CASE REPORT

Infectious scleritis mimicking severe ocular inflammation: atypical initial presentation

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SUMMARY

Two farmers presented with sudden-onset of severe conjunctival congestion and intense chemosis along with features of anterior uveitis. Intraocular pressure was elevated in the first case. Clinically, a diagnosis of severe ocular inflammation was made. Both were hospitalised and were started on topical and parenteral antibiotics. Subsequently, both presented with scleral abscess and choroidal detachment at the site of abscess. Scleral deroofing was performed which revealed fungal infection in the first and *Pseudomonas aeruginosa* in the second case. Both patients were treated accordingly and showed dramatic response with development of scarring and thinning along with complete resolution of choroidal detachment. Infective scleritis should be considered as one of the provisional diagnosis in patients presenting with features of unilateral ocular inflammation, especially in cases with history of trauma or in predisposed individuals.

2% eye drops two times daily) with a close follow-up.

Three days later, the patient presented with a juxtalimbal scleral abscess (figure 2A). Indirect ophthalmoscopy revealed a localised choroidal detachment underlying the abscess. A similar finding was seen on B-scan (figure 3A). The diagnosis was revised to infective scleritis and the patient was subjected to scleral biopsy, which was sent for microbiological and histopathological evaluation, but did not reveal any infective organisms. The patient was continued oral and topical ciprofloxacin, but there was no therapeutic response. One week later, topical fortified amikacin 2.5% was added every hour. Repeat extensive scleral biopsy was performed, but once again was negative. Two days later, the patient presented with two pus points from which scrapings were taken and fungal filaments were detected on KOH calcofluor white smear (figure 4) thereby confirming diagnosis as fungal scleritis.

BACKGROUND

Infectious scleritis is a rare entity and accounts for 5–10% of all cases of scleritis.^{1–3} It usually presents as an ulcerated or non-ulcerated, inflamed scleral nodule.⁴ However, we herein report severe ocular inflammation as an unusual initial presenting feature of infectious scleritis. To our knowledge, this unusual presentation of infectious scleritis has not been previously reported in literature.

CASE PRESENTATION

Case 1

A 55-year-old farmer presented with a 20-day history of pain and redness of right eye following injury with a thorn. On initial presentation, the best corrected visual acuities (BCVAs) were 20/120 in the right eye and 20/20 in the left. Intraocular pressures (IOPs) were 24 and 10 mm Hg, respectively. Right eye examination showed mild proptosis, diffuse conjunctival congestion with intense chemosis (figure 1). Anterior chamber reaction (grade 2+ flare and grade 2+ cells) was present. Lens was clear and fundus was within normal limit. Left eye was normal. Based on the above clinical features, a clinical impression of right eye orbital cellulitis was made and an orbital B-scan was requested. Orbital B-scan (Opro: OTI-300) did not reveal involvement of orbital fat and extraocular muscles. The patient was started on oral (tab ciprofloxacin 750 mg two times daily) and topical (eyedrop ciprofloxacin every hour) antibiotics along with topical steroid (prednisolone acetate 1% suspension eye drops six times daily) and cycloplegic (homatropine sulfate

Case 2

A 55-year-old man presented with a 10-day history of sudden onset of pain, redness and watering and decreased vision in his left eye after he woke up from sleep. He, however, denied any history of injury to the left eye, which was asked retrospectively again after examination, patient could not recall any injury at work or any foreign body falling into his left eye.

On initial presentation, the BCVAs were 20/20 and 20/80 in the right and left eye, respectively. The IOPs were 14 and 12 mm Hg, respectively. The left eye showed 3+ lid oedema, mildly restricted ocular movements, intense conjunctival congestion and intense chemosis. Oedematous conjunctiva was covering peripheral 2 mm of cornea. Intense anterior chamber reaction (grade 3+ flare and grade 4+ cells) was present with 0.5 mm hypopyon. Lens was clear, however, fundus details could not be visualised.

Based on the above clinical features, a clinical impression of left eye orbital cellulitis was made and an orbital B-scan was requested. Orbital B-scan did not reveal involvement of orbital fat and extraocular muscles. The patient was started on oral (tab ciprofloxacin 750 mg two times daily) and topical (eyedrop ciprofloxacin every hour) antibiotics along with topical steroid (prednisolone acetate 1% suspension eye drops six times daily) and cycloplegic (homatropine sulfate 2% eye drops two times daily) with a close follow-up.

Three days later, the patient presented with a raised, yellowish nodular abscess, fixed to the

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Figure 1 Digital photographs depicting diffuse conjunctival congestion and intense chemosis.

underlying sclera at the nasal aspect (figure 5A). His visual acuity had worsened to counting fingers at 3 m. The IOP was digitally low and a greyish reflex was noted on fundus examination. B-scan (Opro: OTI-300) revealed multiple high reflective dome shaped elevations suggestive of multiple choroidal detachments (figure 3C). At this stage, a clinical diagnosis of infective scleritis was made with choroidal detachments as secondary complication.

Scleral deroofting was performed and the base of the lesion was scraped after dissecting the conjunctiva and deroofting the nodular lesion. Material collected from the lesion was smeared on glass slides and stained with potassium hydroxide + calcoflour white stain, Gram stain, Zeihl Neelsen stain using 20% sulfuric acid or modified Zeihl Neelsen stain using 1% sulfuric acid. The exudates from the lesion were cultured on 5% sheep

Figure 2 Slit lamp photographs showing juxtalimbal nodular abscess (A) and resolved scleritis after treatment (B) in case 1.

Figure 3 B-scan depicting choroidal detachment in case 1 (A) and case 2 (C) with complete resolution after treatment (B and D).

blood agar, chocolate agar, Sabouraud's dextrose agar, brain heart infusion broth and non-nutrient agar with an *Escherichia coli* overlay. The smear did not reveal any organism; however the culture showed significant growth of *P aeruginosa* (figure 6) sensitive to all antibiotics except cefuroxime and chloramphenicol. Histopathological evaluation showed non-specific inflammation.

OUTCOME AND FOLLOW-UP

Case 1

Both systemic (capsule itraconazole 100 mg two times daily) and topical (eyedrop natamycin every hour) antifungals were started and patient showed dramatic response within a month with scleral scarring and thinning (figure 2B) along with complete resolution of choroidal detachment (figure 3B).

Case 2

Patient showed dramatic improvement (figure 5B) with tapering dosage of oral and topical steroid along with topical antibiotic (eyedrop ciprofloxacin every hour) and cycloplegic. Choroidal detachment subsided within a span of 1 month (figure 3D), with visual acuity improved to 20/30 and no recurrence of the infection.

DISCUSSION

Infectious scleritis, a rare entity, usually follows accidental or surgical trauma, severe, endophthalmitis or may occur as an extension of a primary corneal infection.⁵ *P aeruginosa* has been incriminated as the most common aetiological agent in western literature.^{6–8} However, in a developing country like India, fungus has been reported as the most common aetiological agent.⁴ Diagnosing infectious scleritis often poses difficulty, as its initial clinical picture may be identical to immune mediated

Figure 4 KOH calcofluor white smear shows fungal filaments.

scleritis. Therefore, in a patient presenting with scleritis, an infectious aetiology is often not suspected, which may result in unusual delay in the diagnosis. However, the diagnostic challenge gets further enhanced, if the initial presentation is in the form of intense diffuse congestion and intense chemosis (as was noted in the present cases), which mimics either orbital cellulitis, cavernous sinus thrombosis or carotico cavernous fistula.

We hypothesise that this unusual initial presentation in the above cases may be a reactionary response to various toxins released by infective agents. The infection then tends to localise, as was seen in our cases, to subsequently present as nodules with or without ulceration. We also surmise that in response to inflammatory mediators, anterior uveitis, raised intraocular pressure and exudative choroidal detachment developed in our cases. Other complications of infective scleritis include cataract formation and endophthalmitis. These sequelae are partially

Figure 5 Slit lamp photographs showing juxtalimbal nodular abscess (A) and resolved scleritis after treatment (B) in case 2.

Figure 6 In case 2, blood agar shows significant growth of *Pseudomonas aeruginosa* (A). Smear prepared from culture plate shows typical Gram-negative bacilli (B).

responsible for poor visual outcomes seen in cases of resolved scleritis, thus highlighting the importance of diagnosing these cases early.

Hence we recommend that a differential diagnosis of infective scleritis should be kept in mind in cases with initial presentation as intense diffuse congestion and intense chemosis, with or without uveitis, and the patient should be kept under close observation and follow-up for the clinical picture to evolve.

Learning points

- ▶ A differential diagnosis of infective scleritis should be kept in mind in a patient with initial presentation as 'ocular inflammation'.
- ▶ Above presentation may mimic orbital cellulitis, cavernous sinus thrombosis or carotico cavernous fistula, which usually may delay diagnosis.
- ▶ Diagnosing infectious scleritis pose difficulty, as its initial clinical picture may be identical to immune mediated scleritis.

Competing interests None.

Patient consent Obtained.

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