TREATMENT OF FUNGAL SCLERITIS BY SURGICAL DEBRIDEMENT, DEROOFING, TOPICAL AMPHOTERICIN B AND ORAL FLUCONAZOLE: A RARE CASE REPORT

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ABSTRACT

BACKGROUND: Infective scleritis is very rare as compared to immune-mediated scleritis and high degree of suspicion is needed to diagnose the cases. To diagnose it, scleral biopsy along with culture is mandatory. A 62-year-old male patient presented with chief complaints of pain, redness, photophobia, lacrimation followed by injury with a vegetative matter since last one and a half months. On examination, scleral abscess was noted at superior paralimbal region, which was treated by deroofing, debridement and taking biopsy. Fungal filaments were seen. Treatment with topical amphotericin B 0.015% along with oral fluconazole 200 mg daily. Signs and symptoms improved gradually over a period of 6 months. Further scleral nodules and abscess appeared in a clockwise pattern, which were treated as before. Prolonged treatment with topical amphotericin B and oral fluconazole after deroofing and debridement and biopsy helps in management of fungal scleritis. After proper diagnosis and culture sensitivity management of fungal scleritis needs prolonged treatment with both topical and systemic antifungals after deroofing as ocular penetration of topical antifungals is very poor.

KEYWORDS
Infective Scleritis, Scleral Abscess, Deroofing, Scleral Biopsy, Topical Amphotericin B.

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INTRODUCTION: Scleritis is commonly immunologically mediated, but infectious scleritis is rare in occurrence. Infectious scleritis due to fungal infection is very rare and very high degree of clinical suspicion is necessary to diagnose it. It is rather common in immunocompromised patients. In immunocompetent patient's, injury with vegetative matter, surgical trauma to the sclera due to pterygium surgery, trabeculectomy, scleral buckling procedures for retinal detachment, cataract surgery or beta irradiation for OSSN are the predisposing factors.[1] However, fungal scleritis may occur in prolonged topical and systemic steroid users for other diseases and diabetics.[1]

CASE REPORT: A 62-year-old male patient presented with complaints of intense pain, redness, photophobia and lacrimation of right eye following injury with a vegetative matter 45 days back. On ocular examination, visual acuity was 20/60 right eye and 20/40 left eye. BCVA both eyes was 20/20 with spectacles. On slit-lamp evaluation, conjunctival congestion and circumciliary congestion was present. A scleral nodule was present at 11 o'clock position about 2 mm from the limbus of size 2 mm x 2 mm. Rest anterior segment evaluation was within normal limits. Tenderness over the globe was present. No history of diabetes, hypertension or any connective tissue disorder was present. No ocular surgery were performed prior to this episode.

Complete haemogram was done, which came within normal limits. B scan showed no evidence of posterior scleritis. Treatment with topical steroids and lubricating eye drops was initiated. Systemic NSAID were prescribed. Patient was again followed up after 2 weeks. On evaluation, sclera nodule became translucent with presence of fluid i.e. converted to a scleral abscess. No improvement in subjective symptoms were noted.

Under peribulbar anaesthesia, deroofing and debridement was done after excising the conjunctiva around the abscess and abscess was deroofed and debrided using a #15 BP blade and crescent. Scleral biopsy was taken and intraoperative 10% KOH mount and Gram staining showed filamentous fungi. The debrided area was washed with topical amphotericin B. Treatment with topical amphotericin B 0.015% eye drops was started along with systemic fluconazole 200 mg daily for 4 weeks. Topical antibiotics drops were prescribed to prevent super added bacterial infection. The liver function tests were performed weekly to rule out adverse effect of oral fluconazole.

Amphotericin B eye drop was prepared by reconstitution of 50 mg injection with 10 mL sterile water for injection and then taking out 3 mL from the above prepared solution and mixing it with 7 mL of sterile water for injection, thus the concentration comes to 1.5 mg/mL, i.e. 0.015%.

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Patient was followed up after 2 weeks. Clinical signs and symptoms were reduced. Patient again came with same complaint as before after 4 weeks. On examination, a scleral nodule was present at around 4 o'clock position with dimension of 2 mm x 1 mm. It was treated by surgical debridement and local irrigation of topical antibiotics and topical 0.015% amphotericin B as prior one. Treatment with antifungals were continued. However, the patient had 2 more abscesses at 6 o'clock and 9 o'clock position over next 2 months, which were also treated in the same way (deroofing and debridement, biopsy, topical amphotericin B and oral fluconazole). The scleral abscess evolved in 4 quadrants in a clockwise pattern. The patient was followed up for 6 months. The patient was asymptomatic with no more recurrences and clinically sclera at the abscess site was thinned out and appeared bluish. Subjective symptoms also reduced. Oral and topical antifungals were tapered after 6 months of followup over a period of 2 weeks.

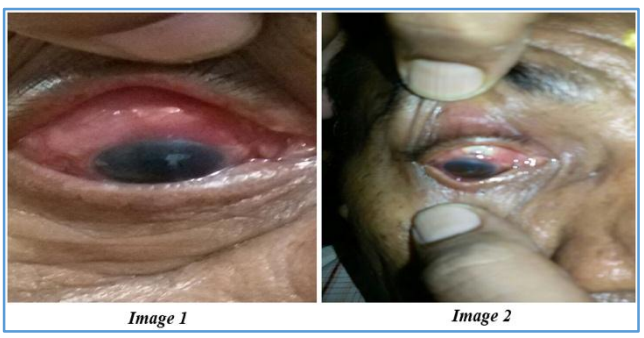

Image 1: Superior Paralimbal Scleral Abscess
Image 2: After Deroofing Superior Abscess

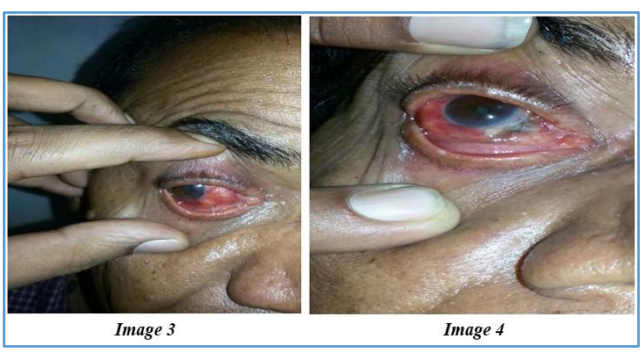

Image 3: Nasal Abscess
Image 4: After Deroofing of Nasal Abscess

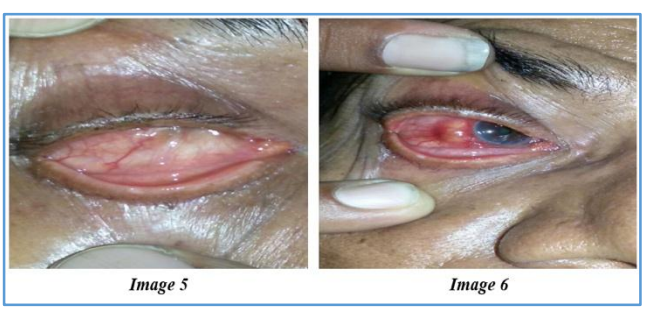

Image 5: Inferior Abscess
Image 6: Temporal Abscess

Image 7: After Deroofing of Temporal Abscess

DISCUSSION: Diagnosis and management of infectious scleritis remain a challenge. Diagnosis is often masked by the close resemblance to immune-mediated scleritis clinically and hence the delay in the diagnosis. In suspected cases, microbiological evaluation of specimen obtained by scleral scraping in eyes with ulcerated lesions should be performed.[2] Various modalities of treatment have been tried with variable success rates, which include topical medications alone,[3] topical combined with systemic medications,[4] antibiotic lavage,[5] cryotherapy,[6] amniotic membrane grafting,[7] corneoscleral graft[8] and finally enucleation or evisceration in nonresponsive or severe cases.[8,9] The outcomes reported in the existing literature show varied clinical outcomes probably due to nonuniform clinical approach and practice.[3,10,11]

Pseudomonas aeruginosa is the most commonly reported organism.[10] Other organisms include Staphylococcus species.[12,13] Streptococcus species,[14] haemophilus influenza,[15] Stenotrophomonas maltophilia,[16] Serratia marcescens,[17] Mycobacterium species,[18] Nocardia,[3] fungus[14,18] and virus.[19]

Among fungus, scleritis is commonly reported with Aspergillus. Other fungi include Metarhizium anisopliae, Paecilomyces lilacinus, Scedosporium, Cephalosporium, Penicillium, Cladosporium, Candida parapsilosis, Petriellidium boydii, Fusarium and Rhizopus Acremonium.[3,20,21,22]

It is very difficult to diagnose a case of infective scleritis at the first presentation, however, high degree of clinical suspicion may help in early diagnosis. If a patient fails to respond to normal treatment for scleritis like steroids, NSAIDs, immunosuppressants and the aetiology cannot be ascertained, then infective aetiology should be ruled out. Infective scleritis maybe bacterial, fungal, viral or rickettsial. Infective scleritis maybe nodular or diffuse.[23] Frequently, it is necrotising type, so early diagnosis and treatment helps in saving the eye and the vision.[1]

Infective scleritis initially presents with redness, lacrimation, photophobia and pain, which is mild to start with and gradually becomes deep boring radiating to forehead. It usually manifests initially as a scleral nodule, which is isolated. In this stage, it is very difficult to differentiate it from immune-mediated scleral nodule. Gradually overtime, the nodule may convert into a localised abscess, which

maybe unifocal or multifocal.[3] To diagnose, scleral swab culture and biopsy is done. The specimen should be evaluated in wet 10% KOH mount and also cultured in SDA media along with routine culture media. After the culture report, proper treatment is initiated. Scleral biopsy along deroofing and debridement not only helps in confirming the diagnosis, but also helps in reducing the load of infective organism and tissue and helps in better penetration of the topical drugs.

For fungal scleritis, both topical and systemic antifungals are given for prolonged periods as the scleral penetration of topical antifungal is very poor due to its avascular nature.[3] It was hypothesised that recurring scleral abscesses are due to an immunologic response to fungal cell death, but in this case, we have seen culture positive abscess with each recurrence.[4,16,22] Depending on the drug sensitivity, the appropriate drug treatment should be started. Surgical debridement by deroofing of the abscess helps in better drug penetration and early response to treatment. However, one should be very careful as chances of scleral perforation is high during this procedure.

CONCLUSION: Cases of infective scleritis being difficult to diagnose are a challenge to the ophthalmologist. Further, the intense amount of pain associated and its recalcitrant nature gives both the patient and the treating physician sleepless nights. Also, knowing well the prognosis of such cases where there are reports of patients losing the eye, the possible outcomes remain a question. However, deroofing along with debridement added on by topical amphotericin B and also systemic antifungals can create miracles by saving patients eye and vision.

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