

Presumed DALK stromal graft rejection following Covid-19 infection

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Case report

A 45-year-old healthy male patient with a past ocular history of keratoconus and right deep-anterior lamellar keratoplasty (DALK) graft performed 10 months prior, presented to our eye casualty clinic with a two-day history of right photophobia and epiphora. Symptoms occurred two weeks following the start of coryzal symptoms and a positive PCR test for Covid-19 infection. He had been off topical prophylactic steroid treatment prior to this review – this was not the clinical advice that had been given to him, but unfortunately, he had not managed to get a repeat prescription of the medication and therefore had been off steroid eye drops prior to the presentation. All corneal sutures remained in situ. On slit-lamp examination, there were early signs of stromal rejection with an area of superior conjunctival injection (Figure 1). In addition, there was a localised area of subepithelial infiltrates suggestive of Krachmer spots with stromal haze. A clinical diagnosis of stromal graft rejection secondary to acute Covid-19 infection was made and the gentleman was started on intense topical steroid eye drops.

Management involved initiation of hourly topical preservative free dexamethasone 0.1% eye drops to the affected eye which was slowly weaned over a period of three months. The intraocular pressure remained within normal limits. The corneal changes resolved after a few weeks of treatment and the conjunctival injection had settled at the four-month follow-up. He had removal of sutures over two sittings 18 months after the initial transplant. He remains on once daily prophylactic dexamethasone 0.1% steroid drops which will be continued indefinitely.

Discussion

The World Health Organization (WHO) announced Covid-19 as a global viral pandemic on March 11, 2020 [1]. Covid-19 has had a significant health impact worldwide and various clinical manifestations have been extensively studied and reported in the literature. Indeed, ocular manifestations have also been described, including conjunctivitis, uveitis and retinitis, for example [2]. With regards to corneal grafts, DALK rejection rates are reported to be low [3]. Interestingly, there have been reports of stromal DALK rejection within short succession of receiving the Covid-19 vaccination [3]. In addition, endothelial graft rejection in Descemet membrane endothelial keratoplasty and penetrating keratoplasty grafts have been cited [4,5]. However, to the best of

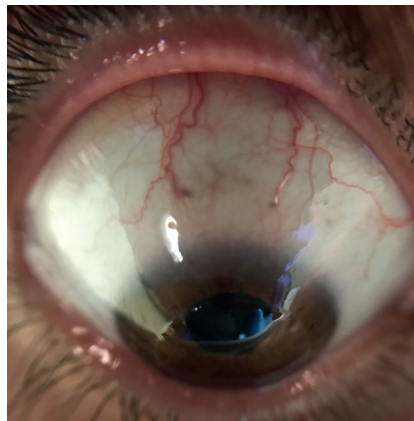


Figure 1.

our knowledge, this case study represents the first report of acute DALK stromal rejection secondary to acute infection with Covid-19. It is thought that the ocular immune privilege can be compromised secondary to immune dysregulation triggered by the virus [6,7].

Although this gentleman had been off topical steroids for a few months prior to the infection with Covid-19, which is not the usual suggested practice or recommendation, he had unfortunately not managed to get a repeat prescription of the medication. His eyes had been comfortable in the weeks leading up to the Covid-19 infection. Although we cannot be certain of a direct causal effect, pro-inflammatory changes induced by Covid-19 leading to this previously stable patient's impaired ocular immunity and subsequent acute rejection episode, is the most likely cause given the close occurrence of the rejection to the recent positive Covid-19 PCR test.

Recommendation

In keratoplasty patients who develop Covid-19 infection, we recommend that the usual maintenance therapy could be increased to prevent a rejection. Similar recommendations have been made for keratoplasty patients undergoing coronavirus vaccinations, and we advocate an increase in the prophylactic treatment frequency to prevent rejection [8]. Our recommendation would be to do a weekly taper over a month in the topical steroid following either an episode of rejection or vaccination, for example increasing the topical steroid to one drop four times a day for a week, followed by one drop three times a day for a week, followed by one drop two times a day over a week, and then returning to the once daily prophylactic dose. This case has also highlighted the importance of ensuring cornea

transplant patients are aware of the potential risk of cornea transplant rejection following an infection with Covid-19, to ensure prompt consultation and consideration of an increase in their topical steroid medication to manage this, to avoid long-term graft issues. Fortunately, in our case, the episode of rejection settled with the increase in topical steroids and he has continued to do very well with an excellent clinical outcome.

Summary

This case study highlights the risk of cornea graft rejection following Covid-19 infection and to the best of our knowledge describes the first case of stromal graft rejection in a patient with a DALK cornea transplant, secondary to acute Covid-19 infection.

References

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