CASE REPORT

Bilateral choroidal detachment with exudative retinal detachment in a patient with septicaemia

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Accepted 5 December 2016

SUMMARY

We present a case of bilateral choroidal and exudative retinal detachment with hypotony in a patient with septicaemia. Our patient after initial hospitalisation was treated by the local ophthalmologist as a case of sterile pan uveitis with systemic and topical steroids that did not have any effect. Our patient responded well to timely surgical intervention of choroidal drainage and vitrectomy with silicone oil tamponade followed by steroids and antibiotics. Cataract progression in both eyes occurred due to hypotony, inflammation, use of steroids and the vitreous surgery. It was successfully managed with timely surgical removal of cataract and intraocular lens implantation in both eyes facilitating early visual rehabilitation. Topical medications included frequent topical steroids and antibiotics as per our published protocols.

BACKGROUND

Our patient presented with bilateral choroidal and exudative retinal detachment with hypotony in the setting of septicaemia.¹ To the best of our knowledge, similar association has not been reported. The case scenario can be a diagnostic dilemma and one may treat these cases as sterile pan uveitis with steroids alone. A high index of suspicion of an underlying infective aetiology in an immunosuppressed patient, systemic evaluation to find out infective foci, appropriate antibiotic therapy and timely surgical approach can salvage the vision.^{2–5}

CASE PRESENTATION

A 39-year-old man, presented with symptoms of acute diminution of vision in both eyes for the past 3 weeks. He also gave history of hospitalisation of 10 days duration for high-grade fever prior to the onset of his visual symptoms and treatment with broad spectrum intravenous antibiotic cefatoxime 500 mg twice a day. His blood investigations for typhoid and malarial parasite were negative. He was managed by a local ophthalmologist as a case of bilateral pan uveitis with exudative retinal detachment, with systemic and topical steroids. As there was no response to treatment, he was referred to our centre. He was known to have type-2 diabetes for the past 4 years with poor glycaemic control.

On examination, the patient's visual acuity (VA) was light perception in both eyes. Both eyes were hypotonous with unrecordable intraocular pressure (IOP). Anterior segment in both eyes showed oedematous corneas with descemet's folds, pigment dispersion on anterior capsule of lens with few anterior chamber cells and 360° of choroidal

detachment with exudative retinal detachment touching the lens ([figure 1](#)). We performed choroidal drainage, three port pars plana vitrectomy, drainage retinotomy and silicone oil tamponade, in both eyes, 1 week apart. Intraoperatively both eyes showed good resolution of choroidal detachment and successful reattachment of retina.

INVESTIGATIONS

His systemic parameters showed random blood sugar level of 229 mg%, elevated total leucocyte count of 16 500 cells/mm³ with 86% polymorphs. He was afebrile. He was advised blood culture and urine culture to rule out infective foci. Blood culture was carried out using the brain heart infusion medium (Hi safe biphasic (solid and liquid media) blood culture system) and urine culture was carried out using blood agar and Macconkey agar media. He had significant bacteriuria (>10⁵ colony forming units of *Escherichia coli* per mL). His blood culture was negative. He underwent chest X-ray, mantoux and quantiferon testing to rule out tuberculosis. A complete uveitic profile was carried out to rule out other causes of bilateral panuveitis (uveitic profile included testing for HIV, syphilis, sarcoidosis). Complete blood picture including peripheral blood smear, ultrasound scan of abdomen, and vitreous cytology was carried out to rule out neoplastic (to rule out systemic lymphoma) and non-neoplastic masquerade syndromes. All tests were negative. Behcet's disease, Vogt Koyanagi Harada disease, and Punctate inner choroidopathy were ruled out based on the clinical picture associated with significant history of fever, hospitalisation, uncontrolled diabetes and culture positive urinary tract infection.

TREATMENT

The vitreous smear and culture were negative. As per the sensitivity report of the *E. coli* isolated from the urine culture was sensitive to amikacin. Postoperative treatment included intravenous amikacin 500 mg 12 hourly for 7 days, and oral prednisolone 60 mg per day tapered over 4 weeks. Topical medications included frequent topical steroids and antibiotics as per our published protocols.¹

The patient did not respond to systemic steroids alone given by the treating ophthalmologist. The patient responded only after he was managed by combined medical (treating urinary tract infection targeting systemic infective foci) and surgical approach of managing choroidal detachment and exudative retinal detachment by vitreoretinal surgery.

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To cite: Rani PK, Ambiya V, Senthil S, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-216886

Figure 1 B-scan ultrasonogram showing 360° choroidal detachment at the time of presentation in the right (A) and left eye (B).

OUTCOME AND FOLLOW-UP

At 3 months follow-up, his VA had improved to 20/160 and 20/630 and IOP was 11 and 6 mm Hg in the right and left eyes, respectively. The choroidal detachment resolution was observed with attached retina under silicone oil in both eyes with combined medical and surgical approach (figure 2A, B). Anterior segment examination showed significant cataract in both the eyes responsible for poor vision. He underwent phacoemulsification with posterior chamber intraocular lens implantation in both eyes at an interval of 1 month. At 5 months follow-up VA was 20/100 in both eyes and had an IOP of 12 and 14 in the right and the left eyes, respectively, with stable retinal status.

DISCUSSION

Sight-threatening ocular complications can occur in the setting of septicaemia or endogenous endophthalmitis. Most of these patients have a known or latent immunocompromised state making them susceptible to this condition.^{2–5} Our patient after initial hospitalisation was treated by the local ophthalmologist as a case of sterile pan uveitis with systemic and topical steroids that did not have any effect. Timothy *et al* reviewed 342 cases of endogenous bacterial endophthalmitis reported between 1986 and 2012; they reported a diagnostic delay in 26% of the cases, and a most frequent misdiagnosis of non-infectious uveitis in 9% of the cases.² Predisposing conditions were present in 60% of cases, most commonly diabetes, intravenous drug use and malignancy. Blood cultures were positive in 56% of cases, and at least one intraocular sample was positive in 58% of cases.²

Connell *et al*⁵ studied a prospective database of 64 cases of endogenous endophthalmitis (EE) presented to The Royal Victorian Eye and Ear Hospital, Melbourne, Australia between 1997 and 2007. Of the 64 samples taken from 64 patients, 41 were culture positive (64.1%). There was no growth documented in 23 (35.9%) despite repeat biopsy in the initially negative cases. The authors also found that delay to diagnosis coupled with institution of systemic poly-pharmacy therapy before presentation represents an added diagnostic challenge in the identification of the offending pathogen in this cohort. Our patient also presented with similar diagnostic challenge. The patient was initially hospitalised elsewhere as a case of fever and managed with systemic antibiotics. This could be the reason why his vitreous sample and blood were both negative for microbial growth on culture. However, the positive urine culture, past high-grade fever that responded to parenteral antibiotics and the significant polymorphonuclear leucocytosis gave a clue towards a systemic infection that was responsible for the unusual bilateral ocular manifestations.

Bilateral endogenous endophthalmitis caused by *E. coli* in patients with diabetes with poor visual outcomes necessitating enucleation has been reported.^{6,7} However, we did not find in the literature, cases of bilateral choroidal and exudative retinal detachment with hypotony in the settings of septicaemia or EE. It is possible that similar cases are experienced by other surgeons and are not reported due to indirect evidence of a systemic septic condition causing such unusual ocular manifestations. It could be possible that ocular manifestations observed in the present case are due to the effect of toxins from Gram-negative organisms rather than direct infection of the

Figure 2 Fundus photograph of the right (A) and the left eye (B) at 3 months showing well attached retina under silicone oil with resolving choroidal detachment.

Learning points

- ▶ Bilateral choroidal and exudative retinal detachment with hypotony can occur as a rare sight-threatening ocular complication in the setting of septicaemia.
- ▶ The above case scenario can be a diagnostic dilemma mimicking sterile pan uveitis
- ▶ A high index of suspicion of an underlying infective aetiology in an immunosuppressed patient, systemic evaluation to find out infective foci, appropriate antibiotic therapy and timely surgical approach can salvage the vision.

organism into the eye. This could explain the reason for sterile ocular cultures in our patient.

Contributors PKR was involved in patient care, writing and editing of the report. VA contributed by collecting the data and writing the report. SS and SJ were involved in management of the patient, writing and editing the report.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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