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Case report

Asymptomatic endophthalmitis following strabismus correction in a pediatric patient

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ABSTRACT

Endophthalmitis is most commonly seen in adults shortly after cataract surgery. It is rare in the pediatric population. Presented here is a case of endophthalmitis following strabismus repair in a 9-month-old patient with Trisomy 21. Leukocoria was observed 15 days after surgery, but the child did not exhibit symptoms of infection, and the ordering clinician requested an MRI of the brain and orbits to assess the possibility of retinoblastoma. This case highlights the importance of MRI in the evaluation of leukocoria and displays typical MRI findings of this infrequently-encountered condition in the pediatric population.

Introduction

Endophthalmitis is an uncommon complication of ocular surgery and is most frequently encountered following cataract surgery in adults [1]. In the pediatric population, the most common infectious agents are similar to other respiratory pathogens [2], and the diagnosis is frequently aided by signs and symptoms of infection. For this reason, imaging is usually not needed. When performed, magnetic resonance imaging (MRI) often demonstrates periorbital soft tissue cellulitis in addition to the intraorbital manifestations, which can aid in confirmation of the suspicion [3,4].

The differential diagnosis for leukocoria in a child is broad and includes cataract, retinoblastoma, persistent fetal vasculature, and Coats disease. Vitreous hemorrhage, retinal dysplasia, astrocytic hamartoma, and uveitis are less common causes. The diagnostic evaluation of leukocoria involves dilated fundoscopy, pupil reflex assessment, slit lamp examination, and in select cases, cross-sectional imaging.

Though strabismus can be managed medically, surgery is often indicated if symptomology persists despite nonsurgical intervention [5]. Minimal bleeding, conjunctival inflammation, and temporary diplopia are regularly encountered in the postoperative period, however, endophthalmitis is exceedingly rare [6], and the diagnosis is generally made without imaging. In the absence of periorbital cellulitis, the diagnosis is difficult to make prospectively with imaging findings alone. Presented here is a case of endophthalmitis in the absence of corresponding clinical symptomology.

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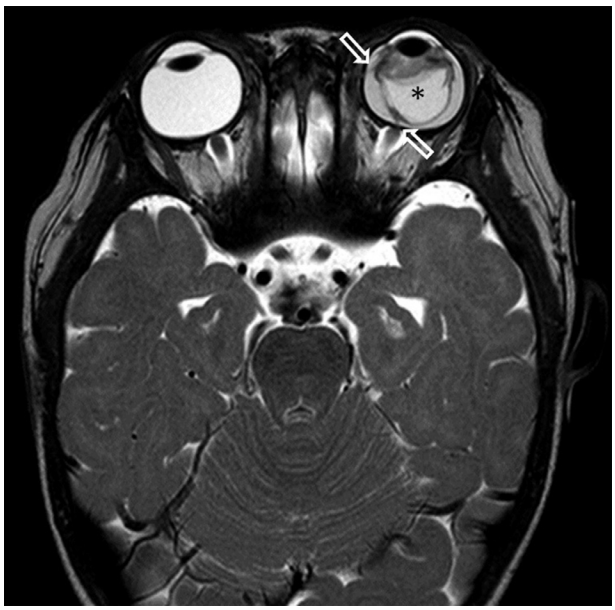

Fig. 1 – Axial T2-weighted image demonstrates an irregular noncalcified lesion (asterisk) within the left vitreous body abutting the posterior margin of the lens with adhesions extending from the mass to the optic nerve head and nasal sclera (arrows).

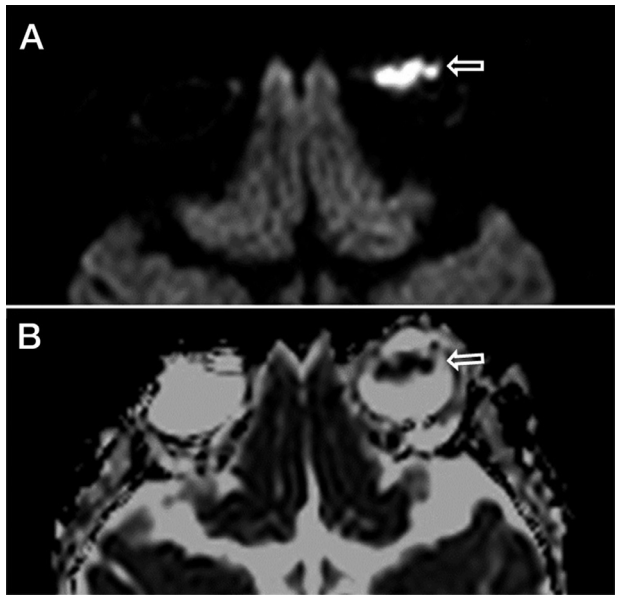

Fig. 2 – Axial diffusion-weighted image of the orbits (A) shows diffusion bright signal (arrow) throughout the solid portion of the lesion. Apparent diffusion coefficient map (B) confirms the diffusion restriction (arrow).

Case report

A 9-month-old male with a past medical history of Trisomy 21 presented 15 days status post strabismus repair with a 2-day history of leukocoria. The patient was afebrile, and there was no eye swelling, redness, or discharge. A review of systems revealed no additional complaint, and the physical exam was normal except for the pupillary discoloration and characteristic Down syndrome facies. An ophthalmological consultation at the time of admission resulted in an MRI of the brain and orbits to evaluate for malignancy. The ordering physician made note that concern for infection was low.

MRI showed an irregular noncalcified lesion within the left vitreous body abutting the posterior margin of the lens with adhesions extending from the mass to the optic nerve head and nasal sclera (Fig. 1). The retina was detached. Diffusion restriction was apparent within the lesion (Fig. 2). The anterior chamber, surrounding vitreous humor, posterior choroid, and uvea exhibited contrast enhancement (Fig. 3). No periorbital or preseptal swelling was appreciable. After reviewing the images, it was determined that there was no chance for recovery of vision in the left eye. The patient thus underwent enucleation surgery.

The vitreous was shown to be replaced by neutrophils and macrophages with areas of necrosis and exudate. The retina had been detached, infiltrated by acute inflammatory components, and focally degenerated. The subretinal space was filled with proteinaceous exudate. No evidence of retinoblastoma or other malignancy was present.

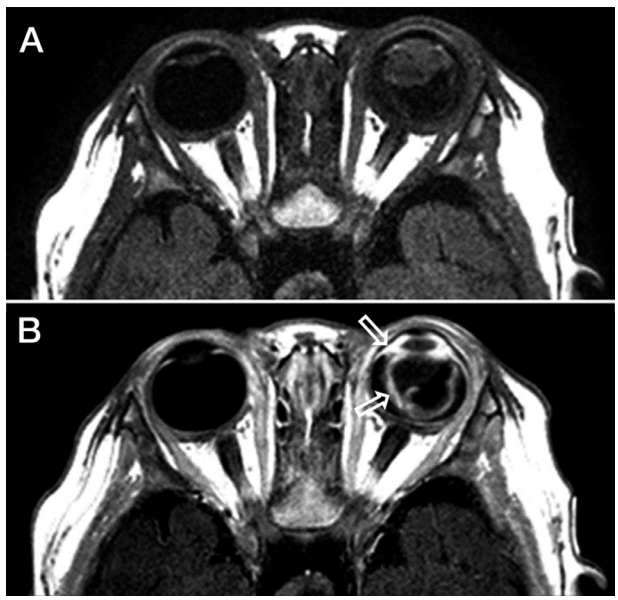

Fig. 3 – Axial T1-weighted images precontrast (A) and postcontrast (B) reveal avid enhancement (arrows) of the anterior chamber, surrounding vitreous humor, posterior choroid, and uvea.

Discussion

Endophthalmitis in the pediatric population is most often caused by vitreous dissemination of ocular bacterial flora such as *Streptococcus* and *Staphylococcus* sp. during instrumentation such as that seen following open-globe trauma and glaucoma

surgery [2]. Postoperative endophthalmitis following strabismus surgery is rare with a reported incidence of 1 in 30,000 cases [7].

A case series of 6 patients was described by Recchia et al [6]. In all 6 patients, the diagnosis of endophthalmitis was made within 8 days of surgery, and all 6 patients showed signs of infection including fever, redness, eyelid swelling, and/or sepsis. Only 1 of the 6 patients underwent imaging, a head computed tomography, which showed preorbital soft tissue swelling. There was no globe perforation during any of the surgeries. Of these 6 affected eyes, 3 were eventually enucleated.

The diagnosis of endophthalmitis is challenging in young children and children with developmental disabilities, as the inability to verbalize often results in delays in symptom reporting. Nonetheless, the remarkably delayed onset of symptomatology in this patient, when combined with a discordant physical exam, dissuaded the clinician from endorsing postoperative infection as the cause of presenting leukocoria at the time of imaging. In cases such as these, the radiologist can be particularly valuable in suggesting the diagnosis in consultation with the ordering clinician.

Leukocoria is a common indication for imaging of the brain and orbits and is caused by retinoblastoma in 11% of cases among children under 10 years of age [8] with persistent fetal vasculature and Coats disease as the primary simulating lesions among children referred to ophthalmic oncologists with a presumptive diagnosis of retinoblastoma [9]. While the diagnosis of retinoblastoma is usually established via fundoscopic exam and ultrasound, MRI is employed to document tumor extent and assess for additional lesions [10].

The case presented here highlights an extremely rare instance of endophthalmitis diagnosed more than 2 weeks following the inciting surgery in which no periorbital signs of infection were apparent. A broad differential must be considered, when intraocular lesions are seen.

Conclusion

This case highlights a rare late presentation of endophthalmitis as a complication of strabismus repair surgery. The diagnosis is typically made on the basis of clinical symptomology; however, there were no signs of infection on physical exam. MRI can prove to be a valuable adjunct to physical exam in the work-up of leukocoria.

REFERENCES

[1] Bainbridge JW, Teimory M, Tabandeh H, Kirwan JF, Dalton R, Reid F, et al. Intraocular lens implants and risk of endophthalmitis. Br J Ophthalmol 1998;11:1312–15.
[2] Khan S, Althwal L, Zarbin M, Bhagat N. Pediatric infectious endophthalmitis: a review. J Pediatr Ophthlmol Strabismus 2014;51:140–53.
[3] Rumboldt Z, Moses C, Wieczerzynski U, Saini R. Diffusion-weighted imaging, apparent diffusion coefficients, and fluid-attenuated inversion recovery MR imaging in endophthalmitis. AJNR Am J Neuroradiol 2005;26:1869–72.
[4] Yu E, Laughlin S, Kassel EE, Messner HA, Yucel YH. Nocardial endophthalmitis and subretinal abscess: CT and MR imaging features with pathologic correlation: a case report. AJNR Am J Neuroradiol 2005;26:1220–2.
[5] Joyce KE, Beyer R, Thomson RG, Clarke MP. A systematic review of the effectiveness of treatments in altering the natural history of intermittent exotropia. Br J Ophthalmol 2015;99:440–50.
[6] Recchia FM, Baumal CR, Sivalingam A, Kleiner R, Duker JS, Vrabec TR, et al. Endophthalmitis after pediatric strabismus surgery. Arch Ophthalmol 2000;118:939–44.
[7] Ing MR. Infection following strabismus surgery. J Ophthalmic Nurs Technol 1991;10(5):211–14.
[8] Haider S, Qureshi W, Ali A. Leukocoria in children. J Pediatr Ophthalmol Strabismus 2008;45:179–80.
[9] Maki JL, Marr BP, Abramson DH. Diagnosis of retinoblastoma: how good are referring physicians? Ophthalmic Genet 2009;30:199–205.
[10] de Graaf P, Goricke S, Rodjan F, Galluzzi P, Maeder P, Castelijns JA, et al. Guidelines for imaging retinoblastoma: imaging principles and MRI standardization. Pediatr Radiol 2012;42:2–14.