



Correspondence

Burkitt's lymphoma of the mandible



KEYWORDS

Burkitt's lymphoma;
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Epstein–Barr virus

Burkitt's lymphoma (BL) is a malignancy of B-lymphocyte origin. Approximately 50%–70% of African BLs present in the jaws. African BLs usually affect children and the posterior regions of the jaws, and the maxilla is involved more commonly than the mandible.¹ Here, we presented a case of BL occurring in the left mandibular molar region of a 29-year-old male patient.

This 29-year-old male patient was referred from a local dental clinic to dental department of National Taiwan University Hospital for evaluation of two soft tissue swellings at the buccal gingiva of the left mandibular first molar and the left mandibular retromolar area. The two swellings were soft with focal surface ulceration (Fig. 1A). Major systemic diseases were denied by the patient. The periapical and panoramic radiographies showed a radiolucent lesion at the bifurcation and periapical areas of the left mandibular first molar, but the left mandibular retromolar cortical bone was not remarkable (Fig. 1B and C). Incisional biopsies of the two massed were performed under the clinical impression of chronic osteomyelitis. Histopathological examination of the two biopsy specimens showed a small blue cell tumor with starry-sky appearance (Fig. 1D). The darkly staining blue cells were positive for CD20 (Fig. 1E) and negative for CD3 (data not shown), indicating that the blue tumor cells are B-lymphocytes rather than T-lymphocytes. Nearly all lymphoma cells were Ki-67-positive (Fig. 1F), suggesting that the tumor cell proliferating rate is approximately 100%. Moreover, *in situ* hybridization

revealed Epstein–Barr virus (EBV) DNA in the nuclei of the lymphoma cells (Fig. 1G). Therefore, the final histopathological diagnosis was a BL. The patient was treated by multiagent chemotherapy and radiotherapy. Regression of the two swellings was found 4 months after the treatment. There was no recurrence of the BL 5 years after the treatment.

The BL is thought to be related pathogenetically to EBV, because more than 90% of the tumor cells, particularly in the African BL, showed the EBV DNA in the nuclei of tumor cells, which could be proven by *in situ* hybridization using EBV probes in this study. Immunohistochemistry is a convenient technique that helps identify the specific cells or tumors.^{2–5} For the BL, positive anti-CD20 immunostaining was used to confirm the cell origin of B-lymphocyte and the negative anti-CD3 immunostaining was used to rule out the tumor origin of T-lymphocyte. In addition, because the BL is a malignant tumor of very high tumor cell proliferating rate, anti-Ki67 immunostain was used to calculate the tumor cell proliferating rate of the patient's BL. The histological microphotograph of the BL can demonstrate the characteristic starry-sky appearance, which is caused by the interspersed histiocytic cells with abundant cytoplasm (stars) set against a background of darkly staining lymphoma cells (night sky). Although the BL is a malignant neoplasm, the multiagent chemotherapy is very effective for the BL and can achieve an overall survival rate of 75%–95%.¹

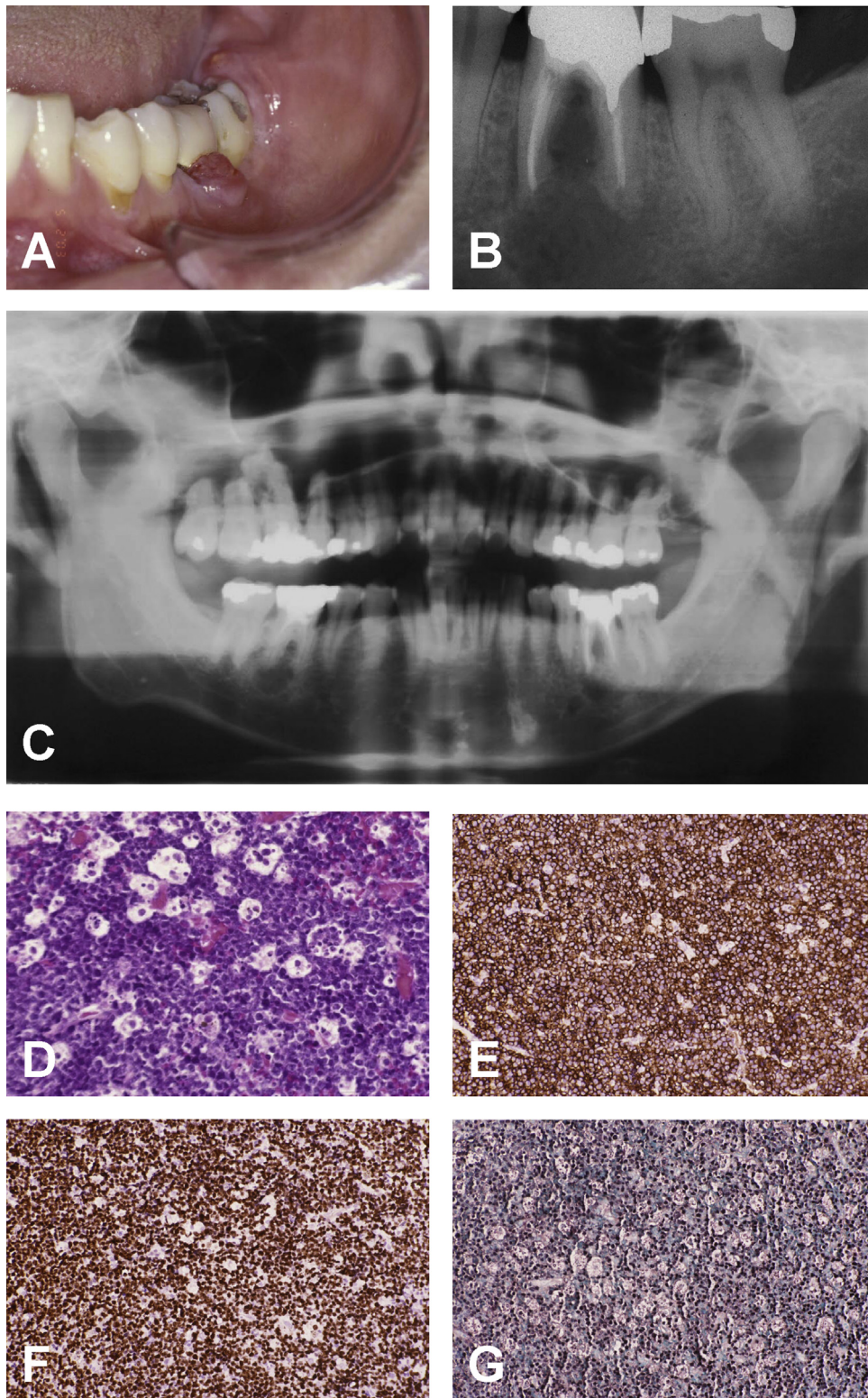


Figure 1 Clinical, radiographic, histological, and immunostained photographs of our case of Burkitt's lymphoma. (A) Two soft tissue swellings were found, one at the buccal gingiva of the left mandibular first molar and the other at the left mandibular retromolar area. (B and C) The periapical and panoramic radiographies showed a radiolucent lesion at the bifurcation and periapical areas of the left mandibular first molar, but the left mandibular retromolar cortical bone was not remarkable. (D) Hematoxylin and eosin (H&E)-stained tissue section showing a small blue cell tumor with starry-sky appearance (original magnification, 20 \times). (E) The darkly staining blue cells were CD20-positive (immunostain; original magnification, 10 \times). (F) Nearly all lymphoma cells were Ki-67-positive. (immunostain; original magnification, 10 \times). (G) *In situ* hybridization revealed Epstein–Barr virus DNA in the nuclei of the lymphoma cells (original magnification, 10 \times).

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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