Brown-McLean Syndrome secondary to Intracapsular Cataract Extraction

Abstract
Brown McLean syndrome is a rare condition of delayed peripheral epithelial and stromal edema, and occasionally follows intracapsular cataract extraction (ICCE). It is important to recognize this potential complication of cataract extraction in order to manage and treat appropriately.

Case Presentation

Patient demographics: 81-year-old white male
Chief complaint: presents for doctor directed annual ocular health assessment
Pertinent ocular history:
• s/p penetrating keratoplasty (PK) OU secondary to chronic corneal edema: diagnosis of Brown-McLean Syndrome
• POAG OD s/p valve shunt OD
• Mild dry AMD OU
• ICCE OU – 35 years ago
• Former RGP wearer – discontinued due to discomfort

Medical History:
• Hyperlipidemia
• Hypothyroid
• Insomnia

Medications:
• Brimonidine tartrate 0.15% oph solution – BID OD
• Cosopt oph solution TID OD
• Latanoprost oph solution QHS OD
• Pred sodium phosphate QHS OS, BID OD
• Finasteride 5 mg
• Simvastatin 40 mg
• Tamsulosin 0.4mg
• Armour Thyroid 180 mg

Pertinent Findings
Exam: 08/2014
Habitual Rx:
  - OD: +8.75-0.50x115
  - OS: +13.25-3.25x130
  - ADD: +3.00
BCVA OD 20/150 OS 20/50
Pupils: Minimally reactive and slightly distorted OU, (-)APD
EOMs: Full
Anterior segment findings:
Cornea:
- OD: central button & mid-peripheral sutures 360, some inferior haze, diffuse mild SPK
- OS: central button & mid-peripheral sutures 360, some central haze, moderate diffuse SPK
Posterior segment findings:
- Lens: aphakia OU
- ONH: OD 0.3 V x 0.25 H tilted disc, PPA
  - OS 0.45 V x 0.45 H  PPA
- Macula: OD trace drusen, OS clear
- Periphery: No holes or tears OU

Differential Diagnosis
Corneal transparency is secondary to corneal dehydration which is maintained through regulation by the epithelial and endothelial cell barriers. Disturbances to this physiologic process can result in accumulation of fluid, and eventual edema and haze. Corneal edema can result from endothelial dystrophies such as Fuch’s endothelial dystrophy, congenital hereditary endothelial dystrophy, posterior polymorphous dystrophy and iridocorneal endothelial syndrome. Other causes include acute or chronic hypoxic, traumatic, chemical or inflammatory insults, corneal endotheliitis seen in viral infections, Salzmann’s nodular degeneration and Furrow degeneration associated with systemic diseases such as rheumatoid arthritis or systemic lupus erythematos.

Diagnosis and Discussion
Brown McLean syndrome is a rare, bilateral edema of the peripheral cornea. Patients are usually asymptomatic or report mild foreign body sensation. The edema usually begins inferiorly and progresses circumferentially, sparing the central cornea. Additionally, it is also associated with orange-brown pigmentation on the endothelium underlying the edematous areas. It most often occurs after intracapsular cataract extraction but may also occur with extracellular cataract extraction, pars plana lensectomy and vitrectomy. Some studies suggest the potential for an atypical presentation of the condition following corneal graft. In aphakic patients, it is suggested that iridodonesis causes intermittent abrasion of the corneal endothelium resulting in edema. Some studies suggest superior iridectomy prevents chafing and therefore may prevent corneal edema.
Histologically, disintegrated endothelial cells with an abnormal posterior collagenous layer of Descemet’s membrane are seen. Distinct junctions between the normal central endothelium and the diseased peripheral endothelium are typically observed.

**Treatment and management**
Patient with Brown McLean syndrome are usually asymptomatic or report mild to severe symptoms, with foreign body sensation being the most common. Symptomatic patients can be treated with hypertonics, such as sodium chloride ointment and lubricants such as hydroxyethyl or carboxymethyl cellulose. Severe symptoms may include pain and photophobia due to ruptured bullae which may eventually need PK. As most patients with Brown McLean syndrome are usually aphakic, contact lenses are often utilized despite the edema.

**Conclusion**
Due to small number of patients with ICCE, Brown McLean syndrome is a relatively rare condition and often improperly diagnosed. Additionally, it is mostly asymptomatic in nature. It is characterized by bilateral peripheral corneal edema without vascularization and faint orange-brown pigment deposition on the endothelium. It usually starts inferiorly and spreads circumferentially. In most cases, it results in mild ocular deficits and patients remain asymptomatic. In some cases, however, the condition can cause more serious pathology and may require a PK. It is important for eye care providers to include Brown McLean syndrome on the differential list when caring for patients with peripheral corneal edema particularly if the patient is aphakic.

**References**