

ENDOPHTHALMITIS DUE TO HYPODERMIC NEEDLE CAUSED BY STREPTOCOCCUS PYOGENES

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Abstract: Traumatic endophthalmitis is one the common source of causing blindness. Hypodermic needle is one of the newer sources of causing traumatic endophthalmitis mostly seen in children. We report the isolation of *Streptococcus pyogenes* from the endophthalmitis occurred due to the hypodermic needle injury.

Keywords: Hypodermic needle, Endophthalmitis, *Streptococcus pyogenes*

INTRODUCTION

An 11 year boy presented with pain, redness, watering with decreased vision in the right eye following injury with the hypodermic needle. He had hit with the hypodermal needle while playing, as other children blew up the syringe with mouth; the needle loosened from the syringe and caused an injury to the right eye. Initial examination revealed that the visual acuity was PL, conjunctiva superficial with circumcorneal congestion. The anterior chamber was deep, flare with hypopyon, lens capsule was ruptured with cataract and there was no view of fundus. The provisional diagnosis of open globe injury, type B, zone 1, grade 4 post traumatic endophthalmitis was made. The pars plana lensectomy, pars plana vitrectomy was performed along with the administration of intra vitreal antibiotics of vancomycin 1mg/0.1ml, ceftazidime 2.25mg in 0.1ml, after taking the undiluted vitreous biopsy with a single scleral port 20-gauge vitrectomy cutter at 10 o'clock, 4mm away from the limbus for the culture.

The vitreous specimen was received in syringe; the direct smear examination performed using KOH/CFW wet mount, gram stain and giemsa stain. The vitreous specimen inoculated on enriched media including blood agar, chocolate agar, two fungal media – Potato dextrose agar, Sabouraud's dextrose agar. The biopsy was also inoculated in broth culture media – brain heart infusion broth and thioglycolate broth. Direct smear examination revealed-KOH/CFW-No organisms seen, Gram stain-Polymorphs 0-1/OIF, Gram positive cocci in pairs and chains 0-3/OIF (figure.1a), Giemsa stain-Polymorphs 0-1/OIF, cocci in pairs and chains 0-1/OIF. The bacterial culture media and broth were incubated at 37°C whereas the fungal culture media were incubated at 25°C. On blood agar and chocolate, confluent significant growth was noticed. On blood agar bacterial colonies were small, semitransparent, low convex with a

area of clear zone (β -hemolysis) were noticed (figure.1b), on chocolate agar the white opaque colonies were found (figure.1b). Turbidity was noticed in both liquid media and on smear examination of turbidity revealed the presence of gram positive cocci arranged in chains. No growth was noticed in fungal culture media. The culture smear revealed the presence of gram positive cocci arranged in chains. The bacterial culture was catalase negative, optochin resistant and bacitracin sensitive. Based on these biochemical reactions the organism was identified as *Streptococcus pyogenes*.

The organism was sensitive to cefazolin, cefuroxime, chloromphenicol, gatifloxacin, getamycin, moxifloxacin, ofloxacin, vancomycin, intermediate to amikacin and ciprofloxacin. Post-operative treatment included ciprofloxacin tablets 250mg for 2 days, 1% Prednisolone eye drops hourly, 0.3% ciprofloxacin eye drops 1hr, fortified 5% cefazolin eye drops hourly and 1% atropine eye drops. Final uncorrected visual acuity was counting finger 2.5M +10.00DS, with resolution of all signs of infection in retina (figure.1c).

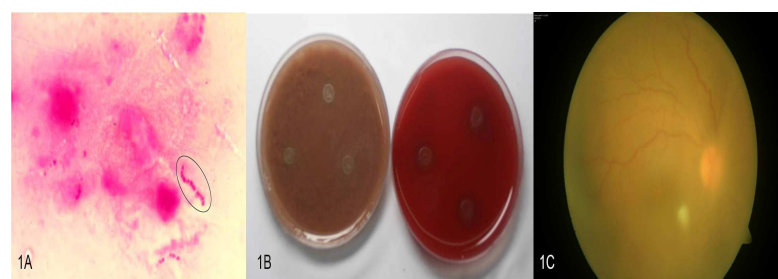


Figure.1:

1a: Gram stain of direct smear shows the presence of gram positive cocci in chains

1b: Chocolate agar: Presence of white moist colonies, Blood agar: β -hemolytic colonies seen

1c: Retina picture showing the resolution of the all signs of infection.

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DISCUSSION

Post traumatic endophthalmitis results from the introduction of the infectious agent into the eye after the trauma. The risk factors include the presence of the foreign body, rupturing of the lens or trauma with the contaminated objects. The outcome of the treatment and visual progress mainly depends on the virulence of the organism, timing of the treatment, breakdown of the retina and the presence or absence of the foreign body¹. A study conducted by the Faghihi et al has found the incidence of traumatic endophthalmitis around 5%, significantly associated with the pure corneal injuries, intraocular foreign bodies, traumatic lens rupture and trauma resulting from the needles². Hypodermic needles have become a major cause of worrisome for the causation of endophthalmitis especially in children. A detail analysis conducted by the Kargi pointed out that the penetrating eye injuries due to hypodermal needle is more commonly seen in children in developing countries. Kargi *et al.*, also found that hypodermal needle acts as a potential candidate for infection, as it acts as a major source for the organisms. The injury that occurs due to needle will be a small non-painful nature that decreases the suspicion of causing endophthalmitis resulting in negligence in treatment and management³. A review conducted by the Ahmed et al has found the most common bacteria associated with the open globe injury endophthalmitis were *Staphylococcus*, *Bacillus* and *Streptococcus* sp⁴. In the present case we isolated the organism *Streptococcus pyogenes*, a normal flora of the respiratory tract. The needle might get contaminated with the respiratory flora, while children playing with the syringe, blowing the syringe with air. To our knowledge, we are the first time reporting the isolation of *Sterptococcus pyogenes* from the endophthalmitis case caused due to the injury by the hypodermic needle.

Previous studies had shown the isolation of the *Sterptococcus pyogenes* from endophthalmitis cases following the Ahmed glaucoma valve implantation⁵, post cataract surgery⁶.

In the present context we like to stress the careful disposal of hypodermic needle, as it will become a potential hazard source for the infection including endophthalmitis. In timely treatment and management of the cases including the painless injury with a small needle might salvage the eye as well as the vision. The children should be taught of the hazardous nature of the hypodermic needles as well as its proper disposal.

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