Bullous Keratopathy

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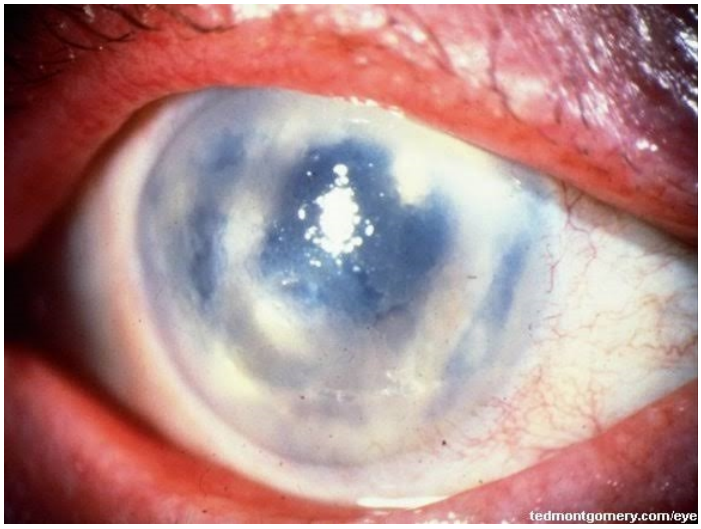

Bullous keratopathy is a pathological condition that occurs in the cornea.

Bullous keratopathy is an eye disorder that involves a blister-like swelling of the cornea.

Bullous keratopathy is the presence of corneal epithelial bullae resulting from corneal endothelial disease. Bullous keratopathy is caused by edema of the cornea, resulting from failure of the corneal endothelium to maintain the normally dehydrated state of the cornea.

The endothelium is a single layer of cells on the inner surface of the cornea that faces the anterior chamber. In a healthy cornea, endothelial cells keep the tissue from absorbing excess fluid, pumping the fluid back into the aqueous humor.

In bullous keratopathy, the endothelium cells suffer mortality or damage by some reason, such as Fuchs' dystrophy or trauma occurring during cataract or glaucoma surgery. The damaged endothelium is not able to pump fluid properly. The cornea becomes permanently swollen and bullae (blister-like formations) occur.

Causes:

The main causes of bullous keratopathy have changed over the last two decades. Twenty years ago, the most common reason for bullous keratopathy was complications from cataract surgery, with or without problems from lens implants. Older lens implant designs very occasionally damaged the cornea. Over the past 20 years, cataract surgery techniques and lens implant designs have improved dramatically; corneal problems are much less of an issue after cataract surgery. One of the most common reasons now for developing bullous keratopathy is from problems related to glaucoma surgery.

Signs:

- Increased corneal thickness (normal cornea 532 +/- 18.8 um thick centrally)
- Stromal edema
- Sub-epithelial bullae or erosions
- Decreased visual acuity

Symptoms:

Bullous keratopathy can result in eye discomfort, pain when looking at bright lights, and significant blurring of vision. The bullae can rupture and further impair vision. The rupturing of bullae can cause severe pain,tearing,occasional infectious keratitis, often with the sensation of a foreign object trapped in the eye.

Differential Diagnoses

- Fuch's endothelial dystrophy
- Posterior polymorphous dystrophy
- Chandler's syndrome (unilateral ICE syndrome, hammered silver appearance of corneal endothelium)
- Congenital hereditary endothelial dystrophy

Treatments:

- **Observation** (some mild cases may present in the post-operative period and resolve in a few months)
- **Salty eye drops** (5% sodium chloride) and salty ointments are used to draw the excess fluid from the cornea
- **Bandage contact lenses** to reduce discomfort
- **Glaucoma medications** to reduce the pressure and flow of fluid into the cornea
- **Surgical procedures** to replace the damaged tissue. The most common types of surgical treatment are Descemet's stripping endothelial keratoplasty (DSEK) and Descemet's membrane endothelial keratoplasty (DMEK).
- **Gundersen conjunctival flap** or amniotic membrane graft.

References:

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