Clinical and Experimental Health Sciences

Case Report / *Olgu Sunumu*

Diffuse Large B-Cell Lymphoma: A case report

Diffüz Büyük B Hücreli Lenfoma: Olgu Raporu

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Abstract

Lymphoma is the most common form of blood cancer. Hodgkin lymphoma and non-Hodgkin lymphoma (NHL) are the two major forms of lymphoma. B lymphocytes (B cells) and T lymphocytes (T cells) are the two types of lymphocytes that can develop into lymphomas. B-cell lymphomas are more common than T-cell lymphomas and account for approximately 85% of all NHLs. The most frequent type of NHL is diffuse large B-cell lymphoma (DLBCL). An aggressive type of lymphoma, DLBCL can appear in lymph nodes or outside of the lymphatic system, skin, testes, in the gastrointestinal tract, thyroid gland, breast, bone, or brain. Usually, the first symptom of DLBCL is a painless swelling in the neck, underarms, or groin caused by swollen lymph nodes. Moreover, swelling may be painful for some patients. A 70-year-old male patient who has been reffered to the Marmara University, Faculty of Dentistry, Oral Diagnosis and Radiology Clinic had a complaint of a non-healing and constantly enlarging lesion on the anterior maxillar buccal/palatinal mucosa and the alveolar ridge. Therefore, an incisional biopsy was performed under local anesthesia, and as definite diagnosis, a histopathological examination revealed DLBCL. Consequently, the patient was referred to the Department of Hematology where the lesion was treated. The purpose of this study is to present the case of a male patient with DLBCL and give a literature review.
Keywords: Diffuse large B-Cell lymphoma, oral mucosa, blood cancer

Öz

Lenfoma en sık görülen kan kanseridir. Lenfomanın iki ana tipi Hodgkin lenfoma ve non-Hodgkin lenfoma (NHL)'dir. Vücutta lenfomanın gelişebildiği iki tip lenfosit vardır. Bunlar; B lenfositleri (B hücreleri) ve T lenfositleri (T hücreleri) dir. B-hücreli lenfoma T-hücreli lenfomalar çok daha sıktır ve tüm NHL'lerin yaklaşık yüzde 85'ini oluşturur. Diffüz büyük B hücreli lenfoma (DBBHL) NHL en sık görülen şeklidir. DBBHL, agresif lenfoma lenfatik sistemin lenf düğümleri içinde ya da dışında mide-bağırsak yolunda, testis, tiroit, deri, göğüs, kemik ya da beyinde ortaya çıkabilir. Genellikle, DBBHL ilk işareti lenf düğümlerinin neden olduğu boyun, koltuk altları, ya da kasıkta ağrısız, hızlı şişmedir. Bazı hastalarda bu şişlikler ağrılı olabilir. Marmara Üniversitesi Diş Hekimliği Fakültesi Oral Diagnoz ve Radyoloji Kliniği'ne vestibül ve palatinal maksillar mukozada iyileşmeyen, büyüyen bir şişlik şikayeti ile başvuran 70 yaşındaki erkek hastaya lokal anestezi altında insizyonel biyopsi yapılmış ve histopatolojik tanının diffüz büyük B hücreli lenfoma olduğu saptanmıştır. Hasta tedavi amacıyla hematoloji kliniğine yönlendirilmiştir. Bu çalışmanın amacı, diffüz büyük B-hücreli lenfoma ile ilgili bir olgu sunumu ve literatür taramasıdır.
Anahtar Kelimeler: Diffüz büyük B-hücreli lenfoma, ağız mukozası, kan kanseri

INTRODUCTION

The cancer of lymphocytes, a type of white blood cell, is called lymphoma. The lymphocytes in the body circulate through the lymphatic system, including the bone marrow, thymus, spleen, and lymph nodes. The organs and vessels perform together to produce and store cells that fight infection. Due to their difference in histological features and behavioral patterns, there are two major types of lymphoma: Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL) (1-3).

The most frequent type of lymphoma is NHL. Making up about 30% of all lymphomas, diffuse large B-cell lymphoma (DLBCL) is the most frequent type, despite the fact that there are more than 60 types of NHL. In the Western population, 5%-10% of all cases of primary or secondary NHL occur in the Waldeyer's ring, which invloves the palatine tonsils, lymphoid tissue of the nasopharynx, soft palate, and base of the tongue. Findings of primary NHL in the base of the tongue, the soft palate, and multiple sites in the oral cavity are less common. DLBCL is an aggressive and fast-growing type of NHL. In people from all age groups, especially in middle-aged or elderly people, DLBCL has been found. DLBCL occurs more frequently in men than in women (4-7).

DLBCL often manifests itself as a rapidly growing, non-painful mass that is typically an enlarged lymph node in the neck, groin, abdomen, or the Waldeyer's ring, which includes the palatine tonsils, lymphoid tissue of the nasopharynx, soft palate, and base of the tongue. The Waldeyer's ring shares many of the histopatological tendencies with the rest of mucosa-related lymphoid tissue, such as a high DLBCL

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frequency. Typical oral symptoms are swelling, abscess, ulcers, or a non-healing extraction socket (1, 4-6).

DLBCL has an uncertain etiology that includes long-term immunosuppression, autoimmune diseases such as rheumatoid arthritis, exposure to pesticides and radiation, Sjögren syndrome, and systemic lupus erythematosus. Moreover, viruses including Epstein-Barr virus, human T-cell lymphotropic virus, human herpes virus, HIV, and hepatitis B and C, and microorganisms such as chlamydia and *Helicobacter pylori*, are also included in the DLBCL etiology (8-11).

Radiographically, DLBCL is often ignored or misdiagnosed since it is similar to a cyst, odontogenic tumor, or infeciton. The lesion is radiographically observed as a radiolucent area that may resemble endodontic lesion, periodontal pathology, or periapical lesions including odontogenic cyst or tumor (1, 5, 7, 8).

The purpose of this study is to present the case of a male patient with DLBCL and give a literature review.

CASE PRESENTATION

A 70-year-old male patient who has been referred to Marmara University, Faculty of Dentistry, Oral Diagnosis and Radiology Clinic had a complaint of a progressively enlarging and non-healing lesion on the anterior maxillar buccal/palatinal mucosa and the alveolar ridge, which increased to the present size in 1 month. No significant symptoms were present, and no lymph nodes were palpable upon an extra-oral examination. Upon an intra-oral examination, a large gingival swelling was observed in the labial sulcus adjacent to the labial frenum in relation to the region of teeth 11-21, and palatinal mucosal tissue of left maxillary anterior had a verrucous surface appearance with an approximate size of 3 × 3 cm (Figure 1). When palpated, there was a smooth surfaced non-tender swelling. In periapical radiography, only radiolucencies were observed in the tooth 22, and a lytic lesion was present (Figure 2). An orthopantomogram was advised, and panoramic radiography revealed bilateral ill-defined radiolucencies in relation to the tooth 22 and decreased to the alveolar bone (Figure 3). The teeth affected by the lesion in the region were not mobile. The patient's medical history showed hypertension and diabetes mellitus. The family history was unremarkable. The blood picture was within normal limits.

An incisional biopsy was performed on the palatinal mucosa of the left maxillar anterior region under a local anesthetic at the Department of Oral Diagnosis and Radiology. The patient signed a consent form before the procedure. A histopathologic examination was done at Department of Pathology, Marmara University Institute of Neurological Science. The histopathology of the biopsy specimen revealed a squamous mucosa with a dense lymphoid infiltrate. The lymphocytes of the specimen were intermediate to large and atypical with a moderate amount of cytoplasm. The nuclei had finely clumped chromatin with alternately noticeable nucleoli, and there were abundant mitotic figures throughout the lesion (Figure 4). A histopathological provisional diagnosis of lymphoma was made to be confirmed by immunohistochemical markers. With cells exhibiting positivity for CD20, a panel of immunostains was carried out, (Figure 5), CD10 (Figure 6), Ki-67 (Figure 7), and variable staining for Bcl-6 (Figure 8).

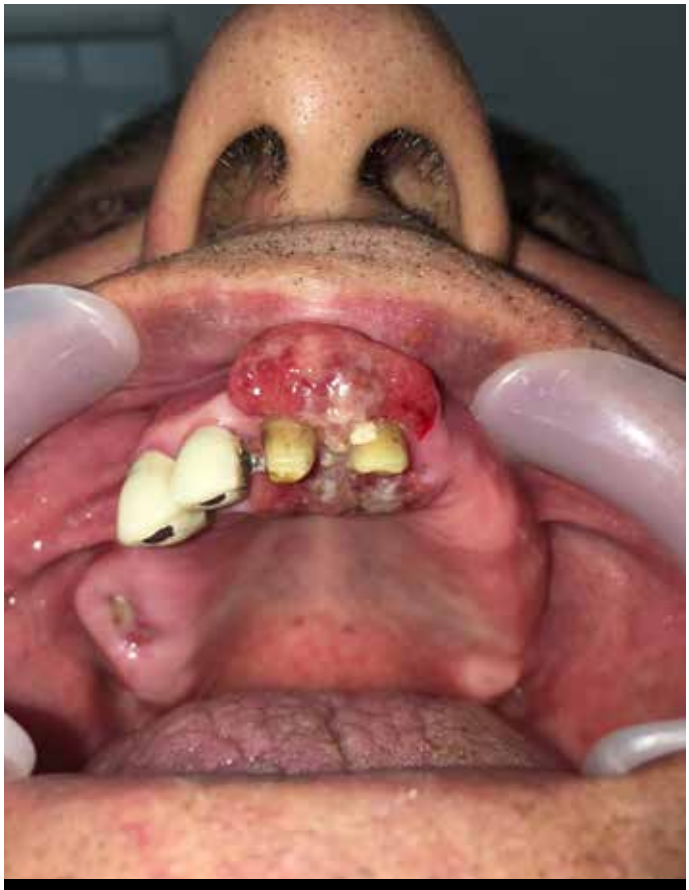

Figure 1. Intra-oral examination, a large gingival swelling was evident in the labial sulcus adjacent to labial frenum in relation to region of 11-21

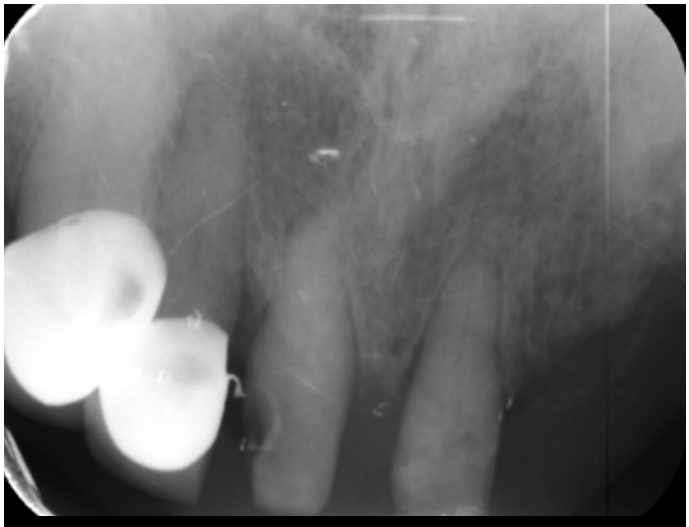

Figure 2. Periapical radiograph revealed only ill-defined radiolucencies to 22 and decreased to the alveolar bone

For markers CD3, Pan CK, and Bc-2, all cells were negative. Based on the histopathological and immunohistochemical findings (IHC), the lesion was diagnosed as a diffuse B-cell lymphoma. In addition, a hypermetabolic focus on the maxilla anterior region was portrayed in Positron Emission Tomography-Computed Tomography. Consequently, the patient was referred to the Department of Hematology where the lesion was treated.

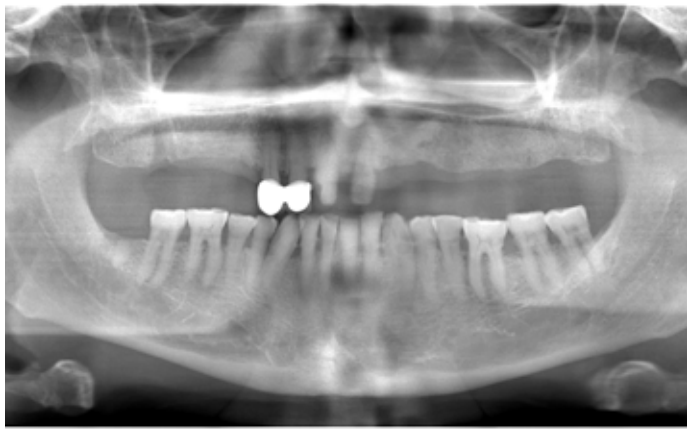

Figure 3. Orthopantomogram (OPTG) was advised that revealed decreased to the alveolar bone

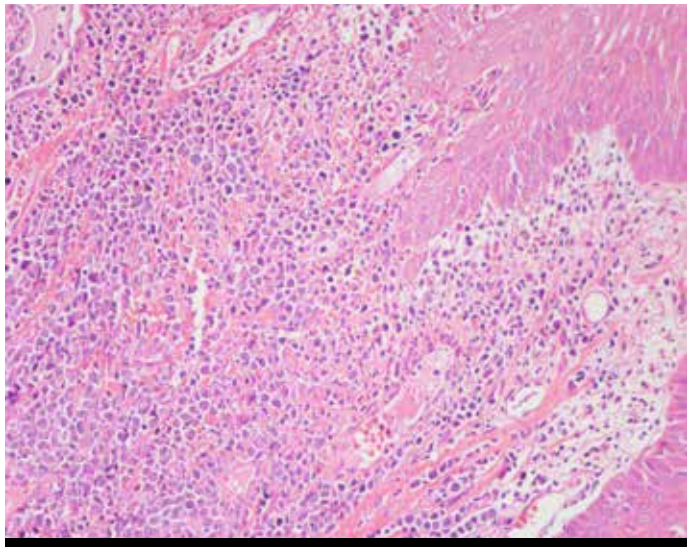

Figure 4. Photomicrograph H&E stain, (20x) showing medium to large mononuclear cells with pleomorphic oval to round nucleus, fine chromatin, containing prominent nucleoli resembling, centroblasts

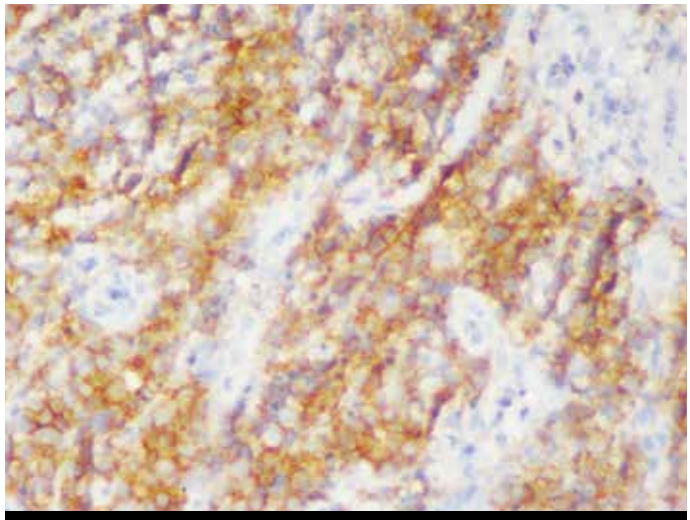

Figure 5. Photomicrograph IHC (40x), neoplastic cells showing strong positivity to CD20

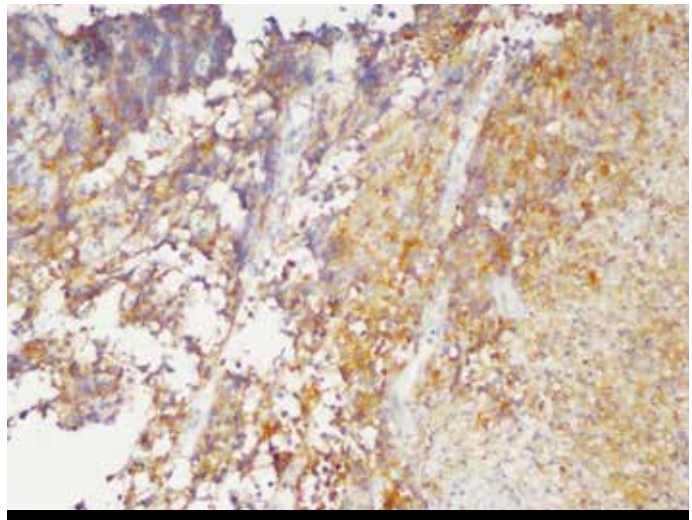

Figure 6. Photomicrograph IHC (20x), neoplastic cells showing positivity to CD10

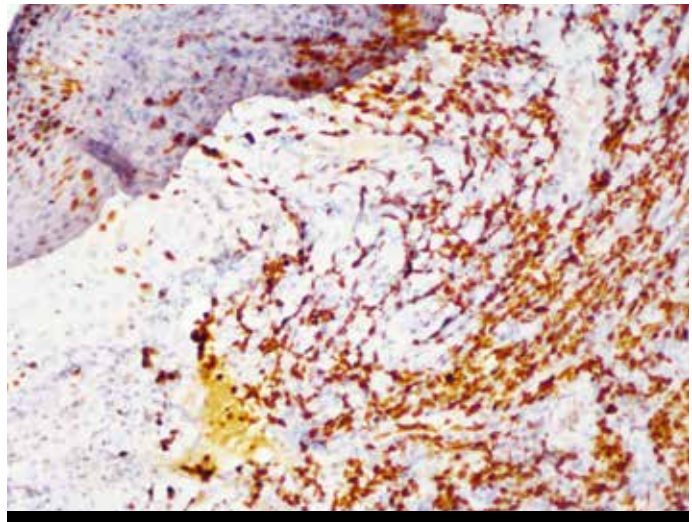

Figure 7. Photomicrograph IHC (20x), neoplastic cells showing positivity to Ki-67

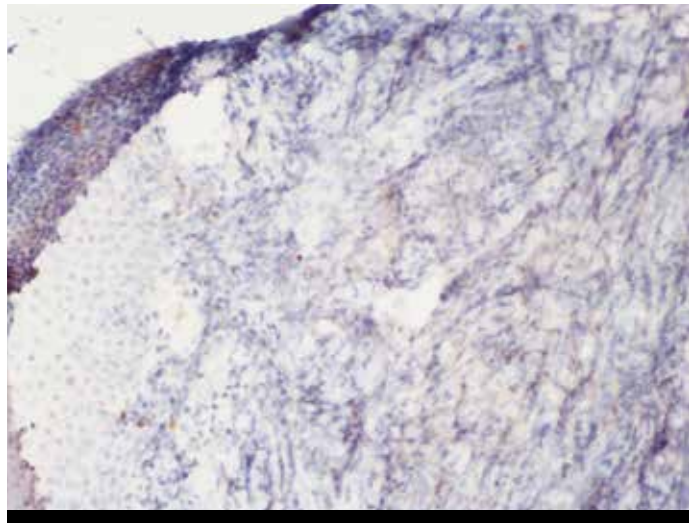

Figure 8. Photomicrograph IHC (20x), neoplastic cells showing positivity to Bcl-6.t

DISCUSSION

NHLs are much less expected than HLs, and they are a heterogeneous group of lymphoproliferative malignancies that have a greater predilection to spread to extranodal tissues (1). The head and neck region is the second most frequent region for extranodal lymphoma following gastrointestinal tract (4, 12).

The highest NHL incidence is between 60-70 years of age, yet NHL can affect patients of all ages. The involvement of various parts of the oral cavity is rare. The maxilla is more frequently involved than mandible. There are no characteristic clinical features of NHL in the oral region. NHL usually proceed from soft tissues as soft-elastic lesions (1, 5, 13, 14).

Oral NHLs are a DLBCL subtype and are known to be predominantly of B-cell lineage. The predominance of DLBCL has been explained in the oral cavity as a natural inclination for this site (1, 2, 5, 15). In the oral cavity, DLBCL has been reported in several regions such as buccal mucosa, hard palate, gingiva, and in addition, maxillary vestibule was a characteristic site for the presence of tumors of the soft tissue (1, 6). In literature, the primary intrabony region of DLBCL is rare and has been expressed in both the maxilla and mandible (6-8). For DLBCL, the most characteristic symptoms are pain (55%), swelling of the jaw (58%), and mental dysesthesias (20%). Poor dentition of the patient, loosening of the teeth, or persistent swelling and pain after dental extraction are usually defined as less frequent complaints (8). In our case, the site was anterior maxillar buccal/palatinal mucosa and the alveolar ridge, and the patient is a 70-year-old male patient. DLBCL is oftenly misdiagnosed since they show similarities with an odontogenic tumor, cyst, or infection. Radiographically, it is portrayed as a radiolucent area that may resemble an endodontic lesion, a periodontal pathology, odontogenic cyst, or tumor (1, 5, 7, 8, 16). They may also show some sclerosis, root resorption, buccal cortex destruction, or pathological fractures (9). Therefore, other malignant and benign tumors should be included in differential diagnosis.

In literature, abnormal co-expression of other T-cell antigens, CD2, CD4, CD7, and CD8, has also been reported. The antigens CD20 and CD3 are shown to be the most responsive at commiting lineage. CD3 has been named as the pan-T-cell antigen, present on normal and neoplastic T lymphocyte. Recently, a few cases of large B-cell lymphoma with description of CD3 and B-lineage markers have been reported in literature. The mechanisms include depression of genetic material, transformation of progenitor cell before its full diversity of B-lymphocyte pathway, and a neoplastic expansion of normal B cells that describe T-cell antigens. There is a morphologic and immunophenotypic variety in DLBCL with a few cases, which expresses T-cell markers (10, 16).

CONCLUSION

Oral NHLs lymphomas may mimic benign oral and dental pathological conditions; therefore, it is important for the dentist to be aware of various manifestations. Early diagnosis of the lesion may lead to a preceding treatment at an early stage of the tumor, which may result in a better prognosis.

Informed Consent: Written informed consent was obtained from patient in this study.

Peer-review: Externally peer-reviewed.

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Conflict of Interest: The authors have no conflict of interest to declare.

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REFERENCES

1. Kolokotronis A, Konstantinou N, Christakis I, Papadimitriou P, Matiakis A, Zaraboukas T, et al. Localized B-cell non- Hodgkin's lymphoma of oral cavity and maxillofacial region: a clinical study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005; 99:303–310. [CrossRef]
2. Ikeda T, Kanaya T, Matsuda A, Motohashi K, Tanaka H, Kohno N, et al. Clinicopathologic study of non-Hodgkin lymphoma in sinonasal and hard palate regions in 15 Japanese cases. ORL J Otorhinolaryngol Relat Spec. 2005;67:23–29. [CrossRef]
3. Epstein JB, Epstein JD, Le ND, Gorsky M. Characteristics of oral and paraoral malignant lymphoma: a population-based review of 361 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2001; 92:519–525. [CrossRef]
4. Singh A, Sood N, Kaur H, Garg B, Munja M. Primary diffuse large B cell lymphoma of the base of tongue: A rare entity. Am J Otolaryngol. 2014;35:435-438. [CrossRef]
5. Van der Waal RI, Huigens PC, Van der VP, Van der Waal I. Characteristics of 40 primary extranodal non-Hodgkin's lymphomas of the oral cavity in perspective of the new WHO classification and the International Prognostic Index. Int J Oral Maxillofac Surg. 2005;34:391–395. [CrossRef]
6. Gawęda A, Jach E, Wojciechowicz J, Sokołowska B, Tomaszewski T. Diffuse large B cell lymphoma of the oral cavity – case report. J Pre-Clin Clin Res. 2014; 8: 27–29.
7. Bhattacharyya I, Chehal HK, Cohen DM, Al-Quran SZ. Primary diffuse large B-cell lymphoma of the oral cavity: germinal center classification. Head Neck Pathol. 2010; 4:181-191. [CrossRef]
8. Velez I, Hogge M. Primary maxillofacial large B-cell lymphoma in immunocompetent patients: report of 5 cases. Case Reports in Radiology. Volume 2011, Article ID 108023, 4 pages doi:10.1155/2011/108023. [CrossRef]
9. Jayapalan CS, Pynadath MK,Mangalath U, George A, Aslam S, Hafiz A. BMJ Case Rep 2016. doi:10.1136/bcr-2015-213141. [CrossRef]
10. Guevara-Canales JO, Morales-Vadillo R, Sacsaquispe-Contreras SJ, et al. Malignant lymphoma of the oral cavity and the maxillofacial region: overall survival prognostic factors. Med Oral Patol Oral Cir Bucal 2013;18:e619–26. [CrossRef]
11. Walter C, Ziebart T, Sagheb K, et al. Malignant lymphomas in the head and neck region—a retrospective, single-center study over 41 years. Int J Med Sci 2015;12:141–145. [CrossRef]
12. Wolvius EB, Van der Valk P, Vander Wal JE, et al. Primary extranodal non-Hodgkin's lymphoma of the oral cavity.An analysis of 34 cases. Eur J Cancer B Oral Oncol 1994;30B:121–125. [CrossRef]
13. Wilson TG, Wright JM. Non-Hodgkin's lymphoma of the gingiva: review of the literature. Report of a case. J Periodontol 1986;57:155–157. [CrossRef]
14. Frei M, Dubach P, Reichart PA, Schmitt AM, Mueller-Garamvölgyi E, Bornstein MM. Diffuse swelling of the buccal mucosa and palate as first and only manifestation of an extranodal non-Hodgkin 'double-hit' lymphoma: report of a case. Oral Maxillofac Surg 2012;16:69–74. [CrossRef]
15. Kalogeraki A, Tamiolakis D, Ligoxygkakis I, Sinatkas V, Papadakis M, Stathopoulos EN. Extra-nodal primary diffuse large B-cell lymphoma of the maxilla. Fine needle aspiration cytology. Stomatologija. 2013; 15:58-60.
16. O'Malley D P, Auerbach A, Weiss L M. Practical applications in immunohistochemistry: Evaluation of diffuse large B-cell lymphoma and related large B lymphoma. Arch Pathol Lab Med. 2015;139:1094-1107. [CrossRef]