

# Posttraumatic Aspergillus Scleritis

## **ABSTRACT:**

Fungus infection involving the sclera is extremely rare. we are reporting a 53 year –old man who developed post-traumatic Aspergillus fungal scleritis after trauma by branch of a tree diagnosis was made after tissue biopsy, successful outcome was achieved by scleral debridement, dura patch graft, and topical Amphotericine B. The patient had no signs of infection for 6 months after discontinuation of medication.

**Key word: Scleritis, fungus, Aspergillus, dura graft.**

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Post traumatic fungal scleritis is uncommon. A few cases has been reported after trauma. Brunet and Stulting<sup>1</sup> reported a 40 year-old man struck in his left eye by a flying chip of wood ,a diagnosis of episcleritis was made and a *Sporothrix schenckii* a dimorphic fungus was identified and was treated with saturated solution of potassium iodide. Another case of traumatic scleritis by branch of a tree was reported by Rodriguez-Ares,<sup>2</sup> diagnosis was established after biopsy of a scleral nodule which showed hyphal fragment and cultures were positive for *Aspergillus fumigatus*.The patient was successfully treated with systemic antifungal drugs, cryotherapy, and dura graft.

Post-operative fungal scleritis has been reported after pterygium excision<sup>3-7</sup> retinal detachment surgery<sup>8-9</sup>, cataract surgery<sup>10-13</sup>, glaucoma surgery<sup>10</sup>, and in association with systemic fungus infection<sup>14</sup>.

*Aspergillus* species are saprophytic moulds. Most live in the environment without causing disease. *Aspergillus fumigatus* is the commonest human pathogen. Other species causing infection include *A. nigar* and *A. flavus* .and *A.nidulans*.

Invasive aspergillosis occurs mainly in immune- compromised patient, and is often life threatening. The hyphae of *Aspergillus* can be detected microbiologically in a KOH or calcofluor white showing typical *Aspergillus* fruiting head showing a conidiophore, swollen vesicle, and phialides.

The outcome of management of fungus scleral infection depends on early detection, type of organism, and modality of intervention. In this report we are prescribing 53year-old man developed posttraumatic aspergillus scleritis, diagnosis was made after tissue biopsy and treated successfully with scleral debridment, dura path graft and topical Amphotericine B. To the best of our knowledge there are only two pervious cases reported as post traumatic fungal scleritis.



## **CASE REPORT**

A 53 years old man presented to the emergency room with history of trauma to his left eye by branch of a tree. He complained of pain and redness in his left eye. On examination ; visual acuity OS 20/60 (amblyopic eye), normal intraocular pressure, intense temporal conjunctival hyperemia, clear cornea, deep and quite anterior chamber, round regular reactive pupil, clear lens and normal fundus examination. Examination of right eye was unremarkable.

It was difficult to evaluate temporal sclera because of intense conjunctival hyperemia, we elected to globe exploration which showed no globe laceration or foreign body detected and no organism was found from the scraping. Patient was discharged on Ofloxacin® eye drops four times a day in his left eye.

One week later, slit lamp examination revealed severe conjunctival injection associated with small conjunctival epithelial defect, Maxitrol® eye ointment twice a day was added. Over the next two weeks patient was getting worse as the pain persisted, conjunctival epithelial defect increased in size, with necrotic tissue and bluish discoloration of the sclera (Fig 1). Patient underwent another globe exploration which revealed grayish membrane overlying the sclera under swollen conjunctiva. The unhealthy conjunctiva, grayish membrane, and the underneath necrotic scleral tissue were excised and sent for histopathology and microbiological examination. Artificial dura matter grafting was applied over the area of scleral thinning (Fig 2); then the graft was covered with healthy conjunctiva.

Postoperatively, whilst waiting for histopathology result the patient was treated with topical Ofloxacin® eye drops four times a day to the left eye. Interestingly the result showed 45° angle branching septate fungal hyphae consistent with *Aspergillus* and the

culture was negative (Fig 3). Based on this result, patient was treated with topical Amphotericine B® 0.25% four times a day.

After two weeks the patient was doing very well, pain disappeared, redness subsided and visual acuity unchanged. Slit lamp examination revealed quite eye and healed conjunctiva (Fig 4). All medications were discontinued at that time .The patient was followed up for six month with no signs of recurrence.

## **DISCUSSION**

Inflammatory scleral disease is commonly associated with autoimmune disorders but may rarely be caused by an infective agent. Infectious scleritis can be caused by different organisms such as *Pseudomonas*, *Aspergillus*, *Mycobacteria* and mixed organisms<sup>7</sup>.

Primary fungal scleral infection in a non immune-compromised patient is extremely rare but should be suspected when there is history of scleral traumatic injury, cataract surgery especially in diabetics<sup>12</sup> and/or with topical steroid therapy<sup>15</sup>, pterygium surgery, glaucoma surgery, retinal detachment surgery or in association with systemic fungal infection. The onset of fungal scleritis usually delayed but it may start early after trauma.

Clinical presentation of fungus scleritis frequently consists of persistent redness, ulceration, severe post-operative anterior chamber reaction<sup>11</sup>, abscess and/or nodule formation<sup>9</sup>, and typically do not respond to routine antibiotics. Therefore, Scleritis especially after surgery in diabetics or in geographic areas with hot and humid climates should alert the ophthalmologist for fungal infection<sup>11</sup>.

Diagnosis of fungus scleritis is often difficult as the organisms are usually deep in the sclera and few in number and are rarely revealed by scraping. Once physician suspects fungus scleritis, scleral biopsy is necessary to confirm the diagnosis by microbiological and histopathological examination.

In our case fungal scleritis was diagnosed based on histopathology, however, microbiological studies were negative. Wolfgang<sup>10</sup> et al emphasized the fact that failure to detect the fungus in cultures should not exclude the infection as histopathology may reveal the organism inspite of negative cultures. Rodriguez-Ares<sup>2</sup> et al reported as similar case of traumatic *Aspergillus* fungal scleritis that followed trauma by branch of a tree, they were able to cultures the *Aspergillus fumigatus*, and the patient was treated with oral Fluconazol® , topical Amphotericine B, and application of cryotherapy and dura graft. Brunette<sup>1</sup> et al reported

another additional case of scleritis that followed trauma by chip of wood, microbiological workup revealed *Sporothrix schenckii*, patient was treated successfully with saturated solution of potassium iodide.

Management of fungus scleritis remains difficult despite the new available antifungal treatment due to poor penetration of these medications to sclera. Oral Itraconazole<sup>®</sup> as a medical therapy alone had been reported by Carlson in *Aspergillus* scleritis that followed cataract surgery<sup>13</sup>.

Reynolds et al suggested that surgical intervention plus antifungal treatment might improve the outcome of fungus scleritis<sup>15</sup>.

In our case successful outcome was achieved by scleral debridement, dura matter patch graft, and topical Amphotericine B.

Wolfgang et al recommended that surgical excision with subsequent grafting has the advantage over cryotherapy in that tissue for diagnosis is provided and the treated area is more clearly defined.<sup>10</sup>

In conclusion, the diagnosis of fungal scleritis should be a differential diagnosis to traumatic scleritis and should not be excluded on the basis of negative culture and deep tissue biopsy is necessary. Successful treatment of traumatic *Aspergillus* scleritis can be achieved by adequate excision of infected sclera and using dura graft to restore the scleral thickness with topical antifungal treatment.

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### **Legands TO Figures**

- 1-Fig(1) Slit lamp picture of the left eye showing necrotic tissue and blue sclera beneath it.
- 2-Fig(2) Picture taken during surgery while dura graft was placed over the area of scleral thinning
- 3-Fig(3) Grocott's methenamin silver stain showing 45°angle branching septate fungal hyphae consistent with Aspergillus infection
- 4-Fig(4) Slit lamp picture of the left eye which was taken 4 weeks post scleral excision and dura graft

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