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Sir,
Long-term presence of metallic particles in the DSAEK interface

In Descemet-stripping automated endothelial keratoplasty (DSAEK), graft preparation is done with a mechanical microkeratome.¹ Interface corneal metallic deposits due to the microkeratome dissection have been described after LASIK² but have not been described with DSAEK. We report a case of post DSAEK patient with long-term presence of presumed metallic particles in the interface.

Case report

A 75-year-old female presented with bilateral Fuchs dystrophy and nuclear sclerosis, worse in her right eye. She underwent planned phaco-emulsification, foldable three-piece IOL implantation with DSAEK in right eye. DSAEK donor tissue was prepared by eye bank with

automated microkeratome. The procedure was performed by a technique described elsewhere.³ There were no intraoperative complications. After 1 week, slit-lamp examination revealed donor disc in place, and clear and compact cornea. Presence of multiple brightly reflective particles was observed in interface. There was no associated anterior chamber reaction or subjective symptoms. In the last follow-up visit, 18 months postoperatively, corrected visual acuity was 20/25 with compact and clear cornea. Interface particles were unchanged and character of brightly reflective deposits was unaltered (Figure 1).

Comment

To our knowledge this is the first report of presumed metallic particles in host-graft interface after DSAEK. Absence of anterior chamber reaction, reflective nature, wide area of deposition, and no change with topical steroids excluded possibility of intralamellar keratitis, epithelial downgrowth, or infectious etiology. Especially the reflective nature, sharp borders of particles and inert nature were similar to the metallic deposits described in interface after LASIK. In previous studies, microkeratome-related blade shattering leading to deposits of metallic debris have been described in LASIK.² Wave-like deposition of debris in DSAEK interface with presumed origin from microkeratome⁴ and small particles observed only in confocal microscopy⁵ have been reported in previous studies after DSAEK.

Figure 1 (a) Slit-lamp examination at 18 months showing characteristic metallic interface deposits scattered diffusely between host and graft. (b) Slit view showing the level of deposits in the DSAEK interface.

In our case, the reflective nature of the slit-lamp observed debris was suggestive of metallic origin, which did not seem to affect the visual outcome in 18 months follow up. Confocal microscopy was not available. In the future, femtosecond laser technology may provide thinner, better quality grafts and in addition will avoid microkeratome-related interface debris.

Conflict of interest

The authors declare no conflict of interest.

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Sir, Serum C-reactive protein levels in exfoliation syndrome and exfoliative glaucoma

Exfoliation syndrome (XFS) is a systemic disorder of the extracellular matrix characterized by the accumulation of

elastic microfibrils in which oxidative stress and a chronic low-grade inflammation is implicated in the pathogenesis.^{1–3} The purpose of this study was to evaluate the serum concentrations of CRP, a marker for systemic inflammation, in subjects with XFS and exfoliative glaucoma (XFG).

Case report

A total of 33 exfoliative subjects (14 subjects with XFG and 19 subjects with XFS) with a mean age of 69.5 ± 11.6 years and 23 age-matched (mean age = 67.3 ± 10.5 years) control subjects were included in this study. A minimum sample size of 18 subjects was required to detect a clinically meaningful difference of 0.5 mg/dl with an alpha error of 0.05 and power of 0.90. Serum CRP levels were determined using nephelometric assay. The mean serum CRP level of subjects with exfoliation (0.54 ± 0.46 mg/dl) (XFS + XFG combined) was not significantly different ($P = 0.274$) than that of healthy subjects (0.42 ± 0.28 mg/dl). In addition, the mean age, gender ratio, and serum CRP concentrations were similar between subjects with XFS, XFG, and controls (Table 1). Coronary artery disease and hypertension was present in 15.2% and 27.2% of exfoliative patients, respectively (Table 1).

Comment

The interaction of co-pathogenetic mechanisms such as oxidative stress, tissue hypoxia, and release of growth factors (ie, TGF- β 1) is believed to be associated with chronic low-grade inflammation and propensity to excessive inflammation following intraocular procedures associated with breakdown of the blood-aqueous barrier.^{1,2} The presence of inflammation in XFS has been further substantiated by elevated aqueous interleukin-6 levels in early stages of XFS and the identification of C1q component of the complement system within the microfibrillar aggregates.^{3,4} In addition, XFS has been shown to be correlated with age-related macular degeneration, another disorder with underlying inflammatory mechanisms in which serum CRP levels have been found to be elevated.⁵

Our results revealed that serum CRP levels were not elevated in patients with XFS and XFG. In a recent study, serum levels of CRP in XFS and XFG were found to be similar to that of healthy controls.⁶ In that study, all subjects with a history of vascular disease including hypertension and coronary artery disease were excluded; however, exclusion of subjects with vascular disease may potentially be representative of patients with a milder phenotypic disorder. Nonetheless, on the basis of our results and those of Yuksel *et al*,⁶ we suggest that XFS-

Table 1 Clinical parameters and serum CRP concentrations in different groups included in the study

Parameter	Group I (XFS) (n = 19)	Group II (XFG) (n = 14)	Group III (N) (n = 23)	Test	P
Age (years)	69.4 $\pm$ 13.3	69.8 $\pm$ 9.3	67.3 $\pm$ 10.5	ANOVA	0.449
Gender (F/M)	8/11	7/7	14/9	χ^2	0.377
CRP (mg/dl)	0.53 $\pm$ 0.38	0.55 $\pm$ 0.57	0.42 $\pm$ 0.28	ANOVA	0.549
CAD	2 (10.5%)	3 (21.4%)	1 (4.3%)	Fisher's exact test	0.308
HT	5 (26.3%)	7 (50.0%)	2 (8.7%)	Fisher's exact test	0.025

Abbreviations: CAD, coronary artery disease; CRP, C-reactive protein; HT, hypertension; N, normal; XFG, exfoliative glaucoma; XFS, exfoliation syndrome.