Aeromonas hydrophila causing endogenous Endophthalmitis: A rare manifestation

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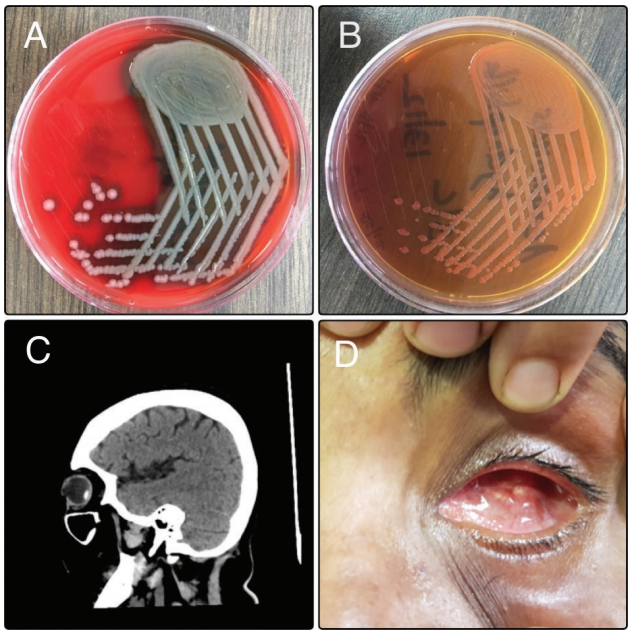
A 53-year-old lady with a background of poorly controlled diabetes, systemic hypertension, and hypothyroidism was admitted with uncontrolled blood sugars at another center. She developed fever, pain, and swelling at a cannulation site on her right upper limb. She also developed painless erythema of her left eye. Workup showed a platelet count of 130 K/uL (150-410 K/uL), serum creatinine of 2 mg/dl (0.7-1.2 mg/dl), and CRP of 123 mg/dl (<10 mg/dl). She was started on parenteral antibiotics for a possible skin and soft tissue infection.

Over the next few days, her general condition worsened, and she went into shock requiring inotropic support with noradrenaline. Her sensorium deteriorated, and she had to be mechanically ventilated. She was referred to our hospital on ventilatory and inotropic supports and parenteral meropenem. At our center, clinical examination revealed poor sensorium with an edematous right forearm and multiple blisters. Left eye examination showed severe congestion of the conjunctiva with an area of inferior conjunctival necrosis. Our workup confirmed the earlier findings and also showed an elevated HbA1c of 9.2% (<6%). Microbiological cultures were sent from blood, urine, and fluid from the deroofed blisters. A provisional diagnosis of septic shock, necrotising fasciitis of the right forearm based on rapid involvement of the skin and soft tissue, and suspected endophthalmitis of the left eye based on visual deterioration and conjunctival necrosis were made. Parenteral meropenem was continued and teicoplanin was added for empirical gram positive coverage. Ventilatory and inotropic supports were also continued. An ophthalmology opinion was sought, and after endophthalmitis was confirmed, she was started on topical antibiotics.

On day two of admission, her sensorium improved, and she was weaned off ventilatory support. But vision in her left eye had deteriorated, and an ophthalmological examination revealed corneoscleral melt with uveal and vitreous prolapse of the left eye. CT of the head showed posteriorly dislocated lens in the left orbit [Figure 1 panel C]. In view of worsening endophthalmitis refractory to medical management, left eye evisceration under local anesthesia was performed. Uveal tissue was sent for culture and sensitivity. Fluid culture from deroofed blisters on the right forearm and uveal tissue culture both grew Aeromonas hydrophila with similar sensitivity patterns [Figure 1 panel A&B]. Intravenous levofloxacin was also added as per the sensitivity pattern. In the following days, she made a complete clinical recovery. The left eye socket was healthy, and the wound was well healed [Figure 1 panel D].

Figure 1
A Blood agar showing beta hemolytic greyish, large, round, raised colonies suggestive of aeromonas.
B MacConkey agar showing non lactose fermenting colonies.
C Saggital section of CT head showing posteriorly dislocated lens in the left orbit.
D Healthy left eye socket post evisceration, on follow up.



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She was discharged in a stable state on day 20 of her hospital stay. Regular reviews were conducted and repeat conjunctival swab taken one month later was found to be sterile.

Endophthalmitis is a rare but potentially vision threatening condition of the intraocular cavities usually caused by an infection. Most frequently it is exogenous, occurring after eye surgery, penetrating trauma to the eye, or as a sequelae of corneal infections. Endogenous endophthalmitis (EE) is a challenging and devastating complication of bacteremia and forms approximately 6% of all reported endophthalmitis cases.[1]

Since it is an ophthalmological emergency with potential loss of vision, rapid diagnosis and treatment is paramount in patients with suspected EE. Treatment of underlying bacteremia and its source is needed with systemic antibiotics, after obtaining blood cultures. EE cases usually have a poor visual outcome when compared to exogenous endophthalmitis with an associated mortality risk of 4%.[2,3]

With very few reported cases in the literature, EE due to Aeromonas hydrophila has a rapid clinical course and usually a poor prognosis, despite prompt diagnosis and treatment.[4,5] Aeromonas is a gram negative, rod shaped bacillus. It is oxidase positive and facultatively anaerobic and is widely distributed in aquatic environments. In human beings, Aeromonas hydrophila can cause gastroenteritis, traumatic wound infections, and septicemia most commonly in immune deficient hosts, but reported cases of EE due to aeromonas are very rare.

In our patient, the source of infection was the right upper limb cellulitis, which developed following cannulation. Her poorly controlled diabetes predisposed her to develop cellulitis and facilitated the subsequent Aeromonas bacteremia with development of EE. The delay in isolation of the causative organism and worsening sepsis necessitated an evisceration, but it resulted in an overall good clinical outcome with clinical recovery. This case serves to highlight the need for early treatment with broad spectrum antibiotics to cover for atypical infections. Earlier identification and targeted therapy may result in preventing morbidity and mortality in Aeromonas endophthalmitis.

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