Vancomycin-resistant Enterococcal Endophthalmitis

Vancomycin-sensitive enterococcal acute endophthalmitis has been reported following cataract extraction, penetrating keratoplasty, trabeculectomy, and pupilloplasty. However, vancomycin-resistant enterococcal (VRE) endophthalmitis has been described in only 3 patients to date: an immunocompromised, hospitalized patient with underlying bacteremia, an immunocompetent patient following keratoplasty with infected donor tissue, and an immunocompetent patient 20 years following trabeculectomy. We report the first case, to our knowledge, of postcataract VRE endophthalmitis.

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Report of a Case. A 73-year-old woman with a history of hypertension had a cataract in the left eye and best-corrected visual acuity of counting fingers at 6 feet. She had a history of atrophic dry age-related macular degeneration with best-corrected visual acuity of 20/200 secondary to the maculopathy. The phacoemulsification surgery was performed in a hospital-based operating room via a superiorly placed scleral tunnel and was complicated by rupture of the posterior lens capsule, which required anterior vitrectomy and anterior chamber lens implantation. The wound was closed with 3 interrupted buried 10-0 nylon sutures. At the conclusion of surgery, the patient received subconjunctival injections of 20 mg of gentamicin sulfate and 2 mg of dexamethasone acetate. Postoperatively, the patient received topical moxifloxacin hydrochloride, ketorolac tromethamine, and prednisolone every 4 hours, and topical chloramphenicol may be useful in the treatment of VRE endophthalmitis.

Seven weeks postoperatively, the patient had best-corrected visual acuity of counting fingers at 4 feet, sutures intact, Seidel-negative test results, keratic precipitates, 3+ cell and flare, and intraocular pressure of 29 mm Hg. Treatment with prednisolone was restarted initially 4 times daily and increased to hourly over the next 2 weeks. In view of progressive inflammation, we considered microbial endophthalmitis, uveitis-glaucoma-hyphema syndrome, and an occult retained lens-induced cause; hence, a lens exchange was planned.

We performed a 20-gauge pars plana vitrectomy, sent cultures, administered intravitreous injections of vancomycin hydrochloride (1 mg/0.1 mL) and ceftazidime (2.25 mg/0.1 mL), and performed intraocular lens exchange. There was no retained lens material. Vitreous culture subsequently grew Enterococcus faecium, resistant to vancomycin, ampicillin, ciprofloxacin, levofloxacin, erythromycin, penicillin, streptomycin, and tetracycline but susceptible to chloramphenicol, linezolid, and quinupristin/dalfopristin (determined with the Vitek 2 system; BioMérieux, Inc, Durham, North Carolina). Cultures did not subsequently grow Propionibacterium acnes or anaerobes.

Blood, urine, and sputum cultures all demonstrated no growth. We administered topical chloramphenicol (20 mg/mL) every 2 hours for 14 days with a taper over the next week, fortified gentamicin sulfate ophthalmic solution (13.6 mg/mL) 6 times per day, prednisolone acetate, 1%, 4 times per day, and 600 mg of intravenous linezolid every 12 hours for 11 days followed by 600 mg of oral linezolid every 12 hours for 9 days. Over the next 3 weeks, there was complete resolution of inflammation and return of visual acuity to 20/200, which was stable for more than 36 months.

Comment. Linezolid is an oxazolidinone antibiotic that inhibits protein synthesis by binding to the 50S ribosomal subunit. Two 600-mg doses of linezolid, given 12 hours apart either intravenously or orally, achieve higher than minimum inhibitory concentrations for 90% of isolates in the aqueous and vitreous fluids for all gram-positive bacteria including VRE, methicillin-resistant Staphylococcus aureus, and streptococcal species. While highly effective, linezolid may cause a reversible myelosuppression when used for longer than 14 days as well as irreversible peripheral neuropathy and optic neuropathy.

Just as our fears of an increasing incidence of methicillin-resistant S aureus have been confirmed in recent years, there is a similar concern for VRE infections. Our case illustrates that in addition to the standard Endophthalmitis Vitrectomy Study protocol (as intravitreous vancomycin injection may achieve levels higher than minimal inhibitory concentrations for VRE), systemic linezolid and topical chloramphenicol may be useful in the treatment of VRE endophthalmitis.

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Prevalence of Retinal Hemorrhages in Perpetrator-Confessed Cases of Abusive Head Trauma

Retinal hemorrhages (RHs) are an important clinical feature in the diagnosis of abusive head trauma (AHT). Their prevalence is reported to vary widely, perhaps because they have often been used as one of the clinical criteria for a diagnosis of AHT. We conducted a retrospective study of AHT cases based on a confession of the perpetrator and without RH as a necessary qualifying criterion to establish a realistic estimate of the prevalence of RH in this condition.

Methods. Records of the Child Protection Team of the University of Michigan from 2002 to 2007 were searched to identify cases in which the perpetrator had confessed to AHT to the legal authorities investigating the case. The diagnosis of AHT was based on the perpetrator’s confession plus finding 2 or more of the following: subdural hematoma, skeletal fractures (≥2) on bone survey, and clinical history suspicious for abuse. We analyzed the ophthalmologic examination notes for the prevalence of RHs.

Results. Seventeen cases met entry criteria. Sixteen cases (94%) had RHs. Eleven cases (65%) had 5 or more RHs in both eyes. Two cases (12%) had fewer than 5 RHs in both eyes. Three cases (18%) had 5 or more RHs in one eye but no RHs in the other eye (Table).

Comment. Based on this study of perpetrator-confessed AHT, RHs are present in most (94%) but not all cases. Importantly, there may be fewer than 5 per eye or they may be restricted to one eye (in 18% of cases). Thus, AHT could be present (as defined by perpetrator confession and nonocular clues) if RHs were strictly unilateral and if RHs were confined to one eye. We acknowledge that a confession may be driven by a persuasive array of clinical features and a persuasive interviewer and that confessions are not always reliable. In this study, however, we took the statements given by the alleged perpetrator at face value. The confessions ranged from statements admitting to only mild shaking of the child to statements of severe shaking and slamming the child into a wall.

The 94% prevalence of RHs in our study is comparable to that of previous reports.1,4 In one of those studies, the prevalence of RHs was 83% of 81 cases.2 In a review of 41 reports of perpetrator-confessed cases of shaken baby syndrome from 1969 until 2001, the prevalence of RHs was 100%.1 A third study provided information about the ophthalmic examination, but unlike in our study, the presence of RHs was an inclusion criterion.4

Most of the children in our study (65%) had bilateral RHs that were too numerous to count, a finding supported by many previous studies of AHT.2,6 However, 12% had fewer than 5 RHs in each eye, a finding not previously documented.

Our study proved that the presence of few RHs and unilateral RHs, as noted in a minority of patients in our study, cannot exclude the diagnosis of AHT.

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Role for Ipsilateral Autologous Corneas as a Carrier for the Boston Keratoprosthesis: The Africa Experience

We report the use of the Boston Keratoprosthesis (KPro) with ipsilateral autologous corneas in 4 eyes of 3 patients in Ethiopia and Sudan. Currently, surgery with the KPro is performed using an allograft donor cornea sandwiched between 2