

Comprehensive Case Report: Idiopathic Orbital Inflammation (Orbital Pseudotumor) in a 58-Year-Old Male

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Abstract

Idiopathic orbital inflammation (IOI), also known as orbital pseudotumor, is a non-neoplastic, non-infectious inflammatory condition affecting orbital structures without an identifiable systemic or local aetiology. This case report presents a case of a 58-year-old male with progressive right eye downward deviation, diplopia, and restricted ocular motility, diagnosed as orbital pseudotumor based on clinical, imaging, and exclusionary criteria. The patient exhibited a partial response to intravenous corticosteroids, underscoring the variable therapeutic outcomes in such cases. This report highlights the diagnostic challenges, management strategies, and potential complications associated with IOI, emphasizing the need for a multi-disciplinary approach.

Keywords: Idiopathic orbital inflammation (IOI), orbital pseudotumor.

Introduction

Orbital pseudotumor is a rare but significant cause of orbital inflammation, accounting for approximately 5–8% of orbital diseases¹. It is characterized by polymorphic lymphoid infiltrates and fibrosis, often involving extraocular muscles, orbital fat, lacrimal glands, or the optic nerve sheath². Unlike thyroid eye disease or orbital infections, IOI lacks systemic associations, making it a diagnosis of exclusion. The condition typically presents with acute-onset pain, proptosis, diplopia, and ophthalmoplegia, often mimicking more sinister pathologies like lymphoma or metastatic disease³

Case Report:

A 58 years old male presented to our department for Progressive downward deviation of the right eye for one month associated horizontal and vertical diplopia, worsening in right gaze.

The patient reported no preceding trauma, fever, or constitutional symptoms. There was no history of autoimmune diseases (e.g., rheumatoid arthritis, granulomatosis with polyangiitis) or thyroid dysfunction. On ocular examination the uncorrected Visual Acuity in both eyes was 20/40. Intraocular pressure in right 34 mm Hg (elevated, likely due to orbital congestion) and in left eye 18 mm Hg with

intact colour vision with normal pupillary reaction.

On slit lamp examination his conjunctiva and cornea were within normal limits. The anterior Chamber is well formed, the iris has normal colour and pattern, the pupil has a regular shape and reaction. Lens is normal in both eyes.

Fundoscopy of RE reveals well defined Optic disc margins, no venous engorgement or choroidal folds. On Ocular Movements Examination Severe restriction in supraduction, mild limitation in abduction and adduction was noted in RE. (Figure 1)

Palpebral Fissure Height in RE was 15 mm (suggestive of mild ptosis or compensatory lid retraction) and in LE was 10 mm. Scleral Show in RE was 7 mm superiorly (consistent with proptosis or lid retraction). On Palpation of right eye Firm resistance to retropulsion, no discrete mass was noted. Forced

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Figure 1 : . Ocular movements in all cardinal gazes before different Duction Test was Positive for right inferior rectus (suggestive of muscle fibrosis or entrapment).

Blood Investigations like Complete blood count (CBC), erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) Thyroid function tests (TFTs) were within normal limits. Anti-thyroid peroxidase (TPO) antibodies test was negative. On Imaging(MRI Orbit with contrast)Hyperintense signal in the posterior aspect of the right inferior rectus on T2-weighted images and No evidence of orbital mass or sinus involvement(Figure 2).

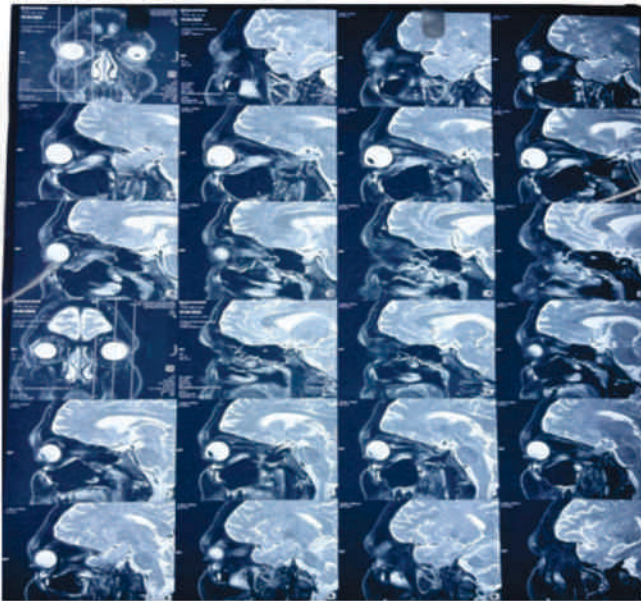


Figure 2 : . MRI (T2-weighted, sagittal section) showing hyperintensity (arrow) in the posterior right inferior rectus, consistent with myositic IOI.

On the basis of examination and imaging a probable diagnosis of Idiopathic Orbital Inflammation (Orbital Pseudotumor) was considered and Intravenous methylprednisolone (1 g/day) for 3 days was given as initial therapy. Partial improvement in medial and lateral gaze was noted on day 3 while Persistent restriction in superior gaze was still there suggesting residual fibrosis of inferior rectus muscle. (Figure3)



Figure 3 : . Ocular movements in all cardinal gazes after treatment

Discussion:

IOI is characterized by a polymorphic inflammatory infiltrate (lymphocytes, plasma cells, eosinophils) and fibrosis⁴. The aetiology remains unknown, though molecular studies suggest autoimmune or post-infectious triggers.⁵ This condition can involve different parts of the orbit, including the extra ocular muscles, lacrimal gland, sclera, and retrobulbar soft tissue. It is typically diagnosed through imaging techniques like CT scans and MRIs, which show muscle enlargement and inflammation. Treatment usually involves corticosteroids, NSAIDs, or immunosuppressive therapy, depending on the severity.⁶

Conclusion:

This case highlights the diagnostic complexity of orbital pseudotumor and the importance of imaging and systemic workup. While corticosteroids remain the cornerstone of therapy, refractory cases require a tailored approach with immunomodulators or radiotherapy. Long-term follow-up is essential to monitor for recurrences or complications.

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