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References

1. Bernstein HN. Some iatrogenic ocular diseases from systemically administered drugs. Int Ophthalmol Clin 1970;10:553–619.
2. Szmyd L, Perry HD. Keratopathy associated with the use of naproxen. Am J Ophthalmol 1985;99:598.
3. Dua HS, Forrester JV. The corneoscleral limbus in human corneal epithelial wound healing. Am J Ophthalmol 1990;110:646–56.
4. Rogers NK, Bowen DI, Noble BA. Development of atypical amiodarone keratopathy in a corneal graft. Eye 1993;7:594–6.
5. Dua HS, Watson NJ, Mathur RM, Forrester JV. Corneal epithelial cell migration in humans: 'hurricane and blizzard keratopathy'. Eye 1993;7:53–8.
6. D'Amico DJ, Kenyon KR. Drug-induced lipidoses of the cornea and conjunctiva. Int Ophthalmol 1981; 4:67–76.

Sir,

Fluorescent Venogram? An Interesting Side Effect of Fluorescein Angiography

An 80-year-old man with a subretinal neovascular membrane was seen in our clinic for fluorescein angiography. Five millilitres of 10% sodium fluorescein was injected prior to photography. After the procedure it was noted that the vein into which the fluorescein had been injected was a startling fluorescent green colour (Fig. 1). The patient was otherwise well, and the colour of the vein returned to normal after about 24 hours. There was no localised or systemic adverse reaction.

A similar reaction was observed in an 82-year-old diabetic woman with macular oedema. The fluorescent nature of the vein was demonstrated by shining a blue cobalt light from a slit lamp onto it.

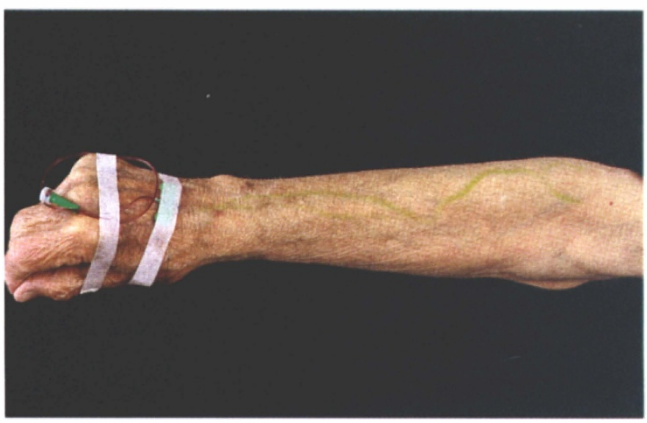

Fig. 1. *Photograph of the arm of an 80-year-old man following intravenous fluorescein injection.*

Transient generalised skin discoloration after fluorescein injection is very common and may be misdiagnosed as jaundice by the unwary. Such confusion was not a problem in our reported cases!

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Sir,

Koby's Superficial Reticular Degeneration of the Cornea

Koby's superficial reticular degeneration of the cornea (SRD) is a bilateral condition characterised by a net-like mosaic of discrete white lines at the level of Bowman's membrane. It was originally described in 1927[1] and there are only two cases reported in the English literature.[2,3]

Case Report

A 56-year-old Caucasian man was referred to the Sussex Eye Hospital by his optician who had noticed 'media opacities' during retinoscopy. The patient was asymptomatic and had no relevant ocular, family or past medical history. His visual acuities were 6/6 in each eye. A fine white reticulum was noted in the central cornea at the level of Bowman's membrane, in both eyes (Figs. 1, 2). Ocular examination was otherwise normal, in particular corneal sensation, epithelium, remaining stroma and endothelium. Serum calcium, parathyroid hormone and angiotensin-converting enzyme levels were normal, as was his chest radiograph. No treatment was indicated. His only surviving relative had clear corneas.

Discussion

The first case of this rare progressive corneal degeneration, described by Koby in 1927,[1] was additionally characterised by an epithelium which became thickened and speckled by a brown discoloration, contrasting with the white reticulum. It developed without inflammation or pain, but caused progressive loss of vision. Following this report there was some doubt concerning the separate existence of such a condition and some authors suggested it was merely a variant of lattice dystrophy.[4,5] Indeed the illustrations in Koby's paper closely resemble lattice, as do those in a later study of this condition.[6] In a

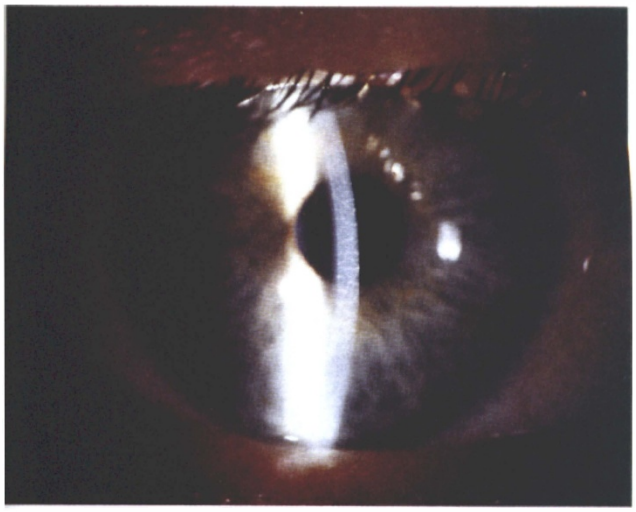

Fig. 1. *Slit lamp view demonstrating white reticulations in the central cornea.*

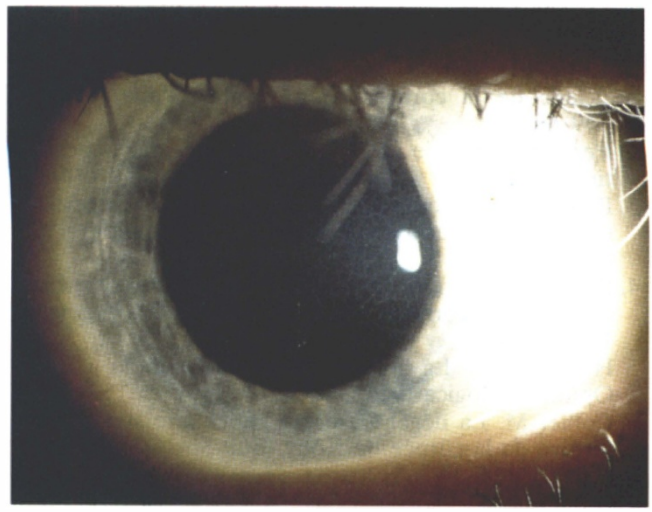

Fig. 2. *Indirect illumination (scleral scatter) showing the fine, well-defined, reticular pattern.*

third report of a family with this corneal appearance, the presence of recurrent erosions in several family members suggests that this too may have been lattice dystrophy.[7]

Perry *et al.*[2,3] have described the only two cases of SRD in the English literature. They suggest that it represents a distinct entity which only superficially resembles lattice dystrophy but lacks family history, severe visual loss, recurrent erosions and the classic biomicroscopic and histological attributes. Their first case had chronic vitritis and the second had a history of ocular trauma and aphakia. A superficial corneal biopsy of the second case revealed calcium in the reticulum and the patient was successfully treated with EDTA. They concluded that SRD was a response of the cornea to other ocular pathology, i.e. an atypical form of band keratopathy (BK). Typically BK is a homogeneous grey opacification in Bowman's layer that is interpalpebral and spreads towards the corneal apex. It contains clear circular areas where corneal nerves penetrate. Although the opacification in both SRD and BK is due to calcification, the character and distribution are entirely different.

The reticular pattern found in our patient is identical to that of the anterior corneal mosaic produced by fluorescein after corneal massage. Anterior and posterior crocodile shagreen, Francois' central cloudy dystrophy and corneal arcus all demonstrate the same reticular pattern.[8,9] However, the pattern in these conditions is the 'negative' of SRD, i.e. the opacity lies between the lines whereas SRD is opacification of the lines themselves. The consistency of this reticular pattern raises the possibility that some underlying structure governs its appearance. Although the mechanism has not been established, it seems likely that the pattern reflects creasing in the stroma in response to in-plane compressive stress (as opposed to out-of-plane stress, which gives the pattern seen in applanation endothelial specular microscopy). The anterior corneal mosaic has been assumed to be a consequence of a fixed structure in or near Bowman's membrane, but as it is mirrored by crocodile shagreen and arcus, which can be full-thickness polygonal patterns, it is more likely to be a general stromal feature. In crocodile shagreen it has been shown by electron microscopy that the corneal lamellae have a saw-tooth-like structure in some areas.[10] It is possible that this conformation is the same as that which produces the ridges in epithelium, mid-stroma and deep stroma seen by confocal microscopy of the applanated cornea.[11] Both have been interpreted as folding of the lamellae.

We suggest that the reticulations seen in SRD are due to calcification of stromal macromolecules within these regions of folding and this may be primary, as in our case, or secondary, as in the previous literature.

We thank Mr A. F. Harden and Mr D. V. Ingram for their assistance.

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References

1. Koby FE. Sur la dégénérescence reticulaire superficielle de la cornée. Arch Ophtal (Paris) 1927;44: 149–66.
2. Perry HD, Scheie HG. Superficial reticular degeneration of Koby. Br J Ophthalmol 1980;64:841–4.
3. Perry HD, Leonard ER, Yourish NB. Superficial reticular degeneration of Koby. Ophthalmology 1985; 92:1570–3.
4. Bucklers M. Die erblichen Hornhautdystrophien: dystrophiae corneae hereditariae. Buch Augenarzt 1938;3:105.
5. Hermann C. La dystrophie grillage de la cornée. Ophthalmologica 1946;112:350–63.
6. Collier M. La dégénérescence reticulaire superficielle tardive da la cornée de Koby. Bull Soc Ophtalmol Fr 1965;65:1006–13.
7. Aguello DM, Tosi B, Gayoso CB. Neuritis cronica edematosa de la cornea. Arch Mem Soc Litoral 1950; 3:95–103.
8. Bron AJ. Anterior corneal mosaic. Br J Ophthalmol 1968;52:659–69.
9. Ansons AM, Atkinson PL. Corneal mosaic patterns: morphology and epidemiology. Eye 1989;3:811–5.
10. Krachmer JA, Dobord PJ, Rodrigues MM, Mannis MJ. Corneal posterior crocodile shagreen and polymorphic amyloid degeneration. Arch Ophthalmol 1983;101: 54–9.
11. Auran JD, Koester CJ, Rapaport R, Florakis GJ. Wide field scanning slit *in vivo* confocal microscopy of flattening-induced corneal bands and ridges. Scanning 1994;16:182–6.

Sir,

Another Disappearing Bullet

A 13-year-old boy who had been shot in the face with an air gun from a distance of 3 m presented to the ophthalmology department. Examination revealed unaided visual acuities of 6/6 right and 6/24 left. The left upper lid was markedly swollen and bruised with a closed 0.5 cm skin laceration just below the eyebrow centrally. On slit lamp examination the conjunctiva was bruised superiorly, but the cornea and sclera were intact. There was also micro-hyphaema with no iris injury. Fundoscopy after dilatation showed moderate intragel haemorrhage inferiorly and commotio retinae superiorly (Fig. 1). Orbital radiographs showed an air gun pellet located anteriorly in the left upper orbit (Fig. 2) rather than in the eye, as there was no shift in its position with a shift in the direction of gaze.

The boy was admitted for observation and bed

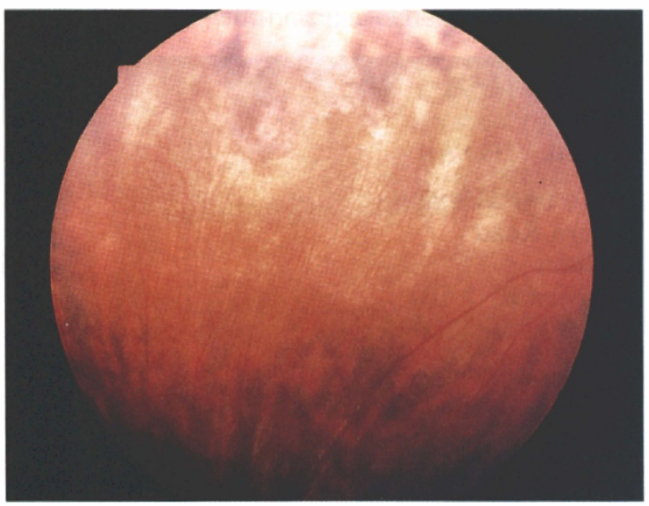
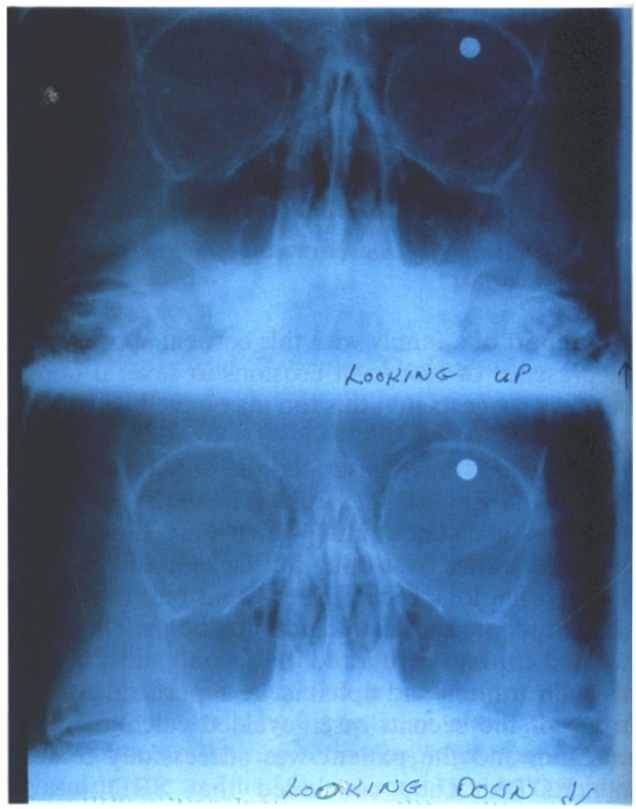
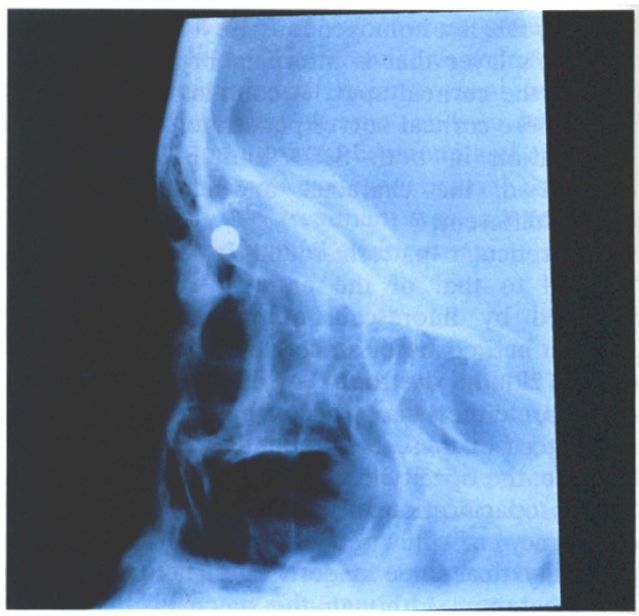


Fig. 1. *Commotio retinae superiorly in the left eye.*



(a)



(b)

Fig. 2. *Anteroposterior (a) and lateral (b) radiographs showing the pellet anteriorly located in the left upper orbit.*