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CASE STUDY

ANTERIOR LOCATION OF INTRAVITREAL DEXAMETHASONE IMPLANT DUE TO KYPHOSIS IN A PATIENT WITH ANCHLOSING SPONDYLITIS

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ABSTRACT

The purpose of this report is to report possible effect of patient posture to treatment process in patients receiving dexamethasone intravitreal implant. A 53-year- old man with diagnosis of ankylosing spondylitis followed by rheumatology department, was referred to us for uveitis. Patient had dorsal kyphosis and head bent position leading to his ankylosing spondylitis. Fundus examination showed macular edema in both eyes. Intravitreal administration of dexamethasone implant was performed, afterwards visual acuity increased and anterior chamber reaction reduced in both eyes. However patient complained from shadowing in his right eye. The examination showed that the implant was behind the lens and in pupillary area especially in the right eye. In both eyes, posterior capsular and nuclear cataract were developed. Head-body posture should be considered as a factor for selection of intravitreal drug therapy and also possibly for injection site selection for implants.

INTRODUCTION

Dexamethasone intravitreal implant Ozurdex® (Ozurdex®; Allergan, Inc, Irvine, CA) is an injectable and biodegradable implant containing 0.7 mg of dexamethasone. The implant is in a stick form and its height is 6mm and the width is 0.46 mm and it is injected into vitreal cavity by a 22- gauge needle. It is approved by USA Food And Drug Administration for treatment of macular edema due to retinal vein occlusion and non-infectious posterior segment uveitis (**Haller *et al*., 2010; Lowder *et al*., 2011**). Control of inflammation and improvement in cystoid macular edema and visual acuity were demonstrated following dexamethasone intravitreal implant used for treatment of uveitis (**Myung *et al*., 2010**).

Its association with a low rate of increased ıntraocular pressure, conjunctival hemorrhage, cataract development (subcapsular, cortical, nuclear) and slight vitreous hemorrhage was reported (**Lowder *et al*., 2011; Haller *et al*., 2011; Boyer *et al*., 2011**). The purpose of this report is to bring the effect of patient posture to treatment process in patients receiving intravitreal implant into attention and also to assess treatment approach in patients planned for implantation following refractory iridocyclitis and macular edema due to ankylosing spondylitis (AS).

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Case report

A male patient (aged 53 years old) with diagnosis of ankylosing spondylitis followed by rheumatology department, was also followed by our clinic due to additional diagnosis of uveitis. Patient had dorsal kyphosis and head bent position leading to his ankylosing spondylitis (Fig. 1). During his examination, visual acuity was 0.4 in the right eye and 0.5 in the left eye. Intraocular pressure was 17 mmHg and 18 mmHg, respectively. Cristaline lens was clear in both eyes. Fundus examination showed macular edema in both eyes although optical coherence tomography (OCT) examination was difficult due to his posture. Macular edema was prominent on OCT of the right eye (Fig. 2).

Refractory iridocyclitis and macular edema were present in both eyes and dexamethasone implant treatment was recommended to patient following unresponsiveness to previous treatment with topical steroid and cycloplegics. Patient received systemic anti- tumor necrosis factor-α (TNF-α) treatment in rheumatology clinic and the result of this treatment was waited for. However systemic treatment was ineffective on ocular symptoms. Therefore administration of dexamethasone implant to the patient was decided. Treatment was administered to both eyes within 15 days of interval. Dexamethasone implant increased the visual acuity by 0.5 in right eye and 0.6 in left eye, and anterior chamber reaction was reduced to (+) tyndall reaction in both eyes. Dexamethasone implant injection was performed from superior temporal quadrant in both eyes

following subconjunctival anesthesia. Side effects such as increased intraocular pressure or any problem related with injection were not observed. However patient complained from shadowing in his right eye. The examination showed that the implant was behind the lens and in pupillary area in both eyes (Fig. 3). In both eyes, posterior capsular and nuclear cataract were developed. On his last examination after 3 months , intraocular inflammatory signs increased again in both eyes and thus oral azathioprine, topical pred forte, cycloplegic solution and subtenon depomedrol were administered. Despite control of inflammation, visual acuity was finger counting at 3 meter in right eye and 2 meter in left eye. Intraocular pressure was 17 mmHg and 19 mmHg in right and left eyes, respectively. Posterior synechia was present in both eyes being more intense in the left. Cataract surgery was planned in both eyes after control of inflammation and bilateral YAG laser iridotomy was performed to both eyes as a precaution for glaucoma.

Fig. 1. Patient has dorsal kyphosis and head bent position due to AS

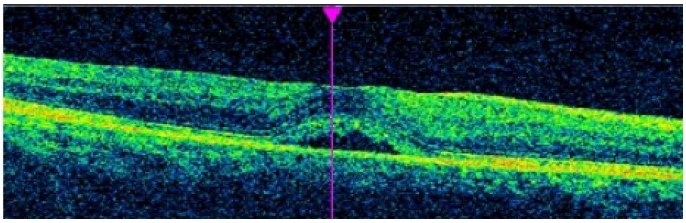

Fig. 2. Macular edema was observed in the right eye before injection

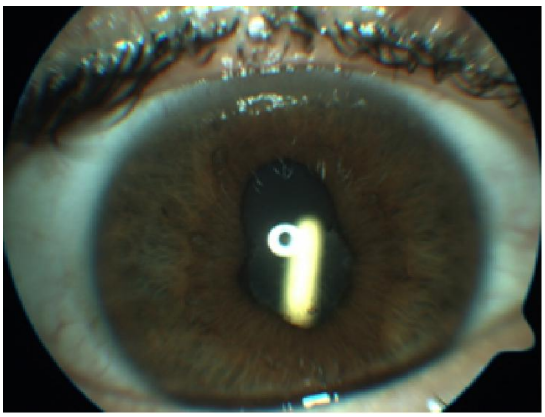

Fig. 3. Implant was observed behind lens in pupillary area

DISCUSSION

Complications leading to crystalline lens damage such as cataract development, zonular damage and lens dislocation were previously reported in association with intravitreal injection. Main reasons of this are less surgical experience, wrong surgical technic and movement of patient's head during procedure (**Heimann *et al*., 2007**). AS is a chronic inflammatory disease of unknown etiology characterized by inflammation of spinal joints and neighboring tissues and progressing to spinal ascendant bone fusion. In case of progression of disease to thoracic vertebrae, normal dorsal kyphosis is significantly increased and shoulders of patients are stooped forward. According to severity of cervical and thoracic involvement, patient stands voluntarily with knees at flexion to maintain center of gravity (**Khan *et al*., 2003**).

Although uveitis and steroid treatment are considered among main reasons of cataract development, possible cause of cataract in our patient was considered as contact of implant to posterior lens capsule. There are many studies in the literature showing displacement of dexamethasone implant to anterior chamber (**Cronin *et al*., 2012; Khurana *et al*., 2014**). Migration of implant to anterior chamber, was observed approximately 13 days later following implantation in study group consisting of aphakic and pseudophakic patients with previous pars plana vitrectomy. In these patients, yag capsulotomy, lying in the supine positione and surgical interventions were preferred to remove implant from anterior chamber (**Khurana *et al*., 2014**). We considered that bending posture of our patient due to ankylosing spondylitis facilitated migration of intraocular implant to the front and caused contact to lensduring head movements. Bending-Forward posture lead to more central placement of implants and more subjective discomfort as shadowing.

Conclusion

We conclude that posture in patients who are planned for dexamethasone implant should be evaluated and inferior temporal quadrant injection may be more suitable for these patients.

Abbreviations

OCT - Optical coherence tomography
TNF-α - Tumor necrosis factor-α
AS - Ankylosing spondylitis

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Consent: Written informed consent was obtained from the patient for publication of this case report and any accompanying images

Competing interests: The authors declare that they have no competing interests

Authors' contributions: SB and OK participated in the conception, design, and analysis of this case report and drafted the manuscript.

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