Abstract. Adult sporadic Burkitt lymphoma is a rare and highly aggressive malignancy, accounting for approximately 1-2% of adult lymphomas in Western countries, and exclusively intra-oral localization is very uncommon. We describe a rare case of a moderately painful sporadic Burkitt lymphoma localized in the posterior third of the left mandibular bone, initially misdiagnosed as osteomyelitis-like lesion, in a patient Epstein-Barr virus infection-negative with unknown human immunodeficiency virus (HIV) positivity and acquired immunodeficiency syndrome. A 52-year-old man was referred to our Department complaining of persistent moderate pain localized in the left mandibular arch. According to clinical and radiological features, a diagnosis of post-extraction osteomyelitis was made and a surgical revision, including soft and hard tissue biopsy, was performed. Histopathology revealed the presence of a diffuse proliferation of lymphoid cells, exhibiting the typical ‘starry-sky’ appearance that was consistent with the diagnosis of B-type non-Hodgkin lymphoma. Unexpectedly, HIV seropositivity was also found, but the patient was unaware of this, and the history did not reveal any particular risk factor for HIV infection. Positron-emission tomography showed a highly 18F-fluorodeoxyglucose-avid mass in the left maxillofacial region and extensive disease in bone marrow and mediastinum. Thus, the patient was referred to our onco-hematological team for final assessment and care. In conclusion, sporadic Burkitt lymphoma is an aggressive malignancy, which rarely affects adults with initial intra-oral manifestations. In the presence of abnormal gingival or alveolar lesions, a non-odontogenic disease should be suspected and the appropriate diagnostic test should be performed.

Case Report

A 52-year-old man was referred to our Department complaining of persistent moderate pain localized in the left mandibular arch. His past medical history was negative for any type of trauma but revealed recent episodes of left inferior alveolar nerve paresthesia, which had begun two weeks earlier. No fever or weight loss were reported. Extraoral examination revealed a swelling with no cervical lymphadenopathy, and external palpation accentuated the pain. At intra-oral examination, tooth 37 was painful to percussion. The panoramic radiography showed the results of a previous endodontic treatment and a periapical radiolucent area at the level of the dental element. In agreement with the patient, the tooth was extracted. After an initial relief of the symptoms, fever and local paresthesia appeared progressively. One month after extraction, the poor intra-oral wound healing suggested the need for examination by computed tomographic (CT) scan (Figure 1A and B).
According to clinical and radiological features, a diagnosis of suspected post-extraction osteomyelitis was made and a surgical revision, including soft and hard tissue biopsy, was performed. However, histopathology of the biopsy revealed the presence of a diffuse proliferation of lymphoid cells, exhibiting the typical ‘starry-sky’ appearance that was consistent with the diagnosis of sporadic BL (Figure 1C). EBV-encoded messenger RNA and fluorescence in situ hybridization (EBER) was negative and thus the presence of an EBV infection was excluded. The immunohistochemistry showed a strong positivity for the classical B-cell markers, such as CD19, CD20 (Figure 1 d) and CD79a and a moderate positivity for CD10 and B-cell lymphoma (Bcl) 6 protein (Bcl6). Staining for CD5, CD23 and Bcl2 was negative. The high mitotic activity was confirmed by nearly 100% of the cells staining positive for MIB-1.

Unexpectedly, HIV seropositivity was also found, but the patient was unaware of this and the history did not reveal any particular risk factor for HIV infection. He was than referred to the Oncology/Hematology Team for final assessment and care. Two weeks after biopsy, the patient underwent positron-emission tomography with $^{18}$F-fluorodeoxyglucose (FDG)/computed tomography showing a highly FDG-avid mass in the left maxillofacial region (A-C) and extensive disease in bone marrow and mediastinum (D-E). At the level of the mass, the average standardized uptake value was 8.27 and the average of Hounsfield units was 142.25.

**Discussion**

Burkitt lymphoma and diffuse large B-cell lymphoma (DLBCL) are the two most common types of NHL observed in patients with HIV/AIDS (9). According to the World Health Organization (WHO) classification, three clinical variants of BL are described: (i) endemic, (ii) sporadic, and (iii) associated with immunodeficiency, usually seen in patients with HIV/AIDS (12). Possible causes of BL are EBV infection and dysregulation of c-myelocytomatosis (MYC) oncogene, due to a chromosomal traslocation (13, 14). EBV was the first virus directly associated with the onset of human cancer, although infection alone is not sufficient to cause BL (15). However, there is evidence that EBV promotes B-cell hyperplasia, which represents a fundamental component of lymphomagenesis in BL, leading to ectopic MYC expression and subsequent proliferation of neoplastic cells (16). Sporadic BL is EBV-correlated in a minority of cases and represents the most common type of NHL among children (17).

The estimated incidence of sporadic BL and other forms of NHL in the USA is 22 and 586 per 100,000, respectively (18). Adult sporadic BL is a rare and highly aggressive malignancy, accounting for approximately 1-2% of adult lymphomas in the USA and Europe (19). The majority of sporadic BL affects
extranodal sites, especially in the abdomen and the pelvis, while extra-abdominal manifestations, such as maxillofacial bone involvement and head and neck involvement are uncommon (8, 20). The clinical features of intra-oral sporadic BL can be displaced or mobile teeth, the presence of a growth in the maxillary molar region, intermittent pain, or locoregional lymphoadenopathy (8, 10, 21, 22). Other types of NHL causing intra-oral manifestations, such as plasmablastic lymphoma, are infrequent, as are other cases of sporadic BL in a patient who was unaware that he was HIV-positive (23, 24). The use of FDG-PET and PET/CT in staging and predicting outcome of patients with NHL, including sporadic BL and DLBCL, is well established and should be suggested for all patients (25, 26).

Conclusion

Sporadic Burkitt lymphoma is an aggressive malignancy, which rarely affects adults with initial intra-oral manifestations. In the presence of abnormal gingival or alveolar lesions, a non-oncogenic disease should be suspected and the appropriate diagnostic test should be performed (27).

References


Received April 30, 2015
Revised June 8, 2015
Accepted June 10, 2015