Burkitt-like lymphoma of the sphenoid sinus: case report

"Burkitt-like linfoma" del seno sfenoidale. Descrizione di un caso clinico

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Key words

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Parole chiave

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Summary

Burkitt's lymphoma is a malignant endemic neoplasia with a mandibular localization, described for the first time in 1958, in African children. The World Health Organization classification recognises several variants of Burkitt's lymphoma; all are highly malignant B cell lymphomas. Besides Burkitt's sporadic, endemic lymphoma and Burkitt's lymphoma associated with AIDS, the World Health Organization classification includes an "atypical or pleomorphic" variant of Burkitt's lymphoma. This subtype includes those cases diagnosed as "Burkitt-like" lymphoma in the REAL (Revised European-American Classification of Lymphoid Neoplasm). The therapeutic protocol is similar to that used for classic Burkitt's lymphoma, with chemotherapy being standard treatment. Prognosis is extremely poor, with a mean survival of <1 year. The case is described of a sinus-nasal "Burkitt-like lymphoma", originating within sphenoid sinus. The extremely rare localisation of this histological variant of Burkitt's lymphoma is stressed as well as the extremely aggressive nature of the neoplasm.

Riassunto

Il linfoma di Burkitt è una neoplasia maligna endemica a localizzazione mandibolare, descritta per la prima volta nel 1958 su bambini africani. La classificazione della "World Health Organization" (WHO) riconosce diverse varianti del linfoma di Burkitt (BL); tutte rappresentano dei linfomi a cellule B ad alto grado di malignità. In aggiunta al linfoma di Burkitt endemico, sporadico, ed associato all'AIDS, lo schema della WHO include una variante del linfoma di Burkitt "atipica o pleomorfa". Questo sottotipo include quei casi diagnosticati come "Burkitt-like" linfoma nella classificazione REAL (Revised European-American Classification of Lymphoid Neoplasm). Il protocollo terapeutico è simile a quello utilizzato nel normale linfoma di Burkitt, con la chemioterapia che rappresenta il trattamento standard. La prognosi rimane pessima, con una sopravvivenza media inferiore ad un anno. Con la descrizione di un caso clinico di "Linfoma Burkitt-like" naso-sinusale, a partenza dal seno sfenoidale, gli Autori si pongono l'obiettivo di segnalare una localizzazione estremamente rara di questa variabile istologica di linfoma di Burkitt e ne dimostrano l'alta aggressività clinica.

Introduction

The incidence of malignant paranasal sinus neoplasms is one case every 100,000 inhabitants. Nasal-sinusal lymphomas account for less than 10% of all malignant lesions localised in this site [1], 0.17% of all malignant lymphomas and 0.44% of all malignant extranodal lymphomas [2].

Burkitt's lymphoma (BL) is an endemic malignant neoplasm with a mandibular localisation, first described, in 1958, in African children [3].

The non-endemic, or American, form of the disease, differs from the African form, inasmuch as it often shows an abdominal or bone marrow involvement and may manifest at any age.

Localisation in the head and neck of non-endemic BL is observed in <10% of cases and usually manifests as latero-cervical adenopathies [4].

The World Health Organization (WHO) classification recognises several variations of BL; all are highly malignant B cell lymphomas. In addition to endemic and sporadic, BLs or BL, associated with AIDS, the WHO classification includes an "atypical or pleomorphic" variant of BL. This subtype includes those cases diagnosed as "Burkitt-like" lymphoma in the REAL (Revised European-American Classification of Lymphoid Neoplasm). This highly malignant lymphoma shows a more accentuated nuclear pleomorphism than the classic BL, with occasional larger lymphoid cells resembling centroblasts [5]. The therapeutic protocol is similar to that used for classical BL.

Prognosis is related to extent of the tumour, at the time of the diagnosis. Negative prognostic factors include elderly age of patient, size of tumour, multiple localisation sites, and involvement of the bone marrow and central nervous system. Chemotherapy is

considered standard treatment. Mean survival is <1 year.

Case report

B.G., a 62-year-old male, came to our attention in April 1999, complaining of a repeated diplopia of about one week's duration. The patient reported having had slight difficulty in nasal respiration for about 2 months with a recurrent feeling of pressure and congestion on the right side of the nose, and episodes of slight headache in the bilateral fronto-temporal area. The family doctor had prescribed a cycle of treatment with amoxycillin and a non-steroidal anti-inflammatory drug (Nimesulide) which had not had any effect. Recent familial history and previous diseases were substantially negative. General physical examination was within the norm, whereas haematochemical assessments revealed mild anaemia (Hb 11.7) and slight increase in the erythrocyte sedimentation rate (ESR).
Rhino-sinusal evaluation at videoendoscopy revealed the presence, at right medial meatal level, of considerably congested mucosa, with hyperaemia and stagnation of a mucopurulent secretion; the right ostomeatal complex was obstructed.
Computed tomography (CT) scan of the skull showed an expansive process, at right sphenoid sinus level, which extended towards, with osteolysis, backwards towards the rhinopharyngeal roof and forwards towards the posterior ethmoid (Fig. 1).
Thoraco-abdominal CT scan showed no lesion in the deep organs or in the parenchymal organs.
Biopsy was collected, at endoscopy, from the right sphenoid neoformation and an osteomedullar biopsy was collected from the left postero-superior iliac with a Jamshidi needle. Results suggested a diagnosis of "highly malignant B cells lymphoma, of the Burkitt-like type (according to the REAL classification)". No test was performed to identify Epstein-Barr virus (EBV).
During hospitalisation, the patient had presented a rapid deterioration with worsening of the clinical status and with increasing headache and diplopia.
Cytostatic treatment was commenced according to the MAGRATH protocol which is, today, considered the therapy of choice for BL.
The therapeutic protocol foresees alternate administration of two different cycles of chemotherapy known as IVAC and CODOX-M.
In the first, cytosine arabinoside is administered at a high dosage (2 g/m^2 x 12 hours for a total of 6 administrations) associated with etoposide 60 mg/m^2 x 5 days, ifosfamide 1g/m^2 x 5 days, followed by G-CSF (colony stimulating factor) to reduce leukopenia.
The second protocol includes vincristrine 5 mg, given on days 1-8-15; doxorubicine 40 mg/m^2 on day 1; cyclophosphamide 800 mg/m^2 on day 1, 220 mg/m^2 on days 2-4; methotrexate 6 mg/m^2 + rescue with folinic acid.
Following the first cycle, a mass appeared in the left testicle, biopsy of which was positive for localisation of lymphoma. The patient also began to present mild pains in the cervical column and left shoulder as well as pain in the sacral region reaching the left leg. X-ray examination of the skeleton revealed multiple osteolytic lesions involving the left scapula, the left clavicle, vertebral bodies D7, D8, D9, D10, left iliac wing, right pubic symphysis and mandible.
After the second cycle of CODOX-M, leukaemia occurred and a meningeal localisation of the disease, revealed by positivity for lymphomatous cells in the cephalo-rachidian liquid.
The patient died 6 months after diagnosis, due to progression of the disease.

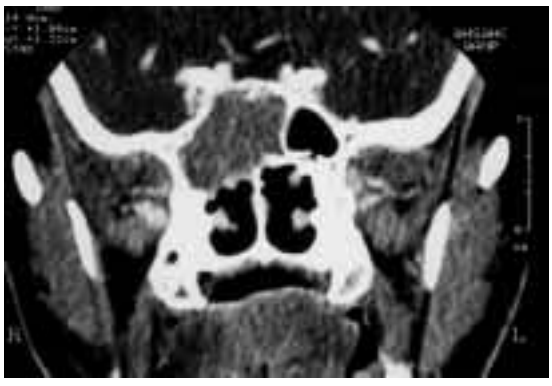

Fig. 1. CT scan of sphenoid lymphomatous neoformation.

Histological evaluation

Specimens were fixed in neutral formalin, buffered at 10%; osteomedullar biopsy was fixed and decalcified by means of immersion, for 48 h, in Bouin's solution. Using standard procedures of paraffin inclusion and microtomic slices of the specimen, histological sections approximately 5 micron thick were obtained; histological and histochemical staining included Haematoxylin-Eosin (H&E), Giemsa, PSA (periodic acid-Schiff) and silver staining according to Gordon-Sweet, to reveal the reticular fibres.
Immunohistochemical typing of the lesion was performed with the following antibodies: CD45 (specificity: common leukocyte antigen; identification of lymphoid elements), L26 (antibody with CD20-like specificity, identification of lymphoid elements with B phenotype), CD3 (specificity: lymphoid elements

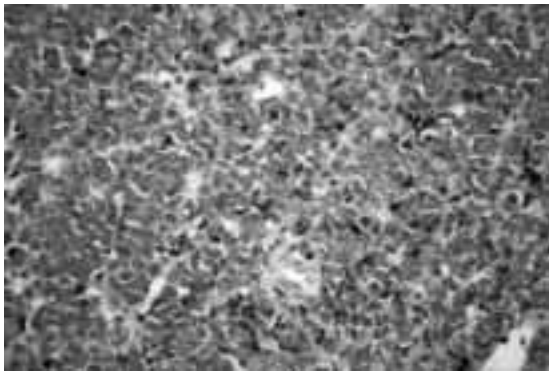

Fig. 2. Immunohistochemical staining for L26, on a biopsy specimen of sphenoid tissue, showing the B lymphoid phenotype of the lesion.

with T phenotype), CD34 (specificity: haemopoietic steam cells), CD10 (known also as CALLA or "common" acute lymphoblastic leukaemia), TdT (terminal transferase deoxynucleotydil, polymerase DNA expressed in precursors of B and T lymphoid elements). Microscopic examination of the sphenoid tissue revealed the presence of multiple fragments of tissue, part of which site of diffuse infiltration of relatively monomorphic lymphoid elements, with roundish/oval nuclei of medium-large size, dispersed chromatin, generally a single nucleolus, sometimes prominent, and with a fair amount of basophil cytoplasm; also present were apoptotic bodies, few macrophages with stainable intracytoplasmatic bodies and high mitotic activity.
Almost 2/3 of the osteo-medullar biopsy was occupied with areas of necrosis and fibrosis; in the residual lacunae, a dense lymphoid infiltrate was visible with the same morphological features as the sinusal lesion.
Immunohistochemical assessments carried out on both specimens revealed a strong and diffuse positivity of the neoplastic elements for CD45 and L26, whereas they were negative for CD3, CD10, CD34 and TdT (Fig. 2).

Conclusions

Only 48 cases of non-endemic BL, with an extranodal involvement of the head and neck, have been reported in the English language literature [4 6 8].
The clinical case described here represents one of the very rare cases of sino-nasal "Burkitt-like lymphoma", originating in the sphenoid sinus.
The marked clinical aggressiveness of this histological variant of BL is confirmed.

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