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Case report

Complete progressive ophthalmoplegia and numb chin syndrome, the first clinical manifestations of a lethal abdominal Burkitt lymphoma

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ABSTRACT

A 57-year-old patient was admitted to the Neurology Clinic for hypoesthesia, intense pain in the right chin and double vision. During the hospitalization, the patient developed progressive complete bilateral ophthalmoplegia and numbness of both sides of the chin. Brain CT and MRI scans with gadolinium were normal. Standard laboratory tests on admission were normal. The cerebral spinal fluid examination and the infectious and autoimmune workup were also normal. A thoracic-abdominal and pelvic CT scan revealed two hypodense lesions in the liver, irregular thickening of the gastric and ileal wall, and multiple abdominal adenopathies. Meanwhile, the patient developed marked fatigue, fever, sweats, nausea, vomiting and abdominal pain. An exploratory laparotomy was performed that showed multiple tumours of the small intestinal wall, stomach wall, multiple liver masses in both lobes and appendicular tumour. Histopathological findings of the liver biopsy and appendicular walls revealed Burkitt lymphoma. The patient died two days after surgery by cardiopulmonary arrest.

This case underscores the importance of keeping BL in the differential diagnosis of patients with rapidly progressive ophthalmoplegia and numb chin syndrome, with normal brain MRI and CSF examinations.

1. Introduction

Burkitt lymphoma (BL), a highly aggressive non-Hodgkin lymphoma, was first described by Dennis Burkitt in 1958 as "a sarcoma involving the jaw" in East African children [1]. Three clinical variants of BL have been described: endemic, sporadic and immunodeficiency-associated BL. Central nervous system involvement of BL was reported in 13–17% of adults [2]. In this article, we present a case of progressive ophthalmoplegia and numb chin syndrome as the first manifestations of sporadic BL in an immunocompetent patient.

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2. Case report

We present the case of a 57-year-old patient who was complaining of hypoesthesia and subsequent intense pain in the right chin for four days before admission. Due to double vision, he was admitted to our clinic. From his medical history, we noted a history of syphilitic infection about 20 years ago for which he was treated with intravenous penicillin G. General physical examination was normal. The neurological examination on admission revealed hypoesthesia over the right chin, limitation of the abduction in the right eye and diplopia on lateral gaze to the right. Otherwise, the ophthalmologic and neurological examinations were unremarkable.

Brain CT and MRI scans with gadolinium were normal. Mandibular imaging was not performed.

On day 4 of hospitalization, the patient developed left sixth cranial nerve palsy, and on day 7 developed right upper lid ptosis. His evolution was progressive until complete bilateral ophthalmoplegia and numbness of both sides of the chin on day 18.

Standard laboratory tests on admission were normal except for slight leukocytosis and thrombocytopenia. The cerebral spinal fluid (CSF) examination showed normal opening pressure, glucose, protein and cell count. Antinuclear antibodies, anti-double-standard DNA, anticardiolipin antibodies, circulating immune complexes, the *IgM* and *IgG antiganglioside antibodies* panel, *Borrelia burgdorferi* IgG and IgM antibodies, immunoelectrophoresis, HIV testing, prostate specific antigen test, carcinoembryonic antigen, and alpha-fetoprotein markers were within normal limits.

Serum Venereal Disease Research Laboratory (VDRL) and *Treponema pallidum* Haemagglutination Assay (TPHA) were positive. A second lumbar puncture that was performed 10 days after admission excluded neurosyphilis by a negative VDRL and THPA in CSF.

A thoracic-abdominal and pelvic CT scan revealed two hypodense lesions in the liver segments IVA and II, irregular thickening of the gastric and ileal wall up to 21 mm, and multiple abdominal adenopathies (Fig. 1). Gastric biopsy established the diagnosis of diffuse large B-cell lymphoma.

Meanwhile, the patient developed marked fatigue, fever, sweats, nausea, vomiting and abdominal pain. An exploratory laparotomy was performed that showed multiple tumours of the small intestinal wall with approximate dimensions of 2 cm at a distance of 10 cm, tumour of the stomach wall, multiple liver tumour masses in both lobes and appendicular tumour. Appendectomy and liver biopsies were performed. Histopathological findings of the liver biopsy and appendicular walls suggested BL: the normal tissue structures were replaced by a homogeneous infiltrate with monotonous pattern, composed of medium-sized tumour cells with uniform shape and

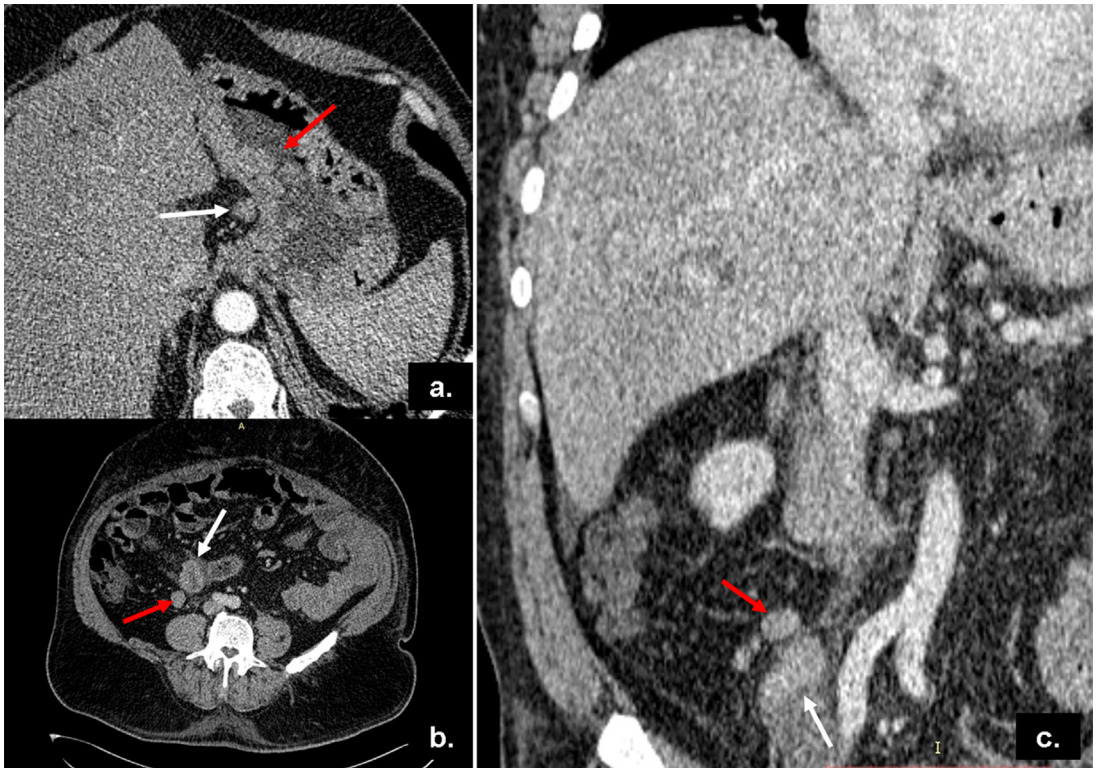

Fig. 1 – Abdominal CT scan. (a) Axial section, arterial phase revealing irregular gastric wall thickening at the small curvature (red arrow) and perigastric adenopathy (white arrow); (b) axial section, arterial phase revealing thickening of the ileal loop mucosa with contrast enhancement (white arrow) and adenopathy (right arrow); (c) coronal reconstruction, arterial phase revealing the same ileal loop mucosa thickening with contrast enhancement (white arrow) and adenopathy (right arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of the article.)

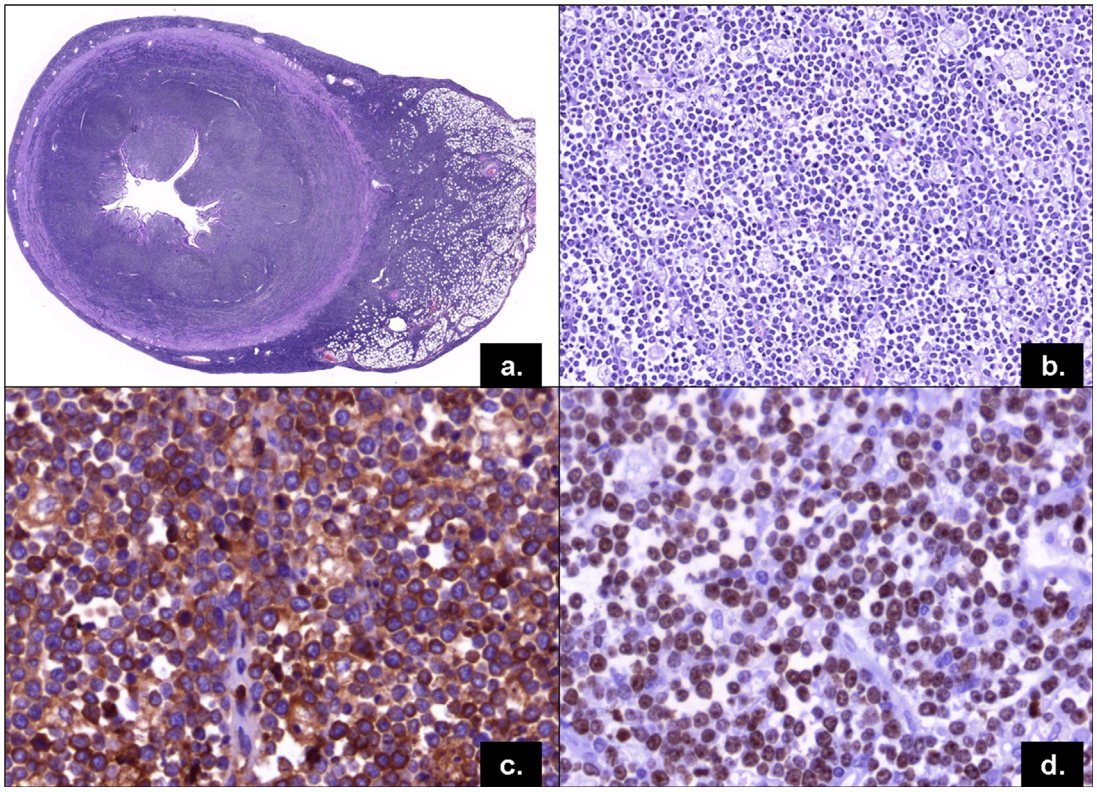

Fig. 2 – Morphology and immunophenotype of lymphoid infiltrate tissue: (a) diffuse monotonous pattern of infiltration (H&E stain, fit); (b) the nuclear diameter of the tumour cells is similar to that of the starry sky histiocytes (H&E stain, 20×); (c) tumour cells express IgM (DAB chromogen, 40×) and very high growth fraction ((d) Ki 67/DAB, 40×).

multiple small basophile nucleoli on a starry sky background involving whole appendicular wall, the periappendicular adipose tissue of mesenterium; the cells had an extremely high proliferation rate with many mitotic figures and apoptotic bodies. Immunophenotype of tumour cells confirmed the diagnosis of BL: they showed membrane IgM expression and B-cell-associated antigens (CD20, Pax-5), LCA, CD10, being negative for CD3, Bcl-2, CD23 and TdT. The Ki 67 proliferation index was nearly 100% (Fig. 2a–d).

The patient died two days after surgery by cardiopulmonary arrest.

The family of the patient refused the autopsy.

3. Discussion

Our patient developed complete bilateral complete ophthalmoplegia and bilateral numb chin syndrome with normal brain MRI exam and CSF examination in 18 days. The peculiarity of this case is the initial manifestation of a non-endemic form of BL with cranial nerve palsy without imaging signs of meningeal infiltration in an immunocompetent patient.

To the best of our knowledge, few similar cases have been described in the literature. Lau et al. reported a case of a male patient of the same age who developed the same symptoms over a period of 10 days. In this case the MRI scans were normal, CSF examination revealed normal glucose, protein and cell counts, but flow-cytometry of the CSF lymphocytes revealed a kappa restricted population of B cells. The presence of ophthalmoparesis as initial manifestations of BL has been described previously in immunocompetent hosts, but in most cases the CT or MRI scans of the brain revealed intraorbital or intracranial tumoural formations. These neurological symptoms, as the first manifestations of BL, were usually associated with normal imaging examinations only in immunocompromised patients [3].

Numb chin syndrome was first described by Charles Bell in 1930 as facial paraesthesia and hypoesthesia in the area supplied by mental nerve and its branches. It can be the presenting feature or the first sign of recurrence in multiple malignancies. It is usually unilateral, but in rare cases, such as the case of our patient, it can be bilateral and is most commonly associated with haematologic malignancies, in particular BL, compared to solid tumours, as they infiltrate the central nervous system faster [4,5].

According to the literature date the incidence of jaw involvement in BL was 18% [6].

Due to the extremely aggressive evolution of BL with ophthalmoplegia at onset, the patient died before chemotherapy was initiated, despite the exhaustive investigations performed.

This case underscores the importance of keeping BL in the differential diagnosis of patients with rapidly progressive ophthalmoplegia and numb chin syndrome, with normal brain MRI and CSF examinations.

The limitation of our case report is the lack of data on onconeuronal antibodies, autopsy result and mandibular imaging.

Conflict of interest

None declared.

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REFERENCES

[1] Burkitt D. A sarcoma involving the jaw in African children. Br J Surg 1958;46:218–23.
[2] Adult Blum KA, Lozanski G, Byrd JC. Burkitt leukemia and lymphoma. Blood 2004;104(November (10)):3009–20.
[3] Lau JJ, Okada CY, Trobe JD. Galloping ophthalmoplegia and numb chin in Burkitt lymphoma. J Neuroophthalmol 2004;24 (June (2)):130–4.
[4] Sasaki M, Yamazaki H, Aoki T, Ota Y, Sekiya R, Kaneko A. Bilateral numb chin syndrome leading to a diagnosis of Burkitt's cell acute lymphocytic leukemia: a case report and literature review. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011;111(March (3)):e11–6. http://dx.doi.org/10.1016/j.tripleo.2010.09.066
[5] Furukawa T. Charles Bell's description of numb chin syndrome. Neurology 1998;38(2):331.
[6] Sariban E, Donahue A, Magrath IT. Jaw involvement in American Burkitt's lymphoma. Cancer 1984;53(April (8)):1777–82.