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Sporadic Burkitt Lymphoma presenting with a necrotic swollen tongue: A case report

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Abstract:
Background*: This article reports the case of a male seventeen years old patient, who presented a rapidly developed tumor from the premolar region of the left mandible after a tooth extraction. Cranio-cervical CT revealed a large maxillary mass which was diagnosed histopathologically as Sporadic Burkitt's lymphoma. The patient was treated with polychemotherapy; complete remission of the disease was attained.*
Key Word*: Burkitt's lymphoma; Oral Cancer; Chemotherapy; oral lymphoma*

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I. Introduction

Burkitt's lymphoma (BL) is a highly aggressive B cell non-Hodgkin lymphoma (NHL) which is often presented in extranodal sites and is typically associated with c-Myc translocation, Eptein-Barr virus (EBV), HIV, and malaria infections [1].

The most frequent extranodal locations of sporadic BL include the gastrointestinal tract, skin, bones, and Waldeyer's ring. The jaw is involved in 7% of cases. Within the oral cavity, BL is characterized by fast progression of symptoms and appears as a facial swelling or exophytic mass involving the jaws[2].

The prognosis of this tumor has improved considerably in recent years due to intensive and short high-intensity regimens especially in developing countries.

The report case describes a 17-year-old male patient who initially presented with an enormous necrotic tongue that was subsequently diagnosed as sporadic Burkitt's lymphoma. The aim of this article is to report sporadic Burkitt's lymphoma in a young adult male manifesting with uncommon clinical and anatomical presentation which was belatedly diagnosed and totally healed after multiagent chemotherapy.

II. Case report

A 17-years old Moroccan male patient without a significant past medical history presented to his local maxillofacial department with a three-month history of painful necrotic mass which rapidly developed from the left jaw after a tooth extraction and two weeks antibiotics treatment for a "dental abscess". The patient had a positive history of oropharyngeal dysphagia and odynophagia but no difficulty in breathing. He had also a history of elevated temperature and fast worsening of the general condition. On physical examination he was found to have a 5cm left-sided firm jaw swelling, with a cervical adenopathy.

Craniofacial computed tomography was performed, showing a 7 cm × 6.5 cm mass uptake in the left maxilla with osteolysis of the upper wall; which associated a 3.7 cm cervical lymphadenopathy.

The patient underwent local tracheotomy and endoscopy with biopsies of the swelling. Pathologic examination of the biopsy specimens revealed a diffuse polymorphous population of small and large lymphocytes, with prominent basophilic nucleoli, coarse chromatin, abundant mitotic figures were easily identified, and giving rise to the classic "starry-sky" appearance (figure1). An immunohistochemical panel was performed: the tumor cells were reactive for CD20 which is specific to B-cells lymphocytes (Figure 2). It was also negative for CD10, CD3 and TDT (figure 3). A 100% proliferation index was found using Ki-67 revealing high proliferative activity (Figure 4). Based on these results, a diagnosis of sporadic Burkitt's lymphoma was established and the patient was referred to Internal Medicine & Onco-Hematology department at University Hospital Hassan II for special care.

The patient presented to our department with a rapidly growing tongue mass and dysphagia 15 days after surgery and subsequently hospitalized. Physical examination revealed a large necrotic mass protruding

from the persistently open mouth, arisen from the left side of the jaw; the mass crossed the mid line and extended to the floor of oral cavity and the vallecula (figure 5). Examination of the neck revealed 5 cm anterior cervical lymphadenopathy. Parental nutrition was rapidly started, a sufficient pain relief was achieved with IV administration of paracetamol and nefopam and oral hygiene was restarted. A Total Body Computed Tomography (TBCT) revealed a large swelling measuring 14 cm × 10 cm. The mass involved the left side of the pharynx and hypopharynx with lysis of the upper wall of the left jaws. (Figure 6); which associated 5 cm cervical lymphadenopathy and 5 x 3 cm splenic mass with diffuse enhancement.

Exhaustive tests were performed for the extension and staging of lymphoma. Lumbar puncture and bone marrow biopsy were negative. Laboratory findings were as follows: hemoglobin 7.6 g/dl, white blood cell count 13,600/µl, platelets 343,000/µl, serum lactate dehydrogenase (LDH) 336 U/l (normal range 0-248) and uric acid 40 mg/dl. HIV and EBV serologies were negative. Before starting treatment, a pretherapeutic evaluation was performed: transthoracic echocardiography was normal, serology for hepatitis B and C was negative.

Further finding including the cytogenetic analysis by classical karyotyping or fluorescence in situ hybridization (FISH) and PET scan could not be performed immediately in our clinical practice.

Given the combination of clinical signs, microscopy findings, diagnostic imaging, lumbar puncture and bone morrow biopsy, a diagnosis of stage IV Burkitt lymphoma was formulated according to Ann Arbor classification. The patient was stratified under Group B, intermediate risk to absence to CNS and bone marrow involvement (FAB/LMB Burkitt lymphoma risk stratification) and started on treatment as per Rituximab arm Group B under Protocol LMBA 02. The protocol consisted of a prophase reduction cycle of COP (Cyclophosphamide, Vincristine, and Prednisone), followed induction chemotherapy (day 8) by two cycles of R-COPADM (Rituximab, Cyclophosphamide, Vincristine, Prednisone, Doxorubicin, and high dose Methotrexate), consolidation chemotherapy (day 21) by two cycles of CYM (high-dose Cytarabine with high-dose Methotrexate) and maintenance phase of COPADM (COPADM-3). Intrathecal chemotherapy prophylaxis was administrated during all phases of chemotherapy treatment. After initial chemotherapy was administrated, the necrotic swelling spontaneously dropped (Figure 7) and rapidly healed under appropriate month hygiene. The follow-up examination demonstrated resolution of clinical symptoms and a repeated CT scan showed a significant reduction in the size of the oral mass. PET scan could be done only after six months of initiation of chemotherapy which was negative for any metastasis except for inflammatory post-chemotherapy gastritis. At the 18th month follow-up, the patient exhibited no signs of residual lymphoma.

III. Discussion

Burkitt's lymphoma is a rare and rapidly progressive tumor that occurs in an early differentiation stage of B cells with 100% of cells being in a cell cycle at any given time; it has been considered one of the most rapidly growing tumors with a doubling time of 25 hours[3].

Among malignancies in adolescents and young adults, Burkitt lymphoma/leukemia is the most common (40%) form of non-Hodgkin lymphoma. The viscerocranium, especially the jaws, is the usual sites in endemic BL. In sporadic variant, the main site of involvement is the digestive tract. Oral sporadic Burkitt Lymphoma is a rare clinical entity among children and young adults, with few case reports published to date4-7. To the best of our knowledge, this is the second detailed report of oral sBL in a teenage patient in Morocco8.

The clinical symptoms are mostly atypical and misleading. As a result, we must enhance BL awareness and limit the frequency of misdiagnoses.

In this case, sBL occurred in the mandible after being misdiagnosed as dental abscess. The delay in diagnosis led to a massive necrotic swelling with a significant impact on daily living and general condition. In the case of oral cavity localization, sBL usually presents as a fast-growing painless jaws tumor. It can also be confused with dental disease, involving increased tooth mobility, tooth loss, swelling of the mucosa mimicking the formation of a periapical abscess, non-fluctuant mass with or without pain symptoms9. Furthermore, dysphagia, hypoesthesia of the lower lip, orbital swelling, proptosis may occur.

The initial approach should include dental imaging due to easy accessibility and the value to exclude an odontogenic origin. In case no odontogenic origin could be found, ultrasonography should be performed, especially in case of lymphadenopathy in the neck, and a biopsy performed with the slightest suspicion of a malignant cause.

The radiological characteristics of sBL in the craniofacial region may vary depending on the technique used and the region of interest. Three-dimensional methods used for the diagnosis of SBL in the facial region include Cone Beam Computed Tomography (CBCT), Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). CBCT examination in the mandible and maxilla can reveal osteolytic lesions with poorly defined margins and a mottled, permeative pattern of bone destruction. An extended examination using 18F-FDG PET-CT can be performed to disseminate the tumor process in other regions, including the abdomen, Waldeyer's ring, ovaries, and kidneys[10].

Histologically, BL tumor cells are medium-sized with an abundant, basophilic cytoplasm and display the distinctive "starry sky" pattern. The tumor cells are positive for BCL-6, CD19, CD20, CD22, CD10 and CD79a but negative for CD3, CD5, CD23 and TdT. BL is characterized by the t(8; 14) (q24; q32) translocation of the c-myc and IgH genes and results in IgH-myc fusion, which can be detected by molecular analysis via fluorescence in situ hybridization. The mechanism of overexpression depends on the partner translocation with one of three immunoglobulin (Ig) genes on chromosomes 22, 2, or 14 resulting to MYC activation and unregulated cell proliferation 11. In our case, the tumor cells were negative for CD3, CD10 and TdT indicating that the tumor was not derived from T-cells. Additionally, the tumor cells were positive for CD20, suggesting germinal center-derived B cells. Combined with the high Ki67 index, the diagnosis of BL could be established.

Chemotherapy is the cornerstone of therapy in BL. Given the efficacy of chemotherapy regimens and often widespread disease at presentation, radiation therapy is not indicated. Similarly, even in localized cases, surgery is not generally usually performed unless disease complications require urgent surgery such as in cases of bowel obstruction 12.

In Europe, adapted pediatric ALL regimens have been employed for the treatment of adults with BL. In the "French Lymphome Malin B" (LMB) regimen, patients were assigned to low-risk (group A: resected stage I and abdominal stage II disease), intermediate-risk (group B: neither low nor high-risk) and high risk (group C: bone marrow and/or central nervous system involvement) groups. Group A was treated with cyclophosphamide, doxorubicin, vincristine and prednisone (COPAD). Group B and C received prephase therapy with cyclophosphamide, vincristine and low dose steroids to debulk disease and reduce the risk of tumor lysis. Additional treatment for group B consisted of five cycles of therapy including high dose methotrexate, cytarabine (COPADM/CYM) and intrathecal methotrexate. Group C received 8 cycles with high doses of methotrexate, cytarabine, etoposide (COPADM, CYVE) and intrathecal treatment with methotrexate and cytarabine. Given the improvement in outcomes with its use in aggressive lymphoma, rituximab has been incorporated broadly into BL regimens. A recent systematic review found insufficient evidence to support ASCT over chemotherapy alone in the first remission for adult BL/BLL13.

Because Burkitt lymphoma has a well-known excellent response to chemotherapy, treatment was initiated as soon as the diagnosis was confirmed. In this case, the necrotic swelling spontaneously dropped after the initial chemotherapy. We also note an efficient fast hemostasis and wound healing, an early resumption of feeding expediting the improvement of the general condition. Hence, the effective management of chemotherapy and tumor lysis syndrome (TLS) prophylaxis allowed a fast recovery and hardly any treatment-related complications.

IV. Conclusion

BL is a highly aggressive, chemo-sensitive NHL requiring expert hematopathologic diagnosis and the rapid treatment incorporation. Patients require judicious surveillance and management of TLS, responsible of morbidity and mortality from renal failure and electrolyte abnormalities. This case proves that prompt initiation of a short course of intensive chemoimmunotherapy with CNS-directed therapy and aggressive prevention and treatment of TLS yields excellent results in young "fit" patients.

Studies using CAR-T cells seems promising and usually induce a deep response in BL; and should, therefore, be considered as a therapeutic option in relapsed/ refractory patients. Bispecific antibodies, allogenic HSCT and other novel approaches are underway.[14-16]

References

[1]. Khalil Saleh1 & Jean-Marie Michot2 & Valérie Camara-Clayette3 & Yegor Vassetsky4 & Vincent Ribrag. Burkitt and Burkitt-Like Lymphomas: A Systematic Review. Current oncology reports 2020; 22:33.

[2]. Casulo C, Friedberg JW. Burkitt lymphoma- a rare but challenging lymphoma. Best Pract Res Clin Haematol. 2018; 31:279–84

[3]. Bilodeau E, Galambos C, Yeung A, et al.: Sporadic Burkitt lymphoma of the jaw: case report and review of the literature. Quintessence Int. 2012; 43(4): 333–6.

[4]. Hochberg, J., Waxman, I.M., Kelly, K.M., Morris, E. & Cairo, M.S. (2009) Adolescent non-Hodgkin lymphoma and Hodgkin lymphoma: state of the science. British Journal of Haematology, 144, 24–40.

[5]. Jacobson, C., & LaCasce, A. (2014). How I treat Burkitt lymphoma in adults. Blood, 124(19), 2913–2920. doi:10.1182/blood-2014-06-538504

[6]. Bilodeau E, Galambos C, Yeung A, et al.: Sporadic Burkitt lymphoma of the jaw: case report and review of the literature. Quintessence Int. 2012; 43(4): 333–6.

[7]. Jan A, Vora K, Sándor GK: Sporadic Burkitt's lymphoma of the jaws: the essentials of prompt life-saving referral and management. J Can Dent Assoc. 2005; 71(3): 165–8.

[8]. Kissi, L., El Bouihi, R., Lamchahab, M., Alaoui, A., & Benyahya, I. (2017). Localisation buccale d'un lymphome de Burkitt: à propos d'un cas. Pan African Medical Journal, 26. doi:10.11604/pamj.2017.26.63.5955

[9]. Cabras M., Arduino P.G., Chiusa L., Broccoletti R., Carbone M. Case report: Sporadic Burkitt Lymphoma misdiagnosed as dental abscess in a 15-year-old girl. F1000Research. 2018;7:1567. doi: 10.12688/f1000research.16390.1.

[10]. Kalisz, K., Alessandrino, F., Beck, R., Smith, D., Kikano, E., Ramaiya, N. H., & Tirumani, S. H. (2019). An update on Burkitt lymphoma: a review of pathogenesis and multimodality imaging assessment of disease presentation, treatment response, and recurrence. Insights into Imaging, 10(1).
[11]. Freitas R.D.A., Barros S., Quindeeré L. Linfoma de Burkitt oral: Relato de caso Oral. Rev. Bras. Otorrinolaringol. 2008;74:458–461. doi: 10.1590/S0034-72992008000300023.
[12]. Lin Y, Pan YH, Li MK, Zong XD, Pan XM, Tan SY, Guo YW. Clinical presentation of gastric Burkitt lymphoma presenting with paraplegia and acute pancreatitis: A case report. World J Gastroenterol 2021; 27(45): 7844-7854 [PMID: 34963746 DOI: 10.3748/wjg.v27.i45.7844]
[13]. Crombie, J. L., & LaCasce, A. S. (2020). The treatment of Burkitt lymphoma in adults. Blood
[14]. Utsav, J., R.Bhatt, D'Angelo, C. Efficacy of Autologous Stem Cell Transplantation in Adult Burkitt/ Burkitt-like Lymphoma: A Systematic Review. Blood, Volume 138, Supplement 1, 23 November 2021
[15]. Avigdor, A., Shouval, R., Jacoby, E., Davidson, T., Shimoni, A., Besser, M., & Nagler, A. (2018). CAR T cells induce a complete response in refractory Burkitt Lymphoma. Bone Marrow Transplantation.
[16]. Zhou, X., Ge, T., Li, T., Huang, L., Cao, Y., Xiao, Y., … Zhou, J. (2021). CAR19/22 T cell therapy in adult refractory Burkitt's lymphoma. Cancer Immunology, Immunotherapy, 70(8), 2379–2384.

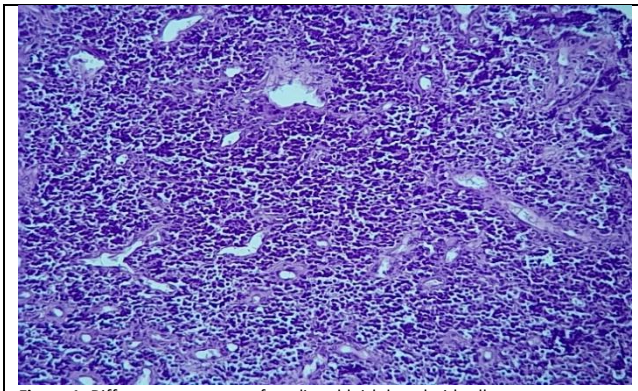

Figure 1: Diffuse arrangement of medium bluish lymphoid cells with "starry-sky" pattern, with many mitotic figures (HPE, ×100)

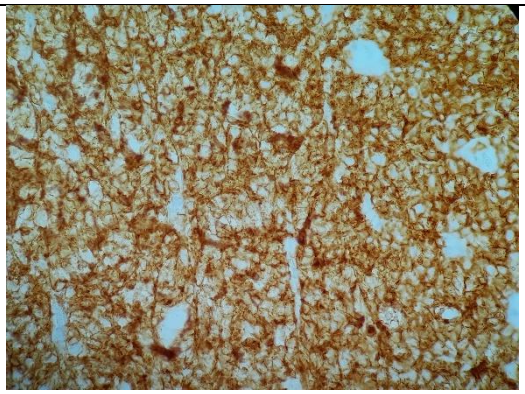

Figure 2: Immunohistochemical studies showing strong CD20 positivity

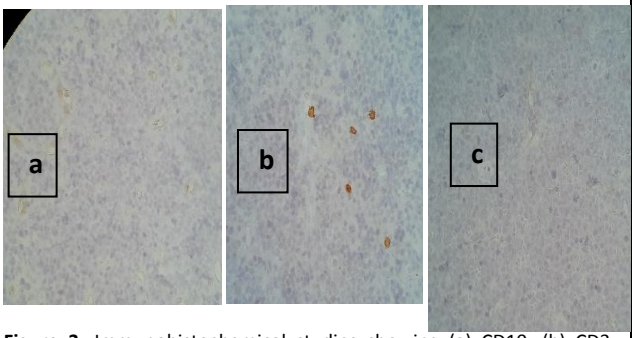

Figure 3: Immunohistochemical studies showing (a) CD10, (b) CD3, and (c) TdT negativity

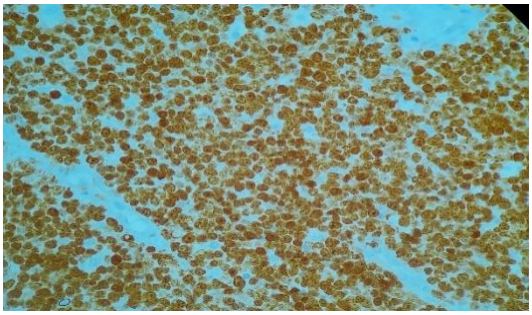

Figure 4: Immunohistochemical studies showing Ki67 positivity

Figure 5: Large mouth tumor with a necrotic swollen tongue

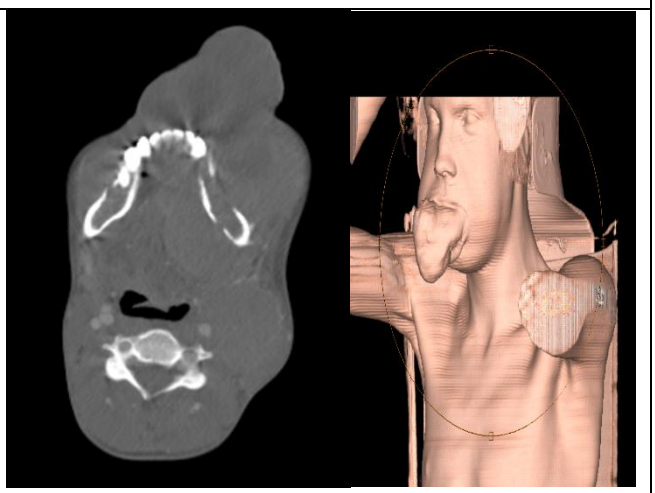

Figure 6: CT scan showing macroglossia and osteolysis

Figure 7: Necrotic ``dropped'' tumor after initial chemotherapy

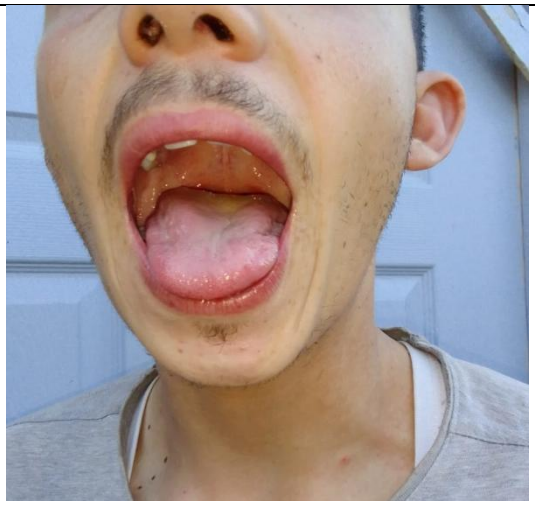

Figure 8: ''Normal'' oral cavity, 24 months after diagnosis

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