

Picture Story

A diagnostic dilemma and how it turned out to be ocular toxocariasis

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Introduction

Orbital cellulitis is a relatively common paediatric presentation, which needs prompt diagnosis and early treatment to prevent serious complications¹. Periorbital cellulitis is the inflammation of orbital structures anterior to the septum whereas orbital cellulitis refers to post-septal inflammation². These two have distinct clinical features as well as overlapping features which make them difficult to differentiate from each other. There are many mimics, such as allergic reactions, traumatic injury, malignancies and rarely, a manifestation of parasitic granuloma³. Here we discuss a patient who presented with a right sided progressive eye swelling which has been initially managed as orbital cellulitis but later turned out to be a parasitic granulomatous manifestation.

Case report

A one year and two-month-old baby boy was transferred from a local hospital to Lady Ridgeway hospital (LRH) for further evaluation of a unilateral right sided periorbital swelling. He was a previously well child who developed insidious onset of right sided eye swelling of 2 weeks duration. There was no associated fever. There was no history of trauma or witnessed insect bite. However, baby had increased tearing and drooping of right eyelid. Mother had also noticed redness around the swelling. Baby did not have reduced extraocular movements, altered behaviour, irritability, vomiting or convulsions suggestive of intracerebral involvement. There had been no intermittent, recurrent fever episodes, anorexia or recent weight

loss suggestive of chronic disease or haematological malignancy. There was no history of headache, palpitations or excessive sweating suggestive of neuroblastoma. Child was initially admitted to a local hospital where a provisional diagnosis of periorbital cellulitis was made and subsequently, he was started on intravenous antibiotics. However, in spite of antibiotics, swelling had persisted and he was transferred to LRH for further evaluation.

On admission to LRH, baby was afebrile and alert. He had marked right sided periorbital swelling with erythema (Figure 1).



Figure 1: Right sided periorbital swelling
**Permission given by parents to publish photograph*

There was impaired upward movement of the right eye. Rest of the extraocular muscle movements were intact. Chemosis, conjunctival redness or proptosis were not present. Slit lamp examination of the right eye excluded papilloedema. Subsequently, baby underwent basic blood investigations and magnetic resonance imaging (MRI) of brain with orbit to exclude evidence of orbital cellulitis and its extension (Figure 2). The MRI of brain with orbit showed extraconal thickening of superior aspect of right eye globe with associated thickening and enhancement of superior rectus - levator palpebrae superioris complex, highly suggestive of inflammatory changes with parasitic granuloma. Thus, an ultrasound scan of the right periorbital region was done which demonstrated live parasites within the superior rectus-levator palpebrae superioris complex.

In the meantime, intravenous broad-spectrum antibiotics were continued. During the hospital stay, child was continuously assessed for complications of orbital cellulitis like meningitis, cavernous sinus thrombosis and papilloedema.

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A diagnosis of ocular toxocariasis was made after positive toxocara serology using ELISA. Subsequently, patient was started on albendazole 10mg/kg for 5 days along with dexamethasone. During next few days after initiation of anthelmintic drugs, marked reduction of periorbital swelling was noted and child was discharged after 1 week.

Table 1 shows the laboratory investigation performed and the results.

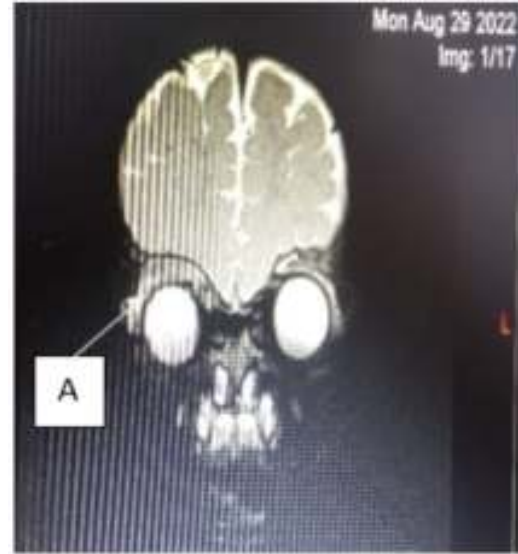


Figure 2: Magnetic resonance imaging of orbit and brain (A) shows extraconal thickening of superior aspect of right eye globe with associated thickening and enhancement of superior rectus-levator palpebrae superioris complex, highly suggesting inflammatory changes with parasitic granuloma

Table 1: Laboratory investigations carried out and their results

| Investigation | Result |
|---|---|
| Full blood count | |
| White blood cell count (WBC) | 12,500/cu mm (N23.4%, L70.8%, E5.8%) |
| Haemoglobin level (Hb) | 10.1g/dL |
| Mean corpuscular volume (MCV) | 77fl |
| Mean corpuscular haemoglobin (MCH) | 25.4g/dL |
| Mean corpuscular haemoglobin concentration (MCHC) | 32.6g/dL |
| Platelet count | 307,000/cu mm |
| C-reactive protein (CRP) | 5mg/L |
| Blood picture | No abnormal cells noted. Microcytic hypochromic cells noted |
| Erythrocyte sedimentation rate (ESR) | 22mm/hour |
| Toxocara antibody test (ELISA) | Positive |

Discussion

Prevalence of parasitic infections depends on endemicity of the parasite, immune status of the host and the socio-economic status of the country or region⁴. Ocular toxocariasis is not common⁵. Organisms other than *toxocara* causing ocular parasitosis include *acanthamoeba*, *leishmania*, *trypanosoma*, *toxoplasma*, *giardia*, *angiostrongylus*, *wuchereria malayi*, *wuchereria bancrofti*, *dirofilaria* and *loa loa*⁶. Clinical manifestations vary according to the aetiological agent, part of the ocular tissue involved, local defense mechanisms and host immunological reactions and result from direct tissue destruction by the parasite itself or by toxins produced by them or as a presentation of immune reaction⁴.

Toxocariasis has many clinical manifestations like anaemia, pica, Loeffler's syndrome, eosinophilic meningitis and parasitic granuloma. Parasitic hosts

include dogs and cats⁷. Infection is transmitted by ingestion of eggs of toxocara passed in the faeces of the definitive host. After the larvae hatch from eggs, they migrate to different visceral organs like liver and lung leading to visceral larva migrans⁷. Rarely, they migrate to eyes causing various clinical presentations like uveitis, endophthalmitis, papillitis and retinal granulomatous lesions or inflammatory masses⁷. Marked eosinophilia with positive serology aids in making the diagnosis. In addition, slit lamp examination of the eyes, chest x-ray, ultrasonography and macroscopic examination are important⁷. Polymerase chain reaction may help in cases where definitive aetiological diagnosis is uncertain, especially in ocular larva migrans⁸. Treatment includes medical management with albendazole, which is considered the drug of choice. Surgical interventions like vitrectomy, photocoagulation and steroids for neurological toxocariasis are also recommended⁹.

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