We describe a patient with unilateral sterile peripheral corneal infiltrates presenting 1 day after uneventful bilateral laser in situ keratomileusis for myopia. The infiltrates were seen inferiorly near the flap edge, separated from the limbus by clear cornea. Cellular infiltrates were also noticed at the interface, but the epithelium was intact. A clinical diagnosis of sterile corneal infiltrates was made based on these clinical features, and the patient was started on topical steroids and antibiotics. The infiltrates healed with a scalloped appearance and a minimal scar, but good visual acuity was maintained. Differentiating sterile keratitis from infective keratitis is important as it can prevent unnecessary invasive procedures. The infiltrates appear to be a consequence of a local immune phenomenon.

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Laser in situ keratomileusis (LASIK) is commonly performed for surgical correction of refractive errors such as myopia, hyperopia, and astigmatism. As with all ophthalmic procedures, LASIK is associated with certain complications. Diffuse lamellar keratitis (DLK) and infective keratitis are the 2 most potentially sight-threatening complications seen after LASIK. However, very few case reports describe peripheral sterile keratitis after LASIK. This complication is usually benign, but keen observation is necessary to diagnose it. It can easily mimic infective keratitis, the management of which is entirely different. We report a case of post-LASIK unilateral peripheral sterile keratitis that was probably caused by a local immune response.

CASE REPORT

A 19-year-old man presented to the refractive clinic for surgical evaluation. He had been using glasses for nearsightedness since the age of 11 and had never worn contact lenses. The preoperative refractive error was −2.0 diopter sphere (DS) in both eyes. He had no history of systemic illness. The ocular examination did not show evidence of blepharitis, meibomian gland dysfunction, or other previous corneal inflammation.

Laser in situ keratomileusis was performed in both eyes after a superior hinged 110 μm corneal flap had been made with a femtosecond laser (Intralase FS, Intralase Corp.); the stroma was ablated with an excimer laser (MEL 80, Carl Zeiss Meditec AG). On postoperative day 1, the uncorrected distance visual acuity was 20/20 in both eyes. On ocular examination, the right eye presented with a thick band of gray–white corneal infiltrate extending from 5 o’clock to 7 o’clock and a surrounding cellular infiltrate at the flap interface (Figure 1, A); the left eye was essentially normal. The infiltrate was separated from the limbus by clear healthy cornea (Figure 1, A, arrow), which has been found to be characteristic of post-LASIK peripheral sterile corneal infiltrates. There was no anterior chamber cellular reaction, and the epithelium was intact. Based on these clinical features, an immune etiology was suspected and corneal scraping was not done. The patient was started on fluorometholone 0.1% eyedrops 6 times a day with an adequate antibiotic cover. The density of the infiltrate started to decrease 1 day after the treatment began.

Nine days postoperatively, the density of the infiltrate had decreased markedly and the cellular infiltrate had resolved. Steroids were tapered over the next 2 weeks. By the third postoperative week, the infiltrates had healed with a scalloped appearance and a minimal scar (Figure 1, B, arrow). The scalloped appearance was found to be characteristic of post-LASIK peripheral sterile keratitis. The patient was asymptomatic and maintained a visual acuity of 20/20 in both eyes through the postoperative period.

DISCUSSION

Acute unilateral or bilateral peripheral sterile corneal infiltrates are an uncommon benign...
complication of LASIK. As these infiltrates are non-specific in nature, several diagnoses should be kept in mind; however, the most important one is post-LASIK infective keratitis. Post-LASIK infective keratitis requires aggressive management and is potentially vision threatening. Certain clinical features may help to differentiate them. In infective keratitis, the infiltrates usually appear more than 24 to 48 hours postoperatively and are usually found at the center under the flap, whereas sterile infiltrates are usually seen on postoperative day 1 and at the periphery, separated from the limbus by clear healthy cornea. Infective keratitis is usually associated with an epithelial defect and an anterior chamber reaction. A sterile infiltrate is associated with a quiet anterior chamber and an intact epithelium. Based on these features, one can avoid unnecessary corneal scrapings and antibiotics.

We consider sterile infiltrates to be a distinct entity from DLK because infiltrates in DLK are seen on the lamellar flap, whereas in our case infiltrates were seen on healthy cornea beyond the flap edges. The clinical evolution of DLK is characterized by the appearance of white granular infiltrates in the stromal interface 1 to 5 days after LASIK. The infiltrate normally starts at the periphery of the corneal flap and has to be distinguished from epithelial cells, debris, and meibomian gland secretions.8

Corneal infiltrates have been reported after photorefractive keratectomy,7 although this is uncommon. Multiple etiologies have been proposed for these infiltrates, such as use of topical nonsteroidal antiinflammatory drugs without steroids9 and the use of topical anesthesia.10

This case describes the appearance of unilateral peripheral corneal infiltrates 1 day after LASIK. Peripheral corneal infiltrates have been associated with several etiologies such as meibomian gland dysfunction, chronic blepharitis, and preexisting corneal inflammation associated with autoimmune or collagen vascular disease; however, none of these was found in our case. We conclude that peripheral sterile infiltrates after LASIK are an uncommon complication. If they are diagnosed properly at an early stage and followed closely, unnecessary investigations can be avoided and the condition easily managed.

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