An unusual corneal lesion

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This article reports a strikingly abnormal appearance of the cornea, which does not appear to have been described before.

Case report

A healthy 43-year-old woman attended the eye clinic with a history that 4 days previously, on waking, she noticed for the first time that the vision had become blurred in her right eye, and she could see haloes round lights. The right eye had always had worse vision than the left. There was no history of ocular trauma. As she had been adopted as a child the history of her family and birth was not available.

Examination

The unaided visual acuity was 6/24 in the right eye and 6/6 in the left. The right eye could be corrected as follows:

+2 D sph., +1 D cyl., axis 95° to 6/24; adding +1 D sph. N8 slowly;

and the left eye as follows:

+0 D sph., +0.5 D cyl., axis 180° to 6/4; adding +1 D sph. N1.

The slit-lamp findings are shown in Figs 1 and 2.

FIGS 1 and 2 *Slit-lamp findings*

FIG 2

The right cornea was oedematous, and thicker and smaller than the left, which showed no abnormality. A crescentic membrane with a roughly circular gap in its centre could be seen projecting into the anterior chamber from the endothelium. This was absent supero-temporally, so that the abnormality appeared to have an axis of about 115° . Specular reflection could be seen from the membrane, resembling that from corneal endothelium. The outer edge of the crescent was marked by a line of pigment. A strand of pigmented tissue could be seen connecting the pupil margin inferonasally to the corneal membrane.

The anterior chambers showed neither flare nor cells. Applanation ocular tensions were right 20, left 19 mm. Hg. The angle of the anterior chamber in the right eye could not be seen despite the instillation of glycerol. Gonioscopy of the left eye did not reveal any abnormality. The right fundus could not be seen clearly, the left was normal.

The dimensions of each eye are shown in the Table. Corneal thickness and depth of anterior chamber were measured by the Haag-Streit slit-lamp attachment, corneal curvature by the Zeiss keratometer, axial length and lens thickness by ultrasonography.

Table Ocular measurements

Eye	Right	Left
Corneal diameter	10.5 mm.	11.5 mm.
Corneal thickness	0.82 mm.	0.63 mm.
Anterior chamber depth	2.03 mm.	2.73 mm.
Keratometry	7.95 axis 175°	8.07 axis 7°
	7.27 axis 85°	8.00 axis 97°
Lens thickness	4.4 mm.	4.57 mm.
Axial length of eyeball	22.05 mm.	24.17 mm.

Previous examination

When refraction had been carried out 3 years earlier, the findings were +3 D sph., +2 D cyl., axis $90^\circ=6/12$ partly in the right eye, and +1 D sph.=6/6 in the left.

No slit-lamp examination was made at this time.

Discussion

The right eye appeared to be amblyopic because of anisometropia. The sudden onset of blurred vision may have coincided with waterlogging of the cornea, which was found to be 0.19 mm. thicker than in the left eye. Sudden rupture of a previously intact endothelium could have accounted for this, and it is tempting to postulate that the crescentic membrane had previously been complete, resembling the posterior layer of a cyst at the level of Descemet's membrane. If this were to rupture, it would allow aqueous to pass into the corneal stroma.

As far as we have been able to ascertain, it does not appear that such a cyst has ever been described. Mann (1933) reported six cases of congenital hyaline membranes on the posterior surface of the cornea but none of them resembled the case described above, the main difference being that in Mann's cases the membrane passed from the corneal endothelium towards the angle of the anterior chamber, the centre of the cornea being normal. Two of the cases had anterior synechiae.

A case reported by Ballantyne (1933; also mentioned by Mann) had a small coloboma of the lid, and one of the iris, situated up and out. There were also definite signs of intra-ocular inflammation, namely keratic precipitates and aqueous flare.

Mann (1968), having seen the illustrations of the case we report, commented as follows:

"I think your suggestion of a congenital abnormality of the endothelium which became secondarily detached is the most likely one. But perhaps there need not have been a cyst. Could the little strand of pigmented tissue connecting the membrane to the iris have been tougher at some stage or even much more extensive (accounting for the pigment on the outer edge of the crescent)? This may have helped to tear off the crescentic bit of the hyaline membrane. I am sure this case is related to my cases of hyaline membranes on the back of the cornea and, like them, may be partially 'explained' by invoking overdevelopment and undue persistence of the postendothelial tissue seen at the 12 mm. stage in man. It must, however, in your case have been much more extensive than in mine."

Summary

An unusual corneal abnormality is described in a developmentally abnormal eye.

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References

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