HKJO Quiz

Answer

Left Descemet's membrane breaks caused by forceps delivery.

(Question on page 26)

Discussion

The clinical photograph in **Figure 1** shows a deep stromal scar with two vertical Descemet's membrane breaks. The scar on the left side of the face, which was caused by obstetric forceps and is shown in **Figure 2**, supports the evidence of birth trauma. The differential diagnosis of Descemet's membrane breaks include:[1]

1. Trauma (birth trauma or contusion)
2. Acute hydrops of the cornea (due to keratoconus)
3. Buphthalmos (from congenital glaucoma)
4. Myopia with marked anteroposterior diameter
5. Conical cornea.

Descemet's membrane is the thick basal lamina synthesized and secreted by corneal endothelial cells. In adults, this membrane has 2 layers. The anterior layer is formed by highly organized collagen lamellae and proteoglycans, which are synthesized and secreted during fetal development, and the posterior layer is an amorphous collagenous layer that is synthesized after birth. It gradually becomes thicker with age and measures about 2 μm in young adults and 10 μm in older adults. Adult Descemet's membrane contains type IV collagen, fibronectin, laminin, heparin sulphate, and dermatin sulphate proteoglycan.

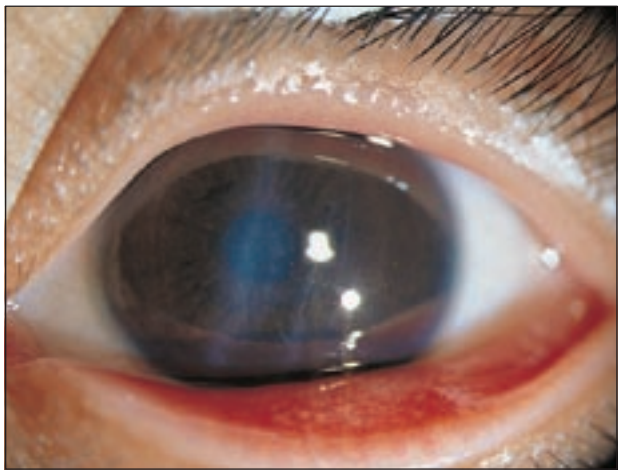

Figure 1. Slit lamp photograph of the cornea of a child with impaired vision in the left eye.

Figure 2. Scar on left side of the face of the same child.

Corneal trauma during delivery is usually caused by application of obstetric forceps. It can also be caused by compression of the globe against the roof of the orbit during delivery — the resultant force causes a horizontal expansion of the cornea, which results in vertically oriented tears in Descemet's membrane. Although this injury is present at birth, it is difficult to identify because of the accompanying lid edema.[2] The initial corneal edema mostly resolves in the first few weeks and leaves single or multiple breaks in Descemet's membrane. The breaks appear as linear or crescent lines or opacities, which are oriented in the vertical meridian. The edges of the breaks are rolled at the margins and may form free strands of Descemet's membrane in the aqueous, attached only at the ends.[3]

This case illustrates the complications of Descemet's membrane breaks caused by birth trauma: marked with-the-rule astigmatism, significant axial myopia, and amblyopia. The cornea may become decompensated when there is severe damage to the endothelium.

If detected early, good visual acuity can be achieved with optical correction. Vigorous treatment is required for those patients with amblyopia.[4] In severe cases, penetrating keratoplasty may be considered.

References

1. *Cibis GW, Tripathi RC. The differential diagnosis of Descemet's tears (Haab's Striae) and posterior polymorphous dystrophy bands. Ophthalmology 1982;89:614-620.*
2. *Sugar HS, Airal MA. Birth injuries of the cornea. J Pediatr Ophthalmol 1971;8(1):26-28.*
3. *Duke-Elder S, MacFaul PA. Birth injuries. In Duke Elder S (ed). System of ophthalmology. Vol XIV: Part 2. St. Louis: Mosby yearbook Co., 1972.*
4. *Angell LK, Robb RM, Berson FG. Visual prognosis in patients with ruptures in Descemet's membrane due to forceps injuries. Arch Ophthalmol 1981;99:2137-2139.*