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Orbital Inflammatory Pseudotumor in A Patient with Hypothyroidism: CT and MRI Findings – A Case Report

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Abstract **Case Report**

We report the case of a 23-year-old patient with a history of hypothyroidism, presenting with right upper eyelid swelling evolving over two months. Initial computed tomography (CT) imaging revealed an enhancing orbital lesion, prompting further evaluation with orbital magnetic resonance imaging (MRI). MRI demonstrated an infiltrative soft tissue mass involving the superior quadrants of the right orbit, suggestive of an orbital inflammatory pseudotumor. A biopsy was performed and showed non-specific inflammatory changes without evidence of malignancy. High-dose corticosteroid therapy was initiated, resulting in a marked clinical improvement. This case highlights the importance of recognizing the radiological features of inflammatory pseudotumors.

Keywords: Orbital inflammatory pseudotumor, Idiopathic orbital inflammation, Orbit, Computed tomography, Magnetic resonance imaging, Corticosteroid therapy.

INTRODUCTION

Orbital inflammatory pseudotumor, also known as idiopathic orbital inflammation, is a benign inflammatory condition of the orbit. Its clinical and radiological presentation may mimic malignant tumors. Diagnosis relies on imaging, biopsy in atypical or doubtful cases, and the therapeutic response to corticosteroids [2, 5, 6, 7].

CASE PRESENTATION

A 23-year-old female patient, followed for hypothyroidism under treatment, presented with right upper eyelid swelling evolving over two months. Clinical examination revealed non-axial exophthalmos with limitation of elevation and adduction of the right eye. The cornea showed inferior superficial punctate keratopathy. Fundoscopic examination revealed papillary hyperemia with a normal macula.

Orbital CT scan demonstrated a tissue lesion in the superior quadrants of the right orbit, spontaneously isodense and showing enhancement after iodinated contrast injection (Figures 1 and 2). Subsequent orbital MRI revealed a well-defined, lobulated mass measuring approximately 39 × 40 × 20 mm, showing isointense signal on T1-weighted images, heterogeneous hyperintense signal on T2-weighted images, and diffusion hyperintensity with ADC restriction. After contrast administration, the lesion showed intense and homogeneous enhancement. The mass infiltrated both intra- and extraconal fat as well as the superior rectus muscle, exerting a mass effect on the globe, which was displaced downward and forward. There was no evidence of intracranial extension or vascular encasement (Figures 3, 4, 5, and 6).

Histological examination revealed non-specific acute and chronic inflammatory changes, without well-formed granuloma, necrosis, or evidence of malignancy. Immunohistochemical analysis demonstrated reactive T and B lymphocytes (CD3 and CD20 positive), confirming the diagnosis of inflammatory pseudotumor.

The patient received high-dose intravenous corticosteroid therapy for three days. Clinical evolution was marked by a rapid and significant improvement, with regression of the swelling and exophthalmos, confirming the inflammatory nature of the lesion.

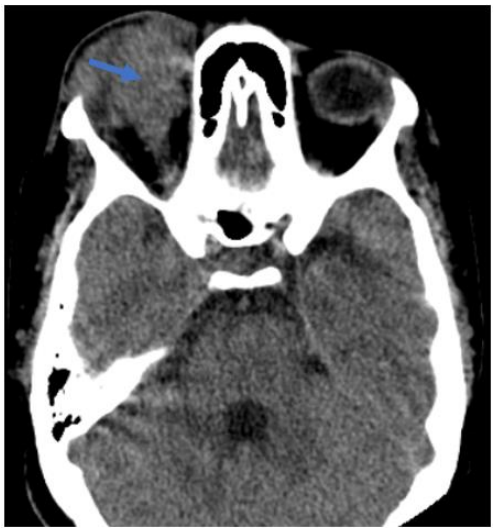

Figure 1: Axial CT scan (non-contrast) showing an isodense right orbital lesion (blue arrow)

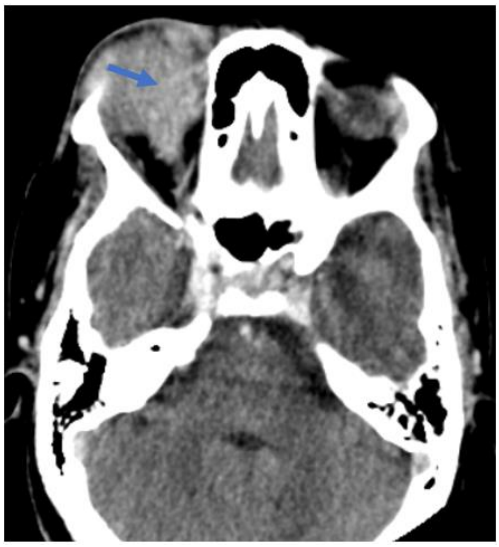

Figure 2: Axial CT scan after contrast injection showing enhancement of the right orbital lesion (blue arrow)

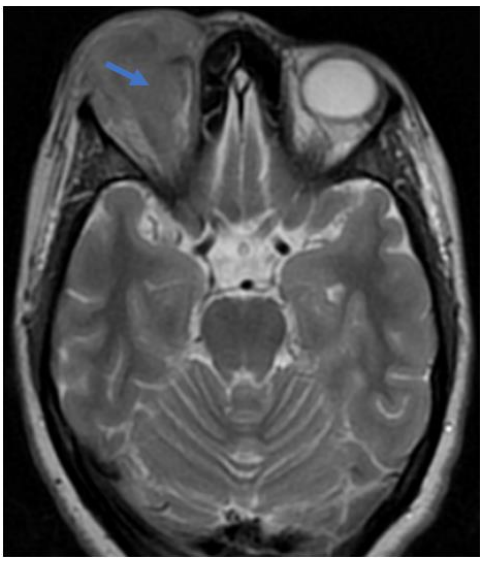

Figure 3: Axial T2-weighted MRI showing a heterogeneous hyperintense right orbital mass (blue arrow)

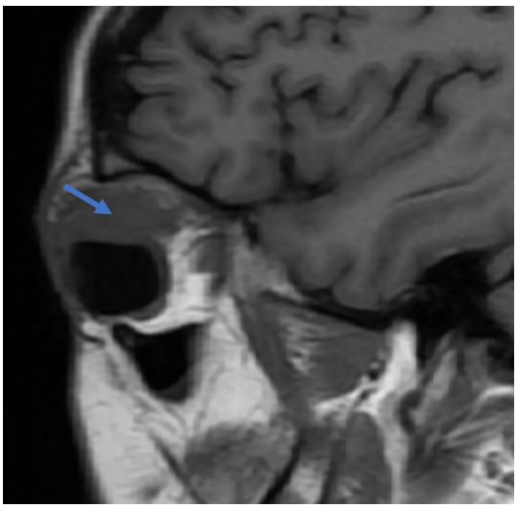

Figure 4: Sagittal T1-weighted MRI showing an isointense orbital mass (blue arrow).

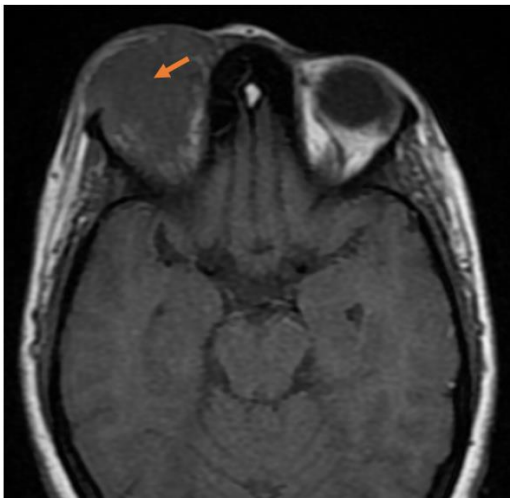

Figure 5: T1-weighted fat-suppressed MRI before contrast injection (blue arrow)

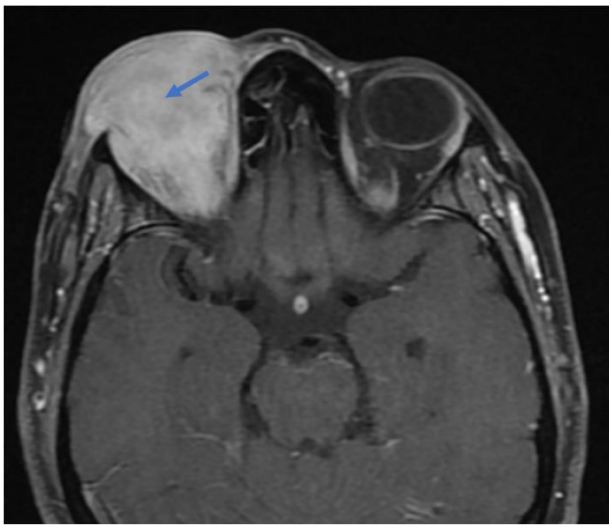

Figure 6: T1-weighted fat-suppressed MRI after contrast injection showing intense enhancement of the mass (blue arrow)

DISCUSSION

Orbital inflammatory pseudotumor, also known as idiopathic orbital inflammation, is an inflammatory lesion that may involve all orbital compartments, most commonly the lacrimal gland (dacryoadenitis), extraocular muscles (myositis) involving both the muscle bellies and tendons, intra- or extraconal orbital fat, and the perioptic spaces (perineuritis) [1,2,3,7].

This condition may occur at any age, with a predominance in middle-aged adults. Clinical presentation is variable and classically includes orbital pain, exophthalmos, eyelid edema, diplopia, and limitation of ocular movements. However, these manifestations remain nonspecific, making imaging essential for diagnostic orientation and assessment of lesion extension [2].

In our observation, the context of hypothyroidism is of particular interest. Autoimmune thyroid diseases are frequently associated with inflammatory orbital manifestations, mainly in the setting of thyroid-associated orbitopathy. However, the association between orbital inflammatory pseudotumor and hypothyroidism remains rare and poorly reported in the literature [3].

Computed tomography (CT) is often the first imaging modality performed in the setting of orbital symptoms. It allows evaluation of both osseous structures and orbital soft tissues. CT findings of orbital inflammatory pseudotumor vary according to the involved compartment. Imaging may demonstrate thickening of the extraocular muscles, diffuse infiltration of orbital fat, lacrimal gland involvement, or a poorly defined soft-tissue mass showing moderate to intense contrast enhancement [6,7].

Magnetic resonance imaging (MRI) is considered the reference examination for the characterization of inflammatory orbital lesions due to its excellent contrast resolution. Lesions generally appear iso- to hypointense on T1-weighted images and show variable T2 signal intensity, with or without marked gadolinium enhancement depending on the degree of fibrosis and inflammatory activity. MRI also provides better assessment of extension to adjacent structures, particularly the optic nerve sheaths and neighboring paranasal sinuses [6,7].

Biopsy may be indicated in atypical forms, treatment-resistant cases, or when a lymphoproliferative or neoplastic origin cannot be excluded. Histologically, inflammatory pseudotumor is characterized by a polymorphic inflammatory infiltrate [4].

Systemic corticosteroid therapy remains the first-line treatment, usually associated with a rapid and dramatic clinical response, which is considered an additional diagnostic argument [1,3,4].

Our observation therefore highlights the importance of multimodal imaging in the evaluation of inflammatory orbital masses. CT and MRI enabled precise analysis of the lesion location, extension, and tissue characteristics, leading to the diagnosis of orbital inflammatory pseudotumor in a context of hypothyroidism.

CONCLUSION

Orbital inflammatory pseudotumors are rare and poorly recognized entities that can mimic malignant tumors on imaging. Clinical manifestations vary depending on the affected structure and etiology.

This case highlights the importance of recognizing radiological features to avoid unnecessary aggressive surgical procedures.

REFERENCES

1. Yuen SJ, Rubin PA. Idiopathic orbital inflammation: distribution, clinical features, and treatment outcome. *Arch Ophthalmol.* 2003;121(4):491–499.
2. Ghribi M, Ben Salah R, Rekik F, Frikha F, Bouattour Y, Bahloul Z. Les pseudotumeurs inflammatoires de l'orbite : approches diagnostiques et difficultés thérapeutiques. Rev Med Interne. 2018;39: A222–A223.
3. Gordon LK. Orbital inflammatory disease: a diagnostic and therapeutic challenge. *Eye (Lond).* 2006;20(10):1196–1206.
4. Eshraghi B, Sonbolestan SA, Abtahi MA, Mirmohammadsadeghi A. Clinical characteristics, histopathology, and treatment outcomes in adult and pediatric patients with nonspecific orbital inflammation. *J Curr Ophthalmol.* 2019;31(3):327–334.
5. Mombaerts I, Schlingemann RO, Goldschmeding R, Koornneef L, *et al.,* Consensus on diagnostic criteria of idiopathic orbital inflammation using a modified Delphi approach. *Surv Ophthalmol.* 2017;62(2):243–253.
6. Hiwatashi A, Togao O, Yamashita K, Kikuchi K, Kamei R, Yoshikawa H, *et al.,* Diffusivity of intraorbital lymphoma vs inflammation: comparison of single-shot turbo spin echo and multishot echo planar imaging techniques. *Eur Radiol.* 2018;28(1):325–330.
7. Avni-Zauberman N, Tripathy D, Rosen N, Ben Simon GJ. Relapsing migratory idiopathic orbital inflammation: six new cases and review of the literature. *Br J Ophthalmol.* 2012;96(2):276–280. doi:10.1136/bjo.2010.191866