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Chronic vitreous haemorrhage masking fungal endophthalmitis in an open globe injury

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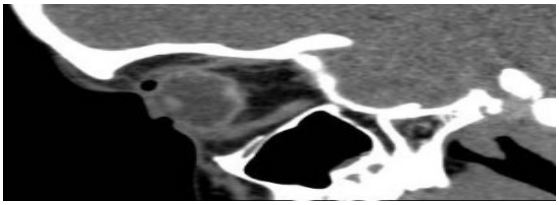
Abstract : Fungal endophthalmitis is a dreaded complication of open globe injury. Warning clues such as progressive decrease in vision and worsening fundus glow may not be present in a patient with persisting vitreous haemorrhage, thereby delaying prompt treatment. Relative afferent pupillary defect may be absent for prolonged periods of time. We report a case of an open globe injury with metal causing low grade fungal endophthalmitis which mimicked post-operative uveitis. Metal injury causing fungal endophthalmitis must be suspected in non-resolving uveitis in post-trauma patients who may initially respond to steroids alone.

Keyword : Fungal endophthalmitis, post traumatic uveitis, Aspergillus, chronic vitreous haemorrhage

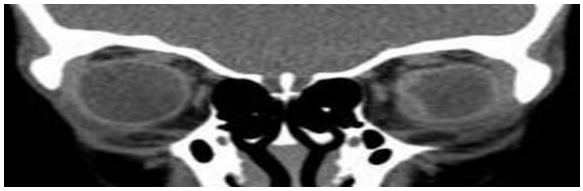
CASE REPORT

A ten year old boy from a nearby village presented to the emergency department with alleged history of injury to the left eye with a metal bolt while watching a mechanic at work. The metal bolt ricocheted off a metal device which was being hammered using a metal hammer.



His presenting vision in the injured left eye was perception of hand movements and projection of light was accurate. There was a corneo-scleral tear, crossing the 8 o clock limbus, extending 6mm into the cornea and 4.5 mm into the sclera, the corneal component going through the pupillary axis. There was iris and vitreous prolapse and cataract was noted. There was no view to the posterior segment. CT scan of the orbit did not show any intraocular foreign body. ***(figure1) figure No.1: sagittal and axial CT images of the left globe showing globe rupture*** A posterior capsular breach was noted during corneo-scleral tear repair and lens matter aspiration

. Intravitreal injections of Ceftazidime, Vancomycin and Amphotericin were given. Intravenous Ciprofloxacin 10 mg/kg/ dose twice a day was also initiated and continued orally for the next five days.



The following day, he was noticed to have dispersed hyphema and vitreous haemorrhage. His best corrected visual acuity persisted to be less or equal to 1/60 over the next few weeks Two months post trauma, he developed dense anterior uveitis in the same eye, His vision was counting fingers at one meter and there was no relative afferent pupillary defect. The view to the posterior segment persisted to be poor due to non-resolving vitreous haemorrhage. ***(Figure 2)*** B-Scan showed anterior and mid vitreous echoes which was thought to be due to possible retained lens matter and vitreous haemorrhage. As the anterior chamber reaction improved considerably with topical steroids, the same line of management was continued.

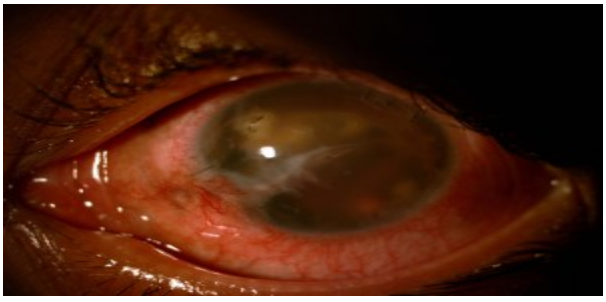


Figure No.2: chronic vitreous haemorrhage two months postoperatively

3 months post trauma, he was found to have a best corrected visual acuity of 6/60, accurate projection of light, no relative afferent pupillary defect, and a non-resolving vitreous haemorrhage. B-Scan showed vitreous echoes inferiorly. Recurrent episodes of inflammation and raised intraocular pressures which he had were thought to be due to retained lens matter and he was started on oral steroids at 1 mg/kg.

4 months post trauma, when his anterior chamber reaction failed to improve on oral steroids, vitrectomy was planned. Intraoperatively, white fluffy material which appeared like lens cortex was noted in the inferior periphery of the retina. Core vitrectomy was done and intravitreal injection of Triamcinolone was given.

On review, his vision had improved to 6/60. A whitish lesion was noted on the iris inferiorly, with large white particles in the anterior chamber. ***(Figure 3)*** The lesions in the iris and anterior chamber were biopsied and cultured due to a suspicion of delayed-onset endophthalmitis. Sabouraud's Dextrose Agar culture plate revealed a growth of Aspergillus species. Oral steroids was tapered and stopped. Topical and Intravitreal injections of Amphotericin (5mg in 0.1 ml) were started.

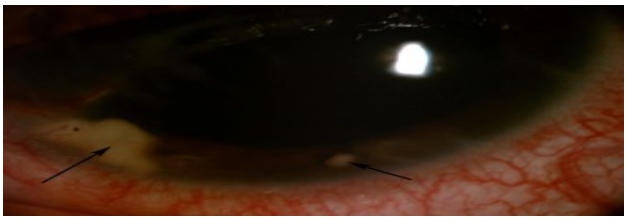


Figure No.3: Post vitrectomised left eye with white fluffy material in the anterior chamber inferiorly

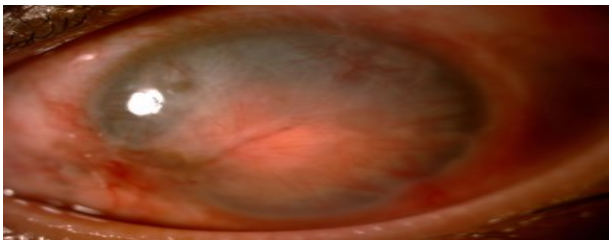


Figure No.4: phthisicial left eye

Over the next few weeks, there was gradual deterioration of vision, projection of light became inaccurate, and there was development of a relative afferent pupillary defect. The eye became phthisical despite aggressive therapy on an in-patient basis. ***(Figure4)***

Discussion

Fungal endophthalmitis is a potentially devastating infection of the eye. [1,2,3] In a retrospective series from India of patients who developed fungal endophthalmitis over a 14 year period, out of the 48 post-traumatic fungal endophthalmitis cases, 40% of eyes had injury with metal (27.1% with wires and 12.5% with hypodermic needles) . In this study, they found lens disruption in 16 of the 48 studied eyes (33.3%), with vitreous prolapse in 13 out of 48 (27.1%). Dense vitreous exudates causing absence of red reflex were present in 6 cases (12.5%). The overall mean latent period for developing clinical signs of endophthalmitis was 6.5 days and none of the eyes had vitreous haemorrhage. *Aspergillus* was found to be aggressive, with a mean latent period of endophthalmitis of about 9.4 days. *Aspergillus* was the predominant organism in the series, forming 60.9% of cases, having the worst outcomes. [4] The other species which were isolated were Candida spp. (13%), melanised fungi (13%) and Fusarium. In our case, the presentation was of a more indolent chronic type, with features suspicious of endophthalmitis presenting much later.

Reports of vitreous haemorrhage presenting as endophthalmitis have been made before but in the setting of acute bacterial endophthalmitis. [5] In Tewari et al's report, vitreous haemorrhage was present post operatively, and on the fourth day, dense hypopyon was noted. Vitrectomy revealed exudates on the retina. Absence of features of severe anterior chamber reaction such as hypopyon in the setting of a vitreous haemorrhage may result in a delayed suspicion of endophthalmitis.

The common risk factors for developing post-traumatic endophthalmitis are presence of posterior capsular breach, grade 4 injury or worse (Ocular Trauma Classification Group[6]), dirty wound, and delayed primary repair (>24hours). [6, 7,8] A retrospective case series of 258 patients (1987-1991) with penetrating trauma, from an institute in USA, showed that out of 15 eyes that developed endophthalmitis, there was only one eye infected with Aspergillus spp. and one with Candida spp. [8] In another study done in Australia, they found that fungus was not isolated in any of the 17 documented cases of post traumatic endophthalmitis among 250 consecutive patients with open globe injury over a 3 year period. [9] However, in a retrospective study done in India of all the endophthalmitis cases in a single institute between 1995 and 1998, they found that out of 170 culture proven endophthalmitis cases, 37 (21.8%) had fungal endophthalmitis. [10] From this it is clear that fungal endophthalmitis is not so infrequent in the developing countries.

Absence of an intraocular foreign body and administration of antibiotics during primary repair does not significantly decrease the risk of endophthalmitis. [9] Rural setting in itself has been studied as a risk factor for developing endophthalmitis in post-traumatic eyes. [11] As most of the patients who present to our institution belong to rural communities, prophylactic antibiotics are warranted, especially when there is a breach in the posterior capsule.

Intravitreal steroid has been said to improve inflammation in eyes with fungal endophthalmitis. [12] In our case, the patient's condition worsened after intravitreal steroids. This may be due to the delay in initiating therapy as a diagnosis of post-traumatic uveitis was thought of initially. Vitreous haemorrhage has been described to be a rare presenting feature of early post-operative endophthalmitis [13] and endogenous endophthalmitis [13]. The presence of vitreous haemorrhage precluding fundus glow and initial response to steroids prevented us from recognising the early signs of endophthalmitis which led to the delay in initiating therapy for fungal endophthalmitis.

This is a rare case report of a patient with low grade fungal exogenous endophthalmitis in whom the diagnosis was masked due to the presence of a chronic vitreous haemorrhage. Unless there is a high index of suspicion, all the findings in a chronic low grade endophthalmitis, including poor vision, poor projection of light, a low grade relative afferent pupillary defect, vitreous echoes on B-scan, can be mistaken for a chronic non-resolving vitreous haemorrhage. Furthermore, localised vitreous echoes must be suspected to be infective in a post -traumatic case unless proved otherwise and a vitreous biopsy may be needed. Also, one must always be aware that steroids may appear to improve the condition, as they

improve inflammation initially even in cases of infection.

Fungal endophthalmitis is devastating despite all forms of therapy - topical, intravitreal and systemic. Any patient that presents with a grade 4 injury or worse (Ocular Trauma Classification group[6]) with lens injury and vitreous prolapse must keep the Ophthalmologist alert and initiate early intervention keeping the possibility of an endophthalmitis in mind, however atypical the findings may seem.[1,4,12]

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