

Endophthalmitis Following Needle Prick Injury in a Medical Laboratory Scientist: A Case Report.

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Abstract

Endophthalmitis following trauma from hypodermic needles have been previously observed. A few cases were reported in children at play and few iatrogenic cases in adults receiving treatment. Injuries from hypodermic needles have been noted to be associated with risk of serious ocular infection with risk of severe loss of vision. The case of a 26 -year-old laboratory scientist who developed endophthalmitis in the right eye following accidental needle prick while trying to dislodge blood clot from a needle is hereby reported. Protective eye device should be worn while carrying out duties in the laboratory. Eye care providers should be on the lookout for prompt identification of cases of post-traumatic endophthalmitis and intravitreal broad- spectrum antibiotic should be administered in such cases.

Keywords: endophthalmitis; hypodermic needle; intravitreal antibiotics; laboratory scientists

1. Introduction

Endophthalmitis is a known complication of intravitreal injections [1,2] and ocular surgeries like trabeculectomies[3] and cataract surgeries[4]. A few iatrogenic cases occurring following penetrating injuries from hypodermic needle have been reported among patients[5-9]. We are not aware of any occupationally related case affecting healthcare workers.as in the case of this laboratory Scientist. Penetration of the globe occurred after the needle flipped off the syringe while attempting to dislodge clot from the needle by irrigation. Healthcare givers should give attention to the wearing of protective eye devices not only to prevent splatter but also to avoid accidental penetrating injuries like this

2. Case report

A 26 year old female Medical Laboratory staff with a tertiary health care centre presented at our Ophthalmology emergency department room with complaints of bleeding from the right eye one hour prior to presentation. She experienced a prick to

the right eye from a needle which hit her on the right eye while trying to dislodge blood clot from a 16-gauge needle which was being used to collect whole blood from a donor. There was associated bleeding from the eye, redness and eye ache. She was not wearing any protective eye device at the time of the accident. She had a past history of allergic conjunctivitis. There was no family history of blindness or other ocular diseases. She took about 2 bottles of alcohol per day, but had no history of cigarette smoking.

On examination, visual acuity was 6/6 on the right eye and 6/5 on the left eye. There was a right conjunctival laceration extending about 1.5mm from the limbus inferiorly with surrounding subconjunctival hemorrhage. A 2mm layered hyphema was observed in the anterior chamber. Pupils were round, regular and briskly reactive. Intraocular pressure (IOP) measurement with applanation tonometer was 15mmHg. Dilated funduscopy showed pink round discs, cup to disc ratio of 0.3, normal vessel caliber, normal maculae. There was no area of retina tear or hemorrhage seen on the affected eye. An assessment of right traumatic hyphema with conjunctival

laceration was made. She was admitted to be nursed in Fowler's position and commenced on gutt ciprofloxacin 2hrly, tropicamide tid on the right eye.

After 12hours, the hyphaema had completely resolved, however the intraocular pressure had increased to 38mmHg. Gutt timolol b.d was added to the medications for the right eye in addition to tablet acetazolamide 250mg daily for three days. Forty-eight hours after first presentation, the eye pain had increased with associated blurring of vision and photophobia. Right visual acuity was to hand movement with associated ciliary injection, 3mm hypopyon and retrolental glow with loss of red reflex. An assessment of right acute endophthalmitis was made.



Figure 1: Ocular ultrasound before intravitreal antibiotics

Ocular ultrasound revealed vitritis (Figure 1). Vitreous and aqueous taps were taken in the operating room for gram staining, microscopy, culture, sensitivity and intravitreal injection of vancomycin (1mg/0.1ml) and ceftazidime (2mg/0.1ml) were administered. The patient was commenced on intravenous ciprofloxacin 200mg 12hourly, gutt moxifloxacin 1/2hourly, timolol b.d, tropicamide tid, RE. Gram stain revealed gram positive cocci.

By Day 4, pain was subsiding, visual acuity was counting finger close to face, hypopyon had reduced to hairline, IOP was 11mmHg and a decision was made to discontinue acetazolamide tablets.

On Day 8, visual acuity had marginally improved to counting finger at 1metre, no hypopyon was observed and the IOP was

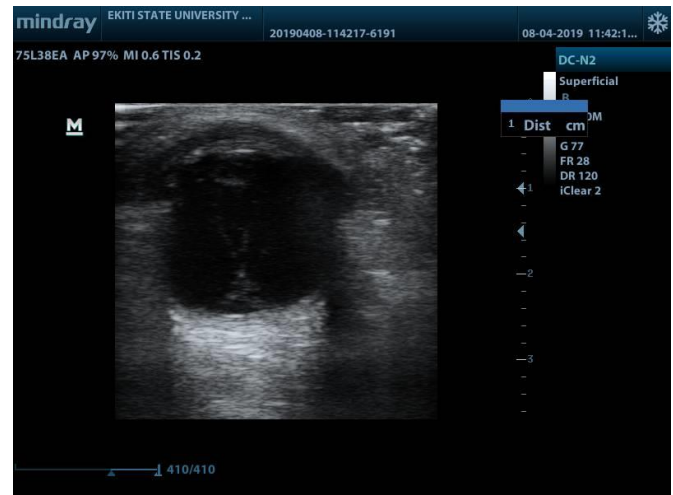


Figure 2: Eye USS after 1st dose of intravitreal antibiotics

8mmHg. She was given a second dose of intravitreal vancomycin and ceftazidime. Post injection visual acuity was hand movement with IOP of 14mmHg. She also had fresh keratic precipitates on corneal endothelium with posterior synechiae from 7-10 clock hour, lens opacity and no fundal glow.

By Day 15 visual acuity was still hand movement with lens opacity and posterior synechiae at 12, 3, 6, & 10 clock hours with no fundal glow. Assessment of right complicated cataract secondary to endophthalmitis was made. Sub-conjunctival mydrinicaine was given to break the synechiae.

One month post presentation; repeat ocular ultrasound showed reduction in the vitritis. But there was no retinal detachment. She also had right complicated cataract.

She had small incision cataract surgery with posterior chamber intraocular lens implantation. Her immediate post-operative visual acuity was 6/18. Best corrected visual acuity at 2 months post cataract surgery was 6/9.

3. Discussion

Reports of endophthalmitis following intravitreal injections [1,2], intraocular surgeries [3,4] and penetrating eye injuries [5] have been widely published in developing and developed nations of the world. Hypodermic needles are known causes of penetrating injuries with risk of inoculation of microorganisms [6]. Some documented injuries occurred at play among children [7], complication of retrobulbar anaesthetic administration [8], during dental procedure [9], during ocular irrigation at the ophthalmic clinic [10], sewing needles [11] among others. We are not aware of a similar report to ours occurring in a laboratory practice as a result of accident such as was seen in our patient. Iatrogenic traumatic endophthalmitis caused by hypodermic needle may be rare but

they result in serious ocular infection that can lead to severe vision loss [1].

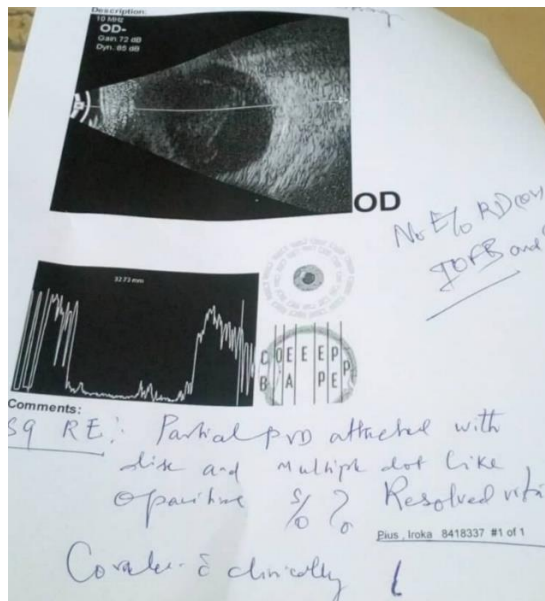


Figure 3: Ocular ultrasound while awaiting vitrectomy and phacoemulsification

In this patient, there was no evidence of ocular penetration or corneal epithelial injury. This is similar to the report by Lamont and Booth [9] who opined that the small bore of the needle often made the site of penetration not to be easily noticeable especially with the presence of subconjunctival haemorrhage. The presence of subconjunctival haemorrhage possibly played a major role in the inability to locate any site of penetration. The likelihood of a possible occult penetration became obvious with the development of endophthalmitis from exogenous introduction of microorganism. The onset of intraocular inflammation in our patient was noticed after about 48 hours of injury. Some cases of earlier onset within 4 hours [10] to 24 hours [9] have been reported. This variation in onset of inflammatory process varies with the virulence of the causative micro-organism and the inoculum size introduced into the eye. Despite prompt administration of intravitreal antibiotics, there was only a mild visual improvement even though the patient had ultrasonic evidence of resolving vitritis and lack of retinal detachment. The reduction in vision was further aggravated by the development of cataract. This cataract could have occurred as a result of occult injury to the lens capsule or as a result of the inflammatory condition in the eye. Patient had cataract extraction with intraocular lens implantation with good post-operative visual acuity. The aqueous and vitreous tap did not yield any growth in the laboratory. The reason for this is not known. However, it could not be ascertained if a culture of the agent of injury could have

assisted in knowing the exact infective agent. The agent of injury had already been discarded before the manifestation of endophthalmitis in this patient.

The risk of re-occurrence of a case like this can be eliminated by the use of protective eye devices among all laboratory workers. A high index of suspicion should be held in patients with needle injury whether or not penetrating sites are visible. This is because some occult penetrations become self-sealed at the time of examination even though the inoculum have been introduced. Moreover, early institution of treatment with broad spectrum intravitreal antibiotics at the time of presentation could have averted the progression of the infective condition in this patient.

Conflicts of interest:

We declare that there are no conflicts of interests in this study.

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