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OCULAR DISEASE

CORNEAL OEDEMA



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CORNEAL OEDEMA

- The water content of normal cornea is 78 percent.
- It is kept constant by a balance of factors which draw water in the cornea
- IOP and swelling pressure of the stromal matrix = 60 mm of Hg
- the factors which draw water out of cornea (viz. the active pumping action of corneal endothelium, and the mechanical barrier action of epithelium and endothelium).



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- Disturbance of any of the above factors leads to corneal oedema, wherein its hydration becomes above 78 percent, central thickness increases and transparency reduces.



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Causes of corneal oedema

- 1. Raised intraocular pressure
- 2. Endothelial damage
 - i. Due to injuries, such as birth trauma (forceps delivery), surgical trauma during intraocular operation, contusion injuries and penetrating injuries.
 - ii. Endothelial damage associated with corneal dystrophies such as, Fuchs dystrophy, congenital hereditary endothelial dystrophy and posterior polymorphous dystrophy.



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- iii. Endothelial damage secondary to inflammations such as uveitis, endophthalmitis and corneal graft infection.
3. Epithelial damage due to :
- i. mechanical injuries
 - ii. chemical burns
 - iii. radiational injuries



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Clinical features

- Initially there occurs stromal haze with reduced vision.
- In long-standing cases with chronic endothelial failure (e.g., in Fuch's dystrophy) there occurs permanent oedema with epithelial vesicles and bullae formation (*bullous keratopathy*).
- *This is associated* with marked loss of vision, pain, discomfort and photophobia, due to periodic rupture of bullae.



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Treatment

1. ***Treat the cause wherever possible, e.g., raised IOP and ocular inflammations.***
2. ***Dehydration of cornea may be tried by use of:***
 - i. **Hypertonic agents** e.g., 5 % sodium chloride drops or ointments or anhydrous glycerine may provide sufficient dehydrating effect.
 - ii. **Hot forced air** from hair dryer may be useful.



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3. ***Therapeutic soft contact lenses may be used to get relief from discomfort of bullous keratopathy.***
4. ***Penetrating keratoplasty is required for longstanding cases of corneal oedema, non-responsive to conservative therapy.***