SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Surgery

Orbital Tuberculosis Mimicking a Malignant Tumor: A Case Report

K. Youss[1*], M. A. Ezzirani[1], O. Baladi[1], M. Ziouti[1], O. Ilhami[1,2], A. Oukerroum[1,2], F. Slimani[1,2]

[1]Department of Stomatology and Maxillofacial Surgery, Hospital 20 Août - CHU Ibn Rochd, B.P 2698, Casablanca, Morocco
[2]Faculty of Medicine and Pharmacy of Casablanca, University Hassan II Casablanca, B.P 5696, Casablanca, Morocco

DOI: https://doi.org/10.36347/sasjs.2026.v12i07.012 | **Received:** 11.06.2026 | **Accepted:** 24.07.2026 | **Published:** 27.07.2026

***Corresponding author:** K. Youss
Department of Stomatology and Maxillofacial Surgery, Hospital 20 Août - CHU Ibn Rochd, B.P 2698, Casablanca, Morocco

Abstract | **Case Report**

Background: Orbital tuberculosis is a rare form of extrapulmonary tuberculosis that may mimic orbital inflammatory diseases or malignant tumors, making diagnosis particularly challenging. ***Case presentation:*** A 55-year-old woman presented with a two-month history of painless right infraorbital swelling associated with unilateral proptosis. Orbital MRI demonstrated a lesion involving the inferior rectus tendon with adjacent soft tissue infiltration, initially suggestive of an orbital neoplasm. Histopathological examination of an incisional biopsy revealed caseating granulomatous inflammation consistent with tuberculosis. No evidence of pulmonary tuberculosis was found. The patient was treated with standard six-month antituberculous therapy, resulting in complete clinical recovery without recurrence. ***Conclusion:*** Orbital tuberculosis should be considered in the differential diagnosis of slowly progressive orbital masses, even in the absence of systemic symptoms or pulmonary involvement. Early biopsy and histopathological confirmation are essential for timely diagnosis and appropriate treatment.

Keywords: Orbital tuberculosis; Orbital mass; Exophthalmos; Inferior rectus tendon; Case report.

INTRODUCTION

Tuberculosis represents a global health concern with diverse clinical manifestations. In Morocco, a country where the disease is still endemic, 46% of new or relapsing cases were reported to be extrapulmonary in 2023, according to the World Health Organization (1). Among these, orbital tuberculosis remains exceptionally rare and may involve bony structures, periosteum, or even orbital soft tissues (2).

The particular difficulty of diagnosing orbital forms arises from the fact that its manifestations usually seem isolated. Its nonspecific clinical features can resemble other conditions such as neoplastic or inflammatory disorders, and may finally lead to misdiagnosis and inappropriate treatment.

This article presents the case of a 55-year-old female who developed a localized mass of the right orbit with no apparent systemic symptoms or other detectable tuberculous lesions. This report illustrates the diagnostic difficulties posed by such unusual presentations and emphasizes the need to consider tuberculosis in the differential diagnosis of orbital masses, particularly in endemic areas.

CASE PRESENTATION

A 55-year-old woman presented to our ophthalmology department with a 2-month history of progressive, painless swelling of the right infraorbital region associated with right-sided exophthalmos. The swelling had an insidious onset and was not accompanied by fever, cough, or weight loss. Her medical history was significant for type 2 diabetes mellitus treated with oral antidiabetic agents, dyslipidemia, and medically managed valvular heart disease.

On examination, a firm, painless, non-compressible, non-inflammatory palpable mass measuring approximately 2 cm was noted beneath the lower eyelid, extending along the inferior orbital rim. The mass appeared fixed to the underlying bone, whereas the overlying skin remained freely mobile. Visual acuity was 7/10 in the right eye and 10/10 in the left eye. Digital palpation suggested increased intraocular pressure in the right eye. Ocular motility examination revealed limitation of downgaze in the right eye. Routine laboratory investigations revealed leukocytosis (20 × 10^9/L) with neutrophilia.

Orbital magnetic resonance imaging (MRI) revealed a focal elliptical thickening of the tendinous insertion of the inferior rectus muscle measuring 14 × 8

mm. The lesion was isointense on both T1- and T2-weighted sequences and demonstrated mild diffusion hyperintensity without apparent diffusion coefficient (ADC) restriction. Following intravenous gadolinium administration, homogeneous enhancement was observed. The lesion was associated with adjacent extraconal fat infiltration and grade I right-sided exophthalmos.

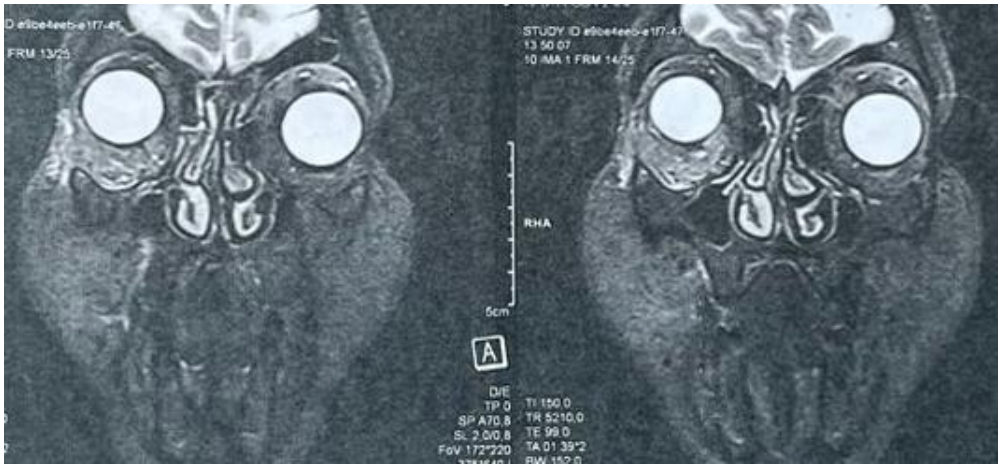

Figure 1: Coronal T2-weighted orbital MRI showing focal thickening of the right inferior rectus tendon with adjacent extraconal fat infiltration

Before referral to our department, the patient had received corticosteroid therapy without clinical improvement. Therefore, an incisional biopsy was performed under general anesthesia in June 2025. Surgical exploration revealed a firm, whitish, non-encapsulated, poorly vascularized mass firmly adherent to the orbital periosteum, without a clear cleavage plane from the surrounding tissues.

Histopathological examination demonstrated granulomatous inflammation composed of epithelioid cell granulomas with Langhans giant cells and central caseous necrosis, consistent with tuberculosis. Chest radiography showed no evidence of active pulmonary tuberculosis.

The patient was started on standard anti-tuberculous therapy consisting of a two-month intensive phase (2RHZE) followed by a four-month continuation phase (4RH). After 2 months of treatment, visual acuity had improved to 10/10 in the right eye, ocular motility had completely recovered, and intraocular pressure measured by applanation tonometry was 15 mmHg in the right eye, compared with 11 mmHg in the left eye. At the 6-month follow-up, complete resolution of the infraorbital swelling and exophthalmos was observed, with no evidence of local recurrence.

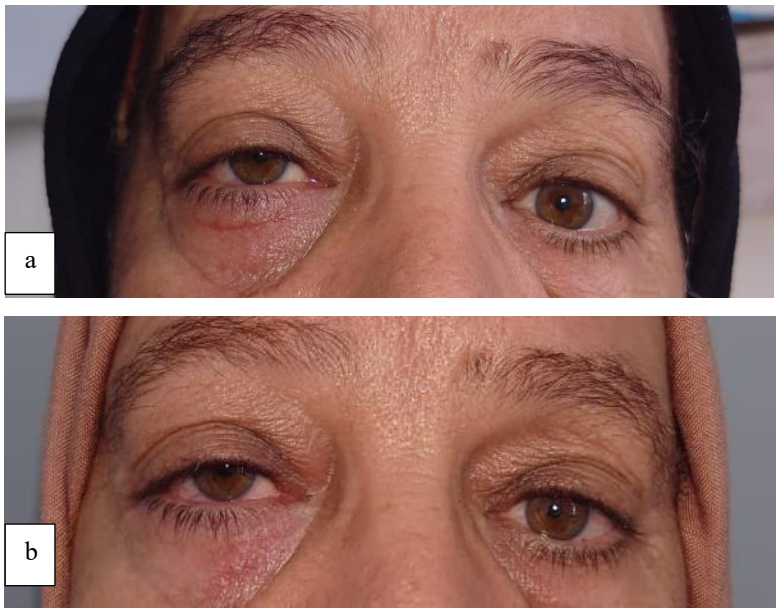

Figure 2: (a) Clinical presentation before Anti-tuberculous Therapy
(b) Regression of the swelling and proptosis after Intensive Phase

DISCUSSION

rbital tuberculosis is a rare manifestation of extrapulmonary tuberculosis, with reported incidences ranging from 1.4% to 18% of extrapulmonary tuberculosis cases. It can occur at any age but appears to be relatively more common in children (3,4).

It is believed to result from hematogenous dissemination or contiguous spread from adjacent paranasal sinuses (5). Depending on the anatomical structures involved, orbital tuberculosis may affect the orbital bones, periosteum, extraocular muscles, lacrimal gland, or orbital soft tissues, resulting in several distinct clinical presentations (6).

Several clinicopathological forms have been described, including periostitis, lacrimal gland involvement, soft tissue tuberculoma (cold abscess), and secondary orbital extension from paranasal sinus disease (7). The clinical presentation in our patient was more consistent with soft tissue tuberculoma or cold abscess.

Orbital TB is usually slowly progressive with a median time to the presentation of three months (1 week to 12 years). Proptosis is the principal symptom in individuals with orbital tuberculoma or cold abscess. These conditions are often accompanied by edema, palpable soft tissue induration (mass-like), and sometimes a cold abscess (6). Decreased vision and diplopia are also common symptoms. Consistent with previous reports, our patient presented with painless progressive proptosis associated with an infraorbital mass, initially raising the suspicion of an orbital malignancy. Orbital tuberculoma can spread to nearby tissues, including the sinuses, temporal fossa, and extradural space. Delayed diagnosis may result in the onset of orbital apex syndrome (3,8,9).

A comprehensive and systematic patient history is essential to identify clinical symptoms in TB cases. Classic TB symptoms include persistent cough and fever lasting over two weeks, despite adequate treatment. Additional systemic symptoms may include weight loss, lack of improvement in the past two months, or failure to gain weight despite nutritional efforts (10). Our patient had none of these manifestations.

The differential diagnosis of a slowly progressive orbital mass includes lymphoma, metastatic disease, idiopathic orbital inflammation, cavernous hemangioma, lacrimal gland tumors, and subperiosteal abscess secondary to sinusitis (6).

Diagnostic imaging modalities include chest radiographs to look for evidence of primary pulmonary TB, orbital ultrasonography and CT scan or magnetic resonance imaging (MRI) of the orbits. The absence of bony artefacts on MRI gives it an advantage over CT scans in the evaluation of orbital masses (11). CT scans are, however, superior for evaluating bony destruction.

In our patient, MRI demonstrated homogeneous enhancement of the inferior rectus tendon with adjacent fat infiltration but without diffusion restriction or osseous destruction. The imaging findings observed in our patient were compatible with several malignant orbital tumors, including lymphoma, metastatic disease, and lacrimal gland tumors, as well as benign inflammatory conditions such as idiopathic orbital inflammation. Furthermore, unlike the more commonly reported orbital forms involving the orbital bones, periosteum, lacrimal gland, or diffuse soft tissues, our patient presented with an isolated lesion centered on the tendinous insertion of the inferior rectus muscle. To the best of our knowledge, isolated tendinous involvement of an extraocular muscle by orbital tuberculosis has not been previously reported. This unusual localization broadened the differential diagnosis and further illustrates the protean manifestations of orbital tuberculosis. Therefore, neither the clinical presentation nor imaging findings alone are sufficient to establish the diagnosis, emphasizing the need for histopathological confirmation.

Histopathological examination remains the cornerstone of diagnosis in isolated orbital lesions. Typical findings include epithelioid granulomas with Langhans giant cells and central caseous necrosis. Although mycobacterial culture remains the diagnostic gold standard, orbital lesions are paucibacillary, resulting in low microbiological yield (6). Molecular techniques such as PCR may improve sensitivity but are not always available. Tuberculin Skin Test and Interferon-gamma release assays may support the diagnosis but cannot distinguish active from latent infection and negative results do not exclude orbital tuberculosis (12,13). Chest X-ray was within normal limitation and the tuberculin test showed no induration. This case report is highly suggestive of the diagnosis of orbital TB through histopathological analysis of the biopsy specimen, revealing soft and hard tubercles composed of epithelioid cells, multinucleated giant Langerhans cells, and mild caseous necrosis within the connective tissue stroma. These findings are consistent with the characteristic histopathological features of TB.

Patients with orbital TB require systemic antituberculous therapy (4). Treatment comprises a four-drug regimen, administered in two phases: an intensive phase with rifampicin, isoniazid, ethambutol and pyrazinamide for two months and a continuation phase with rifampicin and isoniazid (14,15). There is no consensus on the total duration of treatment, which varies from 6 to 18 months (15,16). Although medicine remains the mainstay of treatment, surgery is usually reserved for tissue diagnosis. In accordance with WHO recommendations for drug-susceptible extrapulmonary tuberculosis, our patient received a standard 6-month regimen, resulting in complete clinical recovery.

CONCLUSION

Although uncommon, orbital tuberculosis should be considered in the differential diagnosis of slowly progressive orbital masses, particularly in endemic areas, even in the absence of systemic manifestations or pulmonary disease. Early biopsy with histopathological confirmation is essential for establishing the diagnosis and avoiding delays in treatment. Prompt antituberculous therapy is associated with an excellent prognosis and may prevent irreversible visual complications.

REFERENCES

1. World Health Organization (WHO). https://www.who.int/
2. Orbital and Periorbital Tuberculosis. In: Essentials in Ophthalmology [Internet]. Cham: Springer International Publishing; 2017 [cité 26 juill 2025]. p. 123-31. Disponible sur: http://link.springer.com/10.1007/978-3-319-57520-9_14
3. Ruman-Colombier R, Crisinel PA, Cohen Dumani N, Ceschi G, Rochat Guignard I. Bilateral dacryoadenitis: Don't forget tuberculosis! Pediatr Infect Dis J 2017 ; 36 : 117-9.
4. Dalvin LA, Smith WM (2016) Orbital and external ocular manifestations of Mycobacterium tuberculosis: A review of the literature. J Clin Tuberc Other Mycobact Dis 4:50– 57.
5. Gopalaswamy R, Shanmugam S, Mondal R, Subbian S. Of tuberculosis and non-tuberculous mycobacterial infections -A comparative analysis of epidemiology, diagnosis and treatment. J Biomed Sci. 2020 ;27(1):74. DOI : 10.1186/s12929-020-00667-6.
6. Madge SN, Prabhakaran VC, Shome D, Kim U, Honavar S, Selva D. Orbital tuberculosis: a review of the literature. Orbit 2008 ; 27: 267-77.
7. Basu S, Elkington P, Rao NA. Pathogenesis of ocular tuberculosis: New observations and future directions. Tuberculosis (Edinb). 2020; 124:101961. DOI: 10.1016/j.tube.2020.101961
8. Leibovitch I, Rootman DB, Goldberg RA. The approach to orbital surgery. In: Albert D, Miller J, Azar D, Young LH, editors. Albert and Jakobiec's Principles and Practice of Ophthalmology. Cham: Springer International Publishing; 2020. p. 1–10. DOI : 10.1007/978-3-319-90495-5_59-1
9. Tagoe L, Mainsah V, Afrane A, Gbadamosi H, Edusei L, Acquah S, *et al.,* Orbital tuberculosis mimicking an ocular malignancy: A case report. Health Sci Invest J. 2023;4(2):577–81. DOI: 10.46829/hsijournal.2023.12.4.2.577-581
10. Albert DM, Raven ML. Ocular tuberculosis. In: Schlossberg D, editor. Tuberculosis and nontuberculous Mycobacterial infections. New York : American Society for Microbiology; 2017. p. 313–30. DOI : 10.1128/9781555819866.ch19
11. Narula MK, Chaudhary V, Baruah D, Kathuria M, Anand R (2010) Pictorial essay: Orbital tuberculosis. Indian J Radiol Imaging 20:6–10.
12. Pushker N, Pujari A. Orbital and periorbital tuberculosis. In: Kumar A, Chawla R, Sharma N, editors. Ocular Tuberculosis. Cham : Springer International Publishing; 2017. p. 123–31. DOI : 10.1007/978-3-319-57520-9_14
13. Mittal R, Sharma S, Rath S, Barik MR, Tripathy D. Orbital tuberculosis: Clinicopathological correlation and diagnosis using PCR in formalin-fixed tissues. Orbit. 2017 ;36(5):264–72. DOI : 10.1080/01676830.2017.1337169.
14. Neuhouser AJ, Sallam A. Ocular Tuberculosis. StatPearls [Internet]. StatPearls Publishing; 2021 [cited 2021 Sep 22]; Available from: https://www.ncbi.nlm.nih.gov/books /NBK559303/
15. Steen K, Fialkov J (2017) A Misdiagnosed Case of Orbital Tuberculosis with Intracranial Extension. Plastic Surgery Case Studies 3:2513826X1775111.
16. Touati M, Ibrahim A, Ousmane KAK, Al-Zekri M, Baaré I, Morsli A (2020) A rare case of orbital tuberculosis with cold abscess and frontal bone lesion. Pan Afr Med J 37:167.