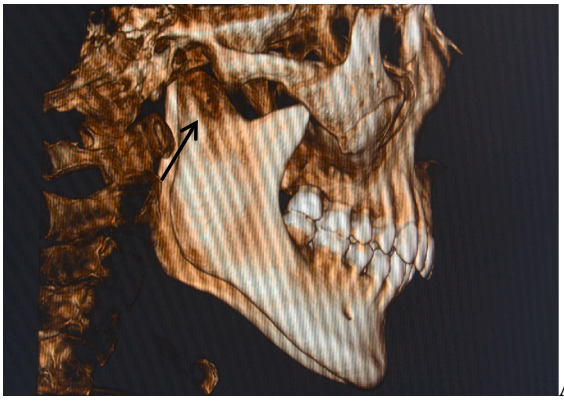

B

Fig. 6. (A) Mandibular condylar bone has grown; (B) right condylarbone density has increased.


A

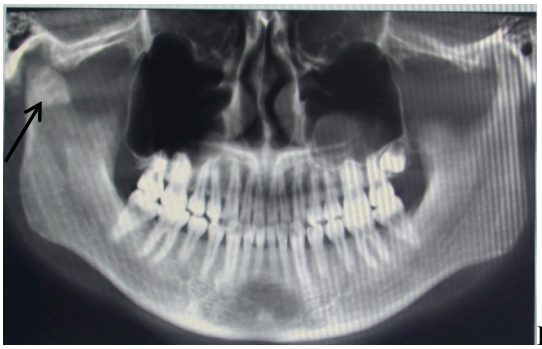

B

Fig. 7. After 9 months (A and B).

Fig. 8. After 13 months (A and B).

while case series of 71 cases that consider the largest published case series [17]. Primary extranodal Non-Hodgkin's Lymphoma in the mandibular condyle has not been published yet. 40 cases of primary extranodal NHL of the oral cavity reported that the mean age of its occurrence is 59 years and a slight male predominance [18,19]. The etiology of NHL is not clear, but the incidence of this malignancy is higher in immunodeficient conditions, such as Sjogren syndrome, systemic lupus erythematosus, rheumatoid arthritis and celiac, infections, exposure to noxious chemical agents, radiation and chemotherapy, hereditary factors. Previous reports have recorded that the risk of NHL occurrence is 60 times greater in HIV-positive patients than in otherwise healthy persons [20].

Oral lesions of NHL can manifest centrally within the bone or can occur in the soft tissues most commonly the gingiva, palate, and

the buccal vestibule. The lesion may occur in bone and soft tissue at the same time. Patients often present with tooth mobility, unexplained dental pain, localized maxillofacial swelling, pathological fracture, lymph node enlargement, fever, night sweats and emaciation, and varying degrees of mouth opening limitation. In cone beam computed tomography CBCT the bone lesion is obviously clear, some radiograph images usually include lytic destruction, periosteal reactions, cortical destruction, pathological fracture, and the special feature. The CT scan shown that the bone was absorbed starting in the center of the lesion [9]. Histopathological examination has the gold standard for diagnosis of this lesion. Unfortunately the clinical diagnosis of the oral lymphoma is not easily performed because it causes clinical features similar to other diseases, so it is crucial to include the extranodal NHL in the differential diagnosis with periodontal disease, osteomyelitis, oral squamous cell carcinoma, osteogenic sarcoma, chondrosarcoma, metastatic tumor and other malignancies [21].

Chemotherapy, radiotherapy, stem cell transplants, targeted therapy, immunotherapy or all are used for treating head and neck NHL. The prognosis greatly depends on the extent of the disease, staging, histopathological subtype, and presence or absence of HIV disease [15], as well as on the histological subtype of NHL. For example, among the T-cell lymphomas, anaplastic T-cell lymphoma shows an aggressive behavior while mycosis fungoides have an indolent behavior. With systemic diseases, the patient's prognosis is poor [22]. In the term of diagnosis, there is correlation between location of the lymphoma and its stage so that maxillary and mandibular lymphoma were diagnosed in stage II, and stage I for the lymphoma of the salivary gland, paranasal sinus, Waldeyer ring and orbit. So the lymphomas of the bone have very poor prognosis [22]. Other treatment options include condylectomy without reconstruction, condylectomy with total joint prosthesis, condylectomy with rib or sternoclavicular graft and osteogenesis distraction.

In conclusion, NHL that occurs in oral bony tissue can be aggressively destroying the bone widely if not diagnosed and treated early. So NHL should not be excluded from the differential diagnosis of maxillofacial malignant diseases. In most instances, the dentists may be the first one to identify maxillofacial NHL. Even though dentists do not treat lymphomas, early identification and prompt referral to oncologist would result in timely management of the patient.

Ethics approval

Approved.

Financial support and sponsorship

No financial support

Authors' contributions

Lijuan Ma: manuscript construction.
Zhankui Xing: the main surgeon, editing manuscript.
Lan Yang: corresponding author.
Khaled Alkebsi: manuscript editing, revision and submisson.
Tingying Xiao: clinical data collection and interpretation.
Zhiqiang Wang: pathological handling and result.
Essam Ahmed Al-Moraissi: manuscript revision and Advisory.

Patient consent

The patient is got consent form for publication.

Declaration of competing interest

The authors declare no competing interests.

Acknowledgments

This paper is supported by Lanzhou University. The authors are grateful to the Second Hospital of Lanzhou University (Maxillofacial Department) office for the contact database.

References

[1] Ramanathan A, et al. Oral extranodal non Hodgkin's lymphoma: series of forty two cases in Malaysia. Asian Pac J Cancer Prev APJCP 2014;15(4):1633–7.
[2] Leonard JP, Martin P, Roboz GJ. Practical implications of the 2016 revision of the World Health organization classification of lymphoid and myeloid neoplasms and acute leukemia. J Clin Oncol 2017;35(23):2708–15.
[3] Sukpanichnant S. Analysis of 1983 cases of malignant lymphoma in Thailand according to the World Health Organization classification. Hum Pathol 2004;35(2):224–30.
[4] Ürün Y, et al. Primary extranodal non-Hodgkin's lymphoma presenting as painful gingival swelling. Exp Oncol 2012;34(2):134–5.
[5] Pereira DL, et al. Intraosseous non-Hodgkin lymphoma mimicking a periapical lesion. J Endod 2015;41(10):1738–42.

[6] Singh R, Al Wattar B, Mohanty K. A rare case of primary bone lymphoma mimicking a pelvic abscess. Ann R Coll Surg Engl 2011;93(7):e141–3.
[7] Cutuli B, et al. Cancer of the breast after Hodgkin's disease. Analysis of 6 cases. Presse Med 1993;22(38):1928.
[8] Parker Jr F, Jackson Jr H. Primary reticulum cell sarcoma of bone. In: Modern radiation oncology, vol. 2; 1984.
[9] Huan Y, et al. Primary bone lymphoma of radius and tibia: a case report and review of literature. Medicine 2017;96(15).
[10] Augustine D, et al. Primary oral non-Hodgkin's lymphoma–A clinicopathologic study with immunohistochemical analysis. J Int Soc Prev Community Dent 2014;4(Suppl 1):S68.
[11] Manjunatha B, et al. Extranodal non-Hodgkin's lymphoma presenting as gingival mass. J Indian Soc Periodontol 2011;15(4):418.
[12] Lückerath W. Bennett movement. A literature review. Dtsch Zahnärztliche Z 1991;46(3):189–93.
[13] Wilson WH, et al. EPOCH chemotherapy: toxicity and efficacy in relapsed and refractory non-Hodgkin's lymphoma. J Clin Oncol 1993;11(8):1573–82.
[14] Dong X, et al. Primary central nervous system ALK-positive anaplastic large cell lymphoma in an adult: a rare case report. Medicine 2016;95(49).
[15] Reddy I, et al. Non-Hodgkin's lymphoma in buccal vestibule-case report. J Clin Diagn Res: J Clin Diagn Res 2014;8(8):QD01.
[16] Freeman C, Berg JW, Cutler SJ. Occurrence and prognosis of extranodal lymphomas. Cancer 1972;29(1):252–60.
[17] Solomides CC, et al. Lymphomas of the oral cavity: histology, immunologic type, and incidence of Epstein-Barr virus infection. Hum Pathol 2002;33(2):153–7.
[18] Van der Waal R, et al. Characteristics of 40 primary extranodal non-Hodgkin lymphomas of the oral cavity in perspective of the new WHO classification and the International Prognostic Index. Int J Oral Maxillofac Surg 2005;34(4):391–5.
[19] Varun BR, et al. Extranodal non-hodgkin's lymphoma of the oral cavity: a case report. Iran J Med Sci 2017;42(4):407.
[20] Ramaswami R, et al. Evolution of HIV-associated lymphoma over 3 decades. J Acquir Immune Defic Syndr 2016;72(2):177–83.
[21] Silva TDB, et al. Oral manifestations of lymphoma: a systematic review, vol. 10. ecancermedicalscience; 2016.
[22] Triantafillidou K, et al. Extranodal non-hodgkin lymphomas of the oral cavity and maxillofacial region: a clinical study of 58 cases and review of the literature. J Oral Maxillofac Surg 2012;70(12):2776–85.