

INFORMED CONSENT

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FUNDING SOURCES

The authors declare that there were no external sources of study for the performance of this article.

CONFLICTS OF INTEREST

All authors report no conflict of interest.

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A Case of Orbital Langerhans Cell Histiocytosis in an Adult

Um Caso de Histiocitose de Células de Langerhans Orbitário num Adulto



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ABSTRACT

Langerhans cell histiocytosis remains an enigmatic disease with a very heterogeneous presentation. We describe a rare case of orbital Langerhans cell histiocytosis in a 39-year-old female patient who presented right orbital pain and edema of the upper right eyelid. Surgery showed a friable lesion and underlying bone irregularity. Morphological aspects and immunohistochemical profile favored the diagnosis of Langerhans cell histiocytosis, which was confirmed with evidence of Langerin expression. The staging tests did not reveal any organ involvement, so we decided to follow the algorithm proposed by Euro Histo Net: in case of unifocal disease and in a single organ, clinical surveillance was preferred. This case aims to raise awareness of a manifestation of Langerhans cell histiocytosis, which should always be considered as a differential diagnosis in adults with osteolytic orbital lesions.

Keywords: Adult; Histiocytosis, Langerhans-Cell; Orbital Diseases

RESUMO

A histiocitose de células de Langerhans permanece uma doença enigmática com apresentação muito heterogénea. Descrevemos um caso raro de histiocitose de células de Langerhans orbitária numa doente do sexo feminino, 39 anos, com dor orbitária e edema da pálpebra superior direita. A tomografia computadorizada das órbitas revelou uma lesão lítica próxima da glândula lacrimal. Na cirurgia observou-se uma lesão friável e irregularidade óssea subjacente. Os aspetos morfológicos e perfil imunohistoquímico favoreceram o diagnóstico de histiocitose de células de Langerhans, confirmando-se com a evidência da expressão da Langerina. Uma vez que os exames de estadiamento não revelaram envolvimento de outro órgão, decidimos seguir o algoritmo proposto pelo Euro Histo Net: tratando-se de doença unifocal e uni-órgão, optamos pela vigilância. Este relato de caso visa alertar para uma manifestação rara da histiocitose de células de Langerhans, a qual deve ser sempre considerada como um diagnóstico diferencial em adultos com lesões orbitárias osteolíticas.

Palavras-chave: Adulto; Doenças da Orbitárias; Histiocitose de Células de Langerhans

INTRODUCTION

Langerhans cell histiocytosis (LCH) is characterized by a proliferative lesion of pathological cells similar to Langerhans cells. Multiple clinical series have shown that the peak incidence of LCH occurs between the ages of 1 and 3 years, with most cases of multiple-organ system disease

beginning before the age of 2 years old.¹ Although this uncommon disease typically affects childhood, LCH does occur in adults, with a considerable paucity of clinical data.² Positivity of cluster of differentiation (CD) 1a and Langerin in the lesion is the current gold standard for the diagnosis of LCH, but only in the correct clinical setting.³ The clinical

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presentation of LCH is very heterogeneous, ranging from a single-system involvement, generally benign, to a multisystem life-threatening disease.⁴

LCH involving the orbit is infrequent and accounts for less than 1% of all orbital tumors.⁵ Classically, orbital LCH will present with unilateral orbital pain and / or headache with proptosis and/or localized eyelid redness and swelling. Neuro-ophthalmic manifestations are uncommon and include papilledema, optic atrophy, and cavernous sinus syndrome.⁶ Most disturbances in ocular motility are attributed to orbital tumor mass effect and not to cranial nerve involvement. In patients presenting with orbital disease, usually there is no concurrent organ system involvement (unifocal — unisystem disease). Due to the lack of understanding of the pathogenesis of LCH, optimal therapy and follow-up remains a challenge.

We report a clinical case of a patient with adult-onset LCH of the orbit with clinicopathological correlation.

CASE REPORT

A 39-year-old woman presented to the emergency room with lateral right orbital pain, associated with right-sided temporal headache, for one week. She had neither ocular nor systemic significant past medical history and she was a nonsmoker.

On examination, there was a discrete upper right eyelid swelling, with a small visible lesion on superolateral orbital roof (Fig. 1). Her best corrected visual acuity was 10/10 (decimal scale) in both eyes, intraocular pressure of 12 mmHg in both eyes, biomicroscopy and fundoscopy were normal. There was no measurable proptosis, globe displacement or ocular movements restriction.

Orbital computer tomography (CT) showed an irregular round lesion with 11 mm diameter on the lacrimal gland fossa, associated with a ‘punched-out’ lytic lesion of the lateral orbital roof. The lesion was distinct from the lacrimal gland



Figure 1 – Initial clinical examination revealed a discrete right eyelid swelling on superolateral orbital roof

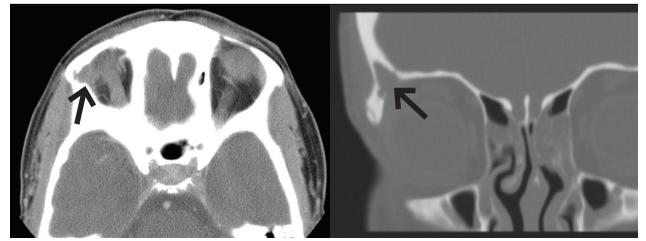


Figure 2 – Axial (left) and coronal (right) computer tomography scans demonstrating the lesion (black arrows)

but the latter seemed to be increased (Fig. 2). Subsequent magnetic resonance imaging (MRI) revealed a contrast enhanced lesion, with a mild pachymeningeal thickening on the right orbital roof (Fig. 3).

We performed an excisional orbital biopsy through anterior orbitotomy, via superior palpebral fold and we found a soft, friable material within the eroded bone. Histopathological, immunochemical and flow cytometry studies were conducted.

The histological examination revealed a marked eosinophilic infiltration, and cells with abundant eosinophilic cytoplasm and oval, elongated or reniform nuclei. These cells immunostained positively for CD68, CD1a and S100 (Fig. 4). Consequent immunostaining with Langerin confirmed the diagnosis of LCH (image not shown).

There were no complications within the postoperative period, and she achieved complete resolution of all symptoms and signs after two weeks. There was no evidence of distant disease on subsequent staging investigations, including whole body CT scan and bone scan. Repeated orbital CT did not show meningeal contrast enhancement, so we made the diagnosis of unifocal monostotic LCH of the right orbit.

Since it is an infrequent disease, it was difficult to define the guidelines for treatment. Within our multidisciplinary team for head and neck cancer care, we decided to follow the algorithm proposed by Euro Histo Net.⁷ The patient received no further treatment and after one year of follow-up, she remains well with complete resolution of symptoms and no evidence of recurrence.

DISCUSSION

An orbital osteolytic lesion, with a soft tissue component, raises the possibility of metastases, aggressive orbital lymphoma, primary bone tumors, orbital granulomas or deep dermoid or epidermoid cysts. LCH is one of the diseases that should be excluded in these cases. The lytic lesion in LCH has classically a ‘punched-out’ appearance, with regular bone destruction, as we saw in this clinical case.

LCH has a heterogeneous presentation. Most of the disease classification separates the disease into localized (single system) and disseminated (multisystem). Ocular presentation of adult LCH is exceptional, with estimates ranging from 1% – 37.5%.⁸ For this reason, its clinical diagnosis may be challenging. As described in our case, orbital LCH will classically present with unilateral orbital pain or headache or localized redness and swelling.

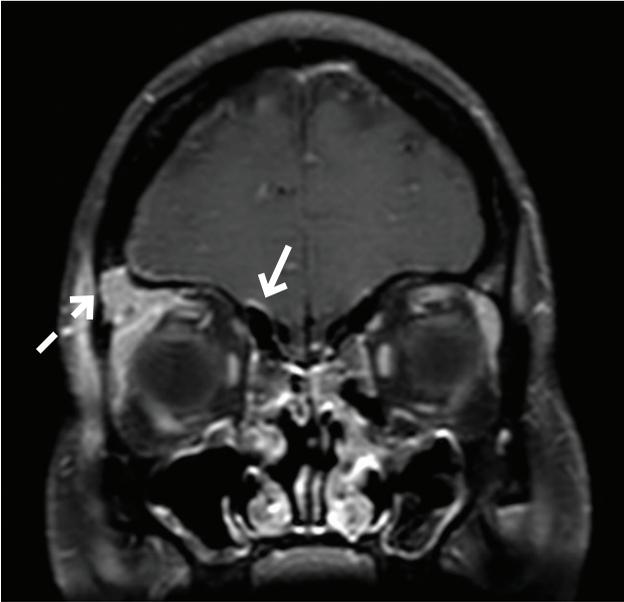


Figure 3 – Coronal MRI shows an osteolytic lesion (incomplete arrow) and a thickening of paquimeninges (full arrow)

Biopsy is the most accurate means of diagnosis and should show the typical histological pattern of multinucleated Langerhans cells, with Birbeck granules, histiocytes, and eosinophils. In this case, we confirmed the diagnosis with a positive immunohistochemical staining for CD1a, S100 and Langerin.

The current guidelines for evaluation and treatment of Langerhans cell histiocytosis from the Histiocyte Society suggest a full work up when the diagnosis of LCH is made.⁹ In fact, some studies suggest that orbital lesions may be part of a multisystem disease.⁸

Since it is an infrequent manifestation of the disease, orbital LCH treatment is not clearly defined. Some ophthalmologists considered that, in adult patients with an isolated orbital LCH, minimal intervention (incisional biopsy combined with limited curettage and intralesional corticosteroids) may be sufficient. However, the current guidelines put orbital disease in the category of a central nervous system disease, considering a 'high risk organ' involvement.⁹

The natural history of LCH in children is variable, ranging from a slow, benign, localized symptomatic bony or soft tissue lesion, to a rapidly progressive, widespread, multi-systemic fatal disorder. Patients with limited orbital involvement, as the initial manifestation, generally have a good prognosis and achieve complete regression.⁸

LCH remains an enigmatic disease and should always be considered as a differential diagnosis in adults with osteolytic orbital lesions. All patients should undergo a careful

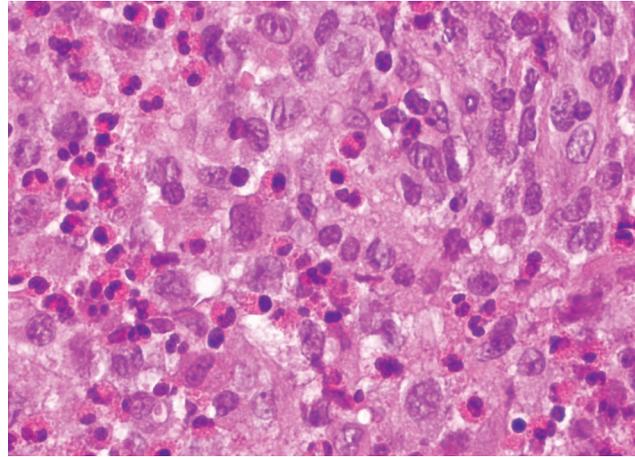


Figure 4 – Hematoxylin and eosin stain

multidisciplinary evaluation and follow-up to screening for possible asymptomatic locations that could warrant prompt treatment. Although the standard therapeutic approach to adult LCH with orbital manifestation has not yet been established, it is possible that a variety of local treatment modalities may achieve satisfactory outcomes.

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PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

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CONFLICTS OF INTEREST

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FUNDING SOURCES

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