A 1-YEAR-OLD CHILD had a 2-day history of redness of the right eye and a 1-day history of fever. There was no report of trauma to the eye, nor was there a history of upper respiratory tract infection, tonsillitis, otitis media, or other infection. The medical and family histories were unremarkable. On physical examination, mild periorbital swelling and hyperemia of the conjunctiva of the right eye were present (Figure 1 and Figure 2). There was no purulent discharge from the eye. A slitlamp examination disclosed evidence of uveitis and presence of a hypopyon. The left eye did not appear to be involved.

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Endogenous Endophthalmitis

Denouement and Discussion

Figure 1. The conjunctiva of the right eye are injected.

Figure 2. The anterior chamber of the eye appears slightly cloudy.

Endophthalmitis refers to infection, most commonly bacterial or fungal, of intraocular tissues and fluids. Endophthalmitis may be exogenous, a rare complication of eye surgery or trauma, or endogenous, a less common occurrence. Endogenous endophthalmitis is of hematogenous origin and most commonly affects adults with predisposing conditions such as diabetes, urogenital and gastrointestinal tract disorders, or endocarditis. Relatively few cases of this infection have been reported in the pediatric age group, most of whom were neonates with group B streptococcal or Candida albicans septicemia, or children with meningitis.

CLINICAL MANIFESTATIONS

The clinical presentation of endogenous endophthalmitis may be acute or slowly progressive. Clinical and laboratory signs of systemic infection may be lacking. The diagnosis is often delayed by an earlier diagnosis and treatment for conjunctivitis, or it is diagnosed later because of the suspicion of retinoblastoma. The spectrum of clinical features varies from minimal signs of inflammation with conjunctival hyperemia and mild anterior uveitis; small focal vitreal abscesses; white “snowball” opacities; or the presence of hypopyon with suppurative reaction of the sclera, conjunctiva, and orbit. Decreased visual acuity and eye pain are other complaints that may be present. The inflammatory response to intraocular tissue results in the layering of leukocytes in the anterior chamber, resulting in the hypopyon.

EPIDEMIOLOGY

Exogenous endophthalmitis is mainly caused by gram-positive bacteria, including Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus pneumoniae, and other streptococcal species. Gram-negative and gram-positive organisms may be responsible for hematogenously spread infections. Organisms reported to have caused endophthalmitis in children include Neisseria meningitidis, Serratia marcescens, Salmonella typhimurium, and Escherichia coli (the cause of the infection in our patient). Candida albicans intraocular infections are most often associated with predisposing factors, including prematurity, especially associated with low birth weight and pulmonary disease, intravenous catheters, immunosuppressive therapy, malignancy, and diabetes. In one study of 47 children with deep-seated fungal infections, 6 had evidence of endophthalmitis.

DIAGNOSIS AND TREATMENT

In a child with an identified systemic infection, it may not be necessary to obtain ocular fluid for culture. If a source of infection is not known, aqueous and/or vitreous aspirations must be performed in attempt to identify the responsible organism. Intravitreal injection of antibiotics is considered the most important route of treatment of endophthalmitis to rapidly achieve high concentrations of antibiotics within the eye. Despite treatment, the visual outcome of most patients with endogenous bacterial endophthalmitis is poor. In a series of 28 patients with this infection, 12 of 32 affected eyes had no final light perception.

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REFERENCES


The Editor is seeking submissions for a new feature, Clinical Problem Solving, which will combine Picture of the Month, Radiological Case of the Month, and Pathological Case of the Month. Our aim is to demonstrate the thinking process of a master clinician involved in approaching a patient with an unknown disease. The discussion of such cases should place the clinician’s expertise into the context of the prevailing medical literature on the topic. Manuscripts should be between 3000 and 4000 words and may include photographs and radiographs.