An uncommon late postoperative complication of combined cataract surgery and intravitreal triamcinolone injection

Case report
A 64-year-old female with diabetic maculopathy (DMO) underwent phacoemulsification with intraocular lens (IOL) implantation in her right eye combined with intravitreal triamcinolone (IVTA). Diabetes control was poor with HbA1c (IFCC) of 119mmol/mol and blood sugar level of 27mmol/L. She had no other systemic co-morbidities. Furthermore, DMO in the right eye had not responded to several previous laser treatments. At the time of surgery, anti-VEGF was not licensed for DMO therapy.

Routine phacoemulsification with IOL implantation was completed with watertight corneal wounds. However, the operation was complicated by administration of 20mg IVTA (instead of intended usual dose of 4mg).

The patient received the standard institutional post-cataract treatment regime including Maxitrol and Acular. The early postoperative period was uneventful. At one month, right eye acuity had improved from 6/36 to 6/9 with improvement of central macular oedema. The patient re-presented acutely at six weeks with new symptoms of redness and reduced vision. There was a dense infiltrate following the entire track of the main corneal incision (Figure 1). However, there were no signs of endophthalmitis.

Initial results yielded evidence of Streptococcus pneumonia. Intensive topical hourly penicillin treatment was commenced with a good initial response. A tapered regimen was continued for a further five weeks while she was closely monitored. At month three (after cataract surgery), the patient’s eye deteriorated again. Vision had now reduced to count fingers and the eye was increasingly painful. There was signs of corneal perforation due to extensive stromal infiltration and thinning. There was associated hypopyon and satellite lesions were visible on the stroma (Figure 2). The perforation was sealed with Histoacryl glue. An aqueous tap and corneal re-scrape were obtained. Both specimens showed Fusarium dimerum. Intensive hourly topical natamycin 5% was instigated, with oral voriconazole 200mg. An intracameral injection of amphotericin B was also given. An alternative ocular preparation of voriconazole was not available for use.

Unfortunately, despite two months of antifungal therapy, the right eye was not salvageable. By month six (after cataract surgery), the eye had become blind and phthisical. The patient underwent evisceration to alleviate chronic intractable pain.

Discussion
Keratomycosis was first described by Leber [1]. It has long remained a challenge for ophthalmologists and in fact, the incidence has risen over the last few decades. The toxicity of Fusarium is related to secreted mycotoxin and its ability to proliferate at body temperature [7]. Fungi can easily breach Descemet’s membrane to gain access to the anterior chamber. The virulence of fungi is enhanced in the context of corticosteroid therapy or other forms of immune-suppression [7]. With the facilitation of single-use disposable instruments and a delayed presentation, inoculation at time of surgery was thought to be less likely in our case.

There is no reported consensus on appropriate treatment modalities, dosages or duration of therapy for fungal keratitis [8]. However, in general, topical amphotericin B 0.15% is widely used for keratitis due to yeasts. Topical natamycin 5% is most commonly employed against filamentous fungi [4,7].

Most topical anti-fungal agents have
poor corneal penetration. As a result, topical treatment is usually only fungistatic. Additional complementary systemic therapy using fluconazole or voriconazole is often advocated [1,4,7]. Treatment outcomes in keratomycosis are usually poor [1,4]. There are some literatures supporting intra-stromal voriconazole administration in conjunction with topical anti-fungal therapy in cases of deep fungal keratitis [9].

Our patient received a high dose of IVTA. Typical doses of IVTA in the United States and the UK are 4mg and 2mg. In a study of 60 eyes, Jonas et al. did not find increased rates of endophthalmitis using 20mg triamcinolone combined with cataract surgery [10]. However, there was a caveat that safe conclusions could not be reached regarding differences in frequency of postoperative infectious endophthalmitis based on their study.

References

TAKE HOME MESSAGE
In the presence of diabetic macular oedema, it is more advisable to address the maculopathy first before considering any elective intraocular surgeries.

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