CASE REPORT

Bilateral diffuse anterior scleritis after unilateral cataract surgery: A case report

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Abstract

Surgically induced scleritis (SIS) is a rare complication after a variety of ocular surgeries. Majority of the patients had had two or more surgical procedures before the onset of SIS. We report a patient who developed bilateral diffuse scleritis after unilateral cataract surgery.

A 64-year-old man presented with red eye and tenderness in the right eye. An uneventful cataract surgery had been conducted in the right eye 5 months earlier. He had lost vision in the left eye 25 years ago, and there had been no ocular symptoms in both the eyes for the previous 20 years. Scleritis of the right eye appeared 5 months after cataract surgery, and scleritis of the left eye developed three months later. No previous reports referred to the possibility that the right eye surgery could induce scleritis in the left eye. Our case implies that surgical trauma in one eye can induce scleritis in both the eyes with a history of severe inflammation.

Keywords: Surgically induced scleritis (SIS), cataract surgery

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Introduction

Scleral inflammation and necrosis are recognised as rare complications after a wide variety of ocular surgical procedures such as cataract, glaucoma, strabismus, and retinal detachment surgery. O'Donoghue et al reviewed the clinical features of 52 eyes from 43 patients who developed scleritis after ophthalmic surgery.[1] Necrotizing anterior scleritis or sclerokeratitis (surgically induced necrotizing scleritis) was identified in 49 eyes (94.2%); the remaining three eyes having non-necrotizing (nodular) scleritis. Thirty-two patients (74.4%) had undergone two or more surgical procedures before the onset of surgically induced scleritis (SIS) while scleritis developed after one operation in remaining 11 patients. Interestingly, the history of ophthalmic surgery even in the contralateral eye increases the incidence of SIS.

The aetiology of SIS is unclear, but some authors have hypothesised that the condition represents a hypersensitivity reaction. The deposition of the immune complex in scleral vessels can be stimulated by surgical trauma. The fact that SIS is likely to develop in eyes with a surgical history of the contralateral eye indicates that the immune complex formed in one eye by surgical trauma affects the other eye.[1] We report a patient who developed bilateral diffuse scleritis after unilateral cataract surgery.

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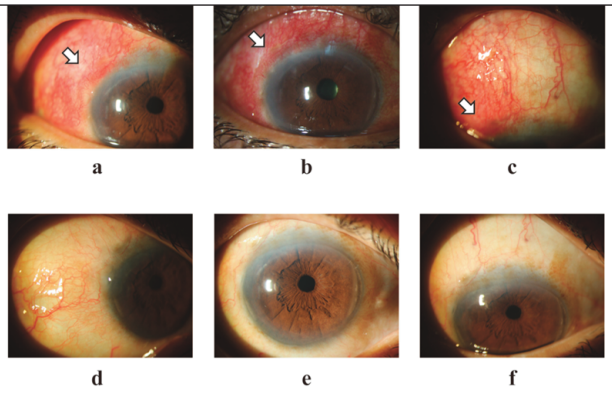
Case Report

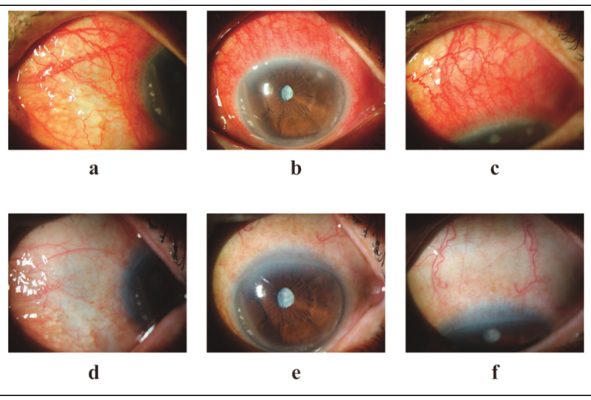
A 64-year-old man presented with red eye and tenderness in the right eye that developed two weeks ago. An uneventful cataract surgery had been conducted and acryl intraocular lens was inserted via corneoscleral incision in the right eye 5 months ago (December 2018). He had been diagnosed as Behcet's disease (BD), and his left eye was blinded 25 years back. He was monitored with oral cyclophosphamide and cyclosporine for 20 years. The ocular symptoms of the right eye had been stable for more than 20 years, though relatively mild oral and genital ulceration, arthritis, folliculitis, and neurological symptoms occasionally recurred.

On haematological and biochemical tests, rheumatoid factor (RF) and p-type anti-neutrophil cytoplasmic antibody (ANCA) were positive. We suspected anterior diffuse SIS based on the findings, including scleral oedema and dilatation of the deep episcleral vascular plexus adjacent to the operation site, as revealed by slit lamp



(a–c) Scleral oedema and dilation of the deep episcleral vascular plexus on slit lamp examination and no signs of scleral necrosis, corneal infiltrates, thinning, and ulceration. (d–f) Decreased scleral oedema and dilation of the deep episcleral vascular plexus after treatment for anterior diffuse scleritis

Figure-1: Photograph of the anterior segment of the right eye.



(a–c) Scleral oedema and dilation of the deep episcleral vascular plexus on slit lamp examination and no signs of scleral necrosis, corneal infiltrates, thinning, and ulceration. (d–f) Decreased scleral oedema and dilation of the deep episcleral vascular plexus after treatment for anterior diffuse scleritis

Figure-2: Photograph of the anterior segment of the left eye.

examination (Figure 1a–c). No flare and cells were observed in the anterior chamber. Optical coherence tomography and dilated fundus examination revealed no abnormal findings. The best-correlated visual acuity in the right eye was 1.0, and intraocular pressure was within normal range.

For treatment, oral Indomethacin and 0.1% Betamethasone instillation (four times a day) were prescribed. Four weeks later, 0.1% Betamethasone instillation was increased to eight times a day. Scleral and conjunctival injection was noted to have decreased, and signs of scleritis were markedly improved (Figure 1d–f). Both oral Indomethacin and 0.1% Betamethasone instillation were tapered for three months. Then, 0.1% Betamethasone instillation (thrice a day) was maintained to prevent recurrence. One month after the cure of scleritis in the right eye, diffuse scleritis occurred in the left eye (Figure 2a–c). At this 0.1% Betamethasone instillation (eight times a day) was prescribed and signs of scleritis markedly improved in a few weeks (Figure 2d–f).

The study protocol conformed to the tenets of the Declaration of Helsinki and was approved by the Ethics Review Committee of Nojima Hospital. Written informed consent was obtained from the patient.

Our patient suffered from intense inflammation, and his left eye had become completely blind 25 years ago. Scleritis of the right eye appeared 5 months after cataract surgery, and scleritis of the left eye appeared three months later, while there had been no ocular symptoms in both eyes for more than 20 years. It seems that cataract surgery triggered scleritis of the right eye. In addition, it can be inferred that the immune complex formed by the right eye surgery also induced scleritis in the contralateral left eye that was blinded due to past severe inflammation.

About 63% of the cases with SIS possess a history of systemic disorder.[1] Of course, "ordinary" scleritis, not related to surgery, is often associated with systemic connective tissue diseases or vasculitic diseases such as rheumatoid arthritis, Wegener's granulomatosis, relapsing polychondritis, and lupus erythematosus.[1,2] Also, "ordinary" scleritis can sometimes occur in cases without a history of systemic disease. SIS does not necessarily occur in the immediate postoperative period in most cases. Thus, if scleritis occurs several months or years after ophthalmic surgery, it is not easy to distinguish SIS from "ordinary" scleritis.

Necrotising sclerosis is the most destructive development, which can rapidly blind the patients, whereas diffuse and nodular scleritis is usually moderately benign.

Sainz et al analysed the prognosis of patients with "ordinary" scleritis.[2] In this report, necrotising scleritis was significantly more frequent in patients with systemic vasculitic diseases. Ten out of 90 (11%) patients without systemic diseases have necrotising sclerosis, whereas 29 out of 82 patients (35%) with systemic disease have necrotising sclerosis. The immune reaction might be more vigorous in patients who already have systemic autoimmune disorders.

The ocular prognosis of scleritis with systemic vasculitic diseases varied depending on the specific systemic vasculitic diseases. Eleven out of 14 systemic patients with Wegener's granulomatosis and 11 out of 32 patients with rheumatoid arthritis suffered from necrotising scleritis, whereas 0 out of 7 patients with systemic lupus erythematosus and 0 out of 1 patient with BD suffered from necrotising scleritis.[2] From this report and our case, which was not necrotising, it was suggested that BD-associated scleritis is relatively benign.

Scleritis in patients with BD has rarely been reported in the literature.[2,3] Although diagnosis of systemic collagen disease or vasculitis other than BD has not been made in our case, p-type ANCA and RF may be associated with the occurrence of scleritis.

Conclusion

In the literature, most SIS cases are necrotising. However, non-necrotising SIS may be underestimated. Some cases may not be reported, as non-necrotising SIS is benign and easy to cure.

Not a single case has been reported to refer to the possibility that the right eye surgery should induce the scleritis in the left eye. Our patient, however, shows that surgery in one eye can induce scleritis in both eyes in a case with a history of past severe inflammation.

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Conflict of interest: None.

Funding disclosure: None.

Ethics approval: This case report was approved by the ethics committee of Nojima Hospital.

Consent for publication: The patient gave written consent for his personal or clinical details along with any identifying images to be published with this study.

References

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