

CASE REPORT

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A Case of Acute Sterile Endophthalmitis after Intravitreal Dexamethasone

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Introduction: Intravitreal dexamethasone implant (IDI) has been recently introduced into clinical practice for the treatment of various ocular conditions including non-infectious uveitis and macular edema. Endophthalmitis following IDI is an uncommon and a serious complication.

Case Presentation: In this report, we present a case of sterile endophthalmitis following IDI in a fourteen-year-old female for whom IDI was indicated to treat uveitic cystoid macular edema, which was refractory to maximum systemic and local therapy. She presented within 24 hours following the implant insertion, complaining of only a decrease in vision. It was managed by emergent pars plana vitrectomy with the removal of the implant. This resulted in clinical improvement and resolution of the inflammation. Intravitreal and implant Gram stain and polymerase chain reaction came out negative. An IDI was implanted one year later without similar complications.

Conclusion: Our case showed that sterile endophthalmitis could occur following intravitreal dexamethasone injection. Repeated IDI does not seem to be contraindicated.

Keywords: Endophthalmitis, dexamethasone, intravitreal injection

Introduction

Cystoid macular edema is the leading cause of decreased vision in uveitis patients with incidence varying from 12 to 51 percent (1). Intravitreal dexamethasone implant (IDI) has been recently introduced into clinical practice for the treatment of various ocular conditions including non-infectious uveitis and macular edema. The IDI was approved by the United States Food and Drug Administration (FDA) in 2009 (2). Since then, numerous studies have demonstrated its efficacy and safety. Most of the studies reported a high safety profile with a few common side effects, including increased

intraocular pressure and cataract formation or progression (3). To our knowledge, only a few cases of endophthalmitis after IDI were reported in the literature (4-7). We present a case of sterile endophthalmitis following IDI occurring in a fourteen-year-old female with uveitic cystoid macular edema refractory to systemic therapy and topical treatment.

Case Presentation

A 14 years female developed endophthalmitis following IDI in her right eye that was indicated for refractory cystoid macular edema. She had idiopathic intermediate uveitis complicated by

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uveitic glaucoma and cystoid macular edema. Uveitis investigations included complete blood count (CBC), erythrocyte sedimentation rate (ESR), renal function test, liver function test (LFT), purified protein derivative (PPD), and magnetic resonance imaging (MRI). All came back with no explanation for a systemic disease causing uveitis.

Despite the use of maximum systemic therapy of Humira, methotrexate, and prednisone, plus topical prednisolone and Lotemax, along with multiple Lucentis and Avastin injections, her huge cystoid macular edema was refractory and not improving specifically in the right eye (Figure 1). She had multiple IDI administered to the right eye, and on one occasion, she developed sterile endophthalmitis.

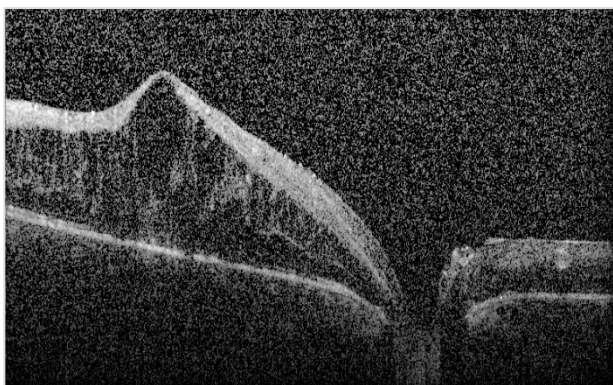


Figure 1. Optical Coherence Tomography (OCT) of the right eye showing huge macular edema



Figure 2. Scan ultrasonography of the right eye done on presentation to emergency department suggestive of acute endophthalmitis

On the day of the procedure, after informed consent was obtained and risks and benefits were discussed with the patient and her family, the implant was injected in the minor operating room in a sterile manner. The patient tolerated the procedure well. Afterward, she was sent to the clinic to be examined, without complaints.

One day following the injection, she presented to the emergency department complaining of a decrease in vision in the right eye, with a visual acuity of hand motion. She had no pain or tenderness. Slit-lamp examination of the right eye showed corneal epithelial edema, anterior chamber fibrinous reaction, and hypopyon. Fundus examination was difficult due to a hazy media. B-scan ultrasonography was suggestive of early endophthalmitis (Figure 2).

The diagnosis was acute endophthalmitis. As a result, she was admitted for pars plana vitrectomy (PPV), which was done under the general anesthesia. A vitreous sample was taken for Gram stain, polymerase chain reaction (PCR) and culture and sensitivity. The implant was removed and sent for culture and sensitivity. Fundus examination during the procedure revealed a dense vitreous opacity and diffuse vascular sheathing like frosted angiitis (Figure 3).



Figure 3. Intraoperative fundus view showing a dense vitreous opacity and diffuse vascular sheathing like frosted angiitis.

She clinically improved on the examination following the procedure. The vitreous Gram stain, culture and PCR came out negative. Upon discharge, her visual acuity improved to counting fingers at five feet. One IDI was indicated following endophthalmitis incident at one year for refractory macular edema that was not improving on other systemic treatment modalities. The procedure went well without any complications.

Discussion

Slow-release IDI, known as Ozurdex (Allergan Inc., Irvine, CA), provides a sustained release of 0.7 mg of micronized dexamethasone targeting the retina and the vitreous over time. As a result, it ensures high anti-inflammatory effect for several months (3). Ozurdex is used for the treatment of posterior non-infectious uveitis, macular edema (ME) resulting from vascular occlusions, and diabetic macular edema in adults (2).

Intermediate uveitis (IU) is the inflammation of the anterior vitreous, peripheral retina and the ciliary body. In children, 10 to 20 percent of patients who present with uveitis signs have IU (8). The association of IU and systemic diseases in the pediatric age group is less common in comparison to anterior uveitis. Thus, most cases are idiopathic and account for 60 percent of all IU cases (9). Patients often present with floaters and blurred vision. A more severe clinical presentation is vision loss due to cystoid macular edema (CME)(1). The main stay of treatment of CME secondary to IU is systemic, periocular or intravitreal steroids (10). Prolonged use of systemic steroids is not highly recommended, particularly in the pediatric age group, due to its serious consequences which include growth retardation, osteoporosis,

glaucoma, and cataract formation (11). IDI is a promising alternative due to its high efficacy and minimal side effects. To date, two studies have focused on IDI among children. The first study was on patients with a mean age of 12 years old suffering from intermediate or posterior uveitis. The high efficacy of IDI was proven in terms of improved visual acuity, reduced inflammation, and decreased macular edema. The most commonly reported complications were elevated intra-ocular pressure (IOP) and cataract formation or progression. The results of the second study supported the first one. Similar complications occurred, in addition to migration of implant into the anterior chamber (11, 12).

Those side effects were similar to what was reported in older age groups. However, more severe complications, such as endophthalmitis, occurred in adults. Although its incidence is very low, it is a vision-threatening complication. During our literature review, we found only five published cases of acute endophthalmitis following IDI. All cases occurred in adults. IDI was indicated for retinal vascular disorders in four out of the five cases, and in the fifth case, it was indicated for diabetic macular edema. All cases presented after at least two day (4-7).

Comparing our case to the published cases, we reported the first endophthalmitis case following an IDI in the pediatric age group presenting within 24 hours of the procedure. Our patient was on immunosuppressive drugs, which were challenging. She presented with only vision loss and no pain. Due to its severity, the disease was managed by emergent PPV, intravitreal antibiotics and removal of implant, which resulted in immediate improvement. Based on culture and PCR results, we believe that our patient had sterile endophthalmitis.

The IDI procedure was repeated almost one year later on the same eye with neither complications nor signs of endophthalmitis recurrence.

Conclusion

In conclusion, sterile endophthalmitis is a possible complication following IDI. We advise educating patients undergoing IDI about the warning signs of endophthalmitis, including a drop of vision and pain. Management is individualized depending on the severity of the case. Repetition of the IDI does not seem to be contraindicated in patients who develop endophthalmitis.

Conflict of Interests

The authors declare that they have no conflict of interest in the present study.

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