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MICROCYSTIC EPITHELIOPATHY: LATE PRESENTATION POST CATARACT SURGERY

Ophthalmology

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ABSTRACT

Microcystic Epitheliopathy is characterized by multiple microcysts in the corneal epithelium resulting in symptoms of reduced vision and glare. The etiology is vast and includes systemic as well as local causes. We present a patient of Parkinson's disease who presented with unilateral microcystic epitheliopathy after an uneventful cataract surgery.

KEYWORDS

Microcystic epitheliopathy, viral, epithelium, cataract

INTRODUCTION:

Microcystic Epitheliopathy is a condition in which the corneal epithelium develops microcysts in response to acute or chronic stimuli. Epithelial microcysts are small (15-50-µm) inclusions resulting in irregularity of corneal epithelium along with significant diminution in vision and glare. [1, 2] It can be associated with ocular disorders of diverse etiology including contact lens related hypoxia, toxic insult, inflammatory processes, corneal dystrophy as well as paraproteinemia. A thorough history and clinical examination often aids in making a successful diagnosis. However, an unusual presentation may pose a diagnostic as well as therapeutic challenge. We report a patient with unilateral microcystic corneal epitheliopathy and a marked reduction in visual acuity eight months after uneventful cataract surgery.

Case report:

A 60-year-old male presented with gradual, progressive and painless diminution of vision in right eye (RE) for two months. He was diagnosed with Parkinson's disease for one year and was on oral levodopa-carbidopa combination. He had an uneventful cataract surgery with PCIOL implantation in RE eight months back and a recorded BCVA of 20/20 for distance at three months post operative visit. He was not on any topical treatment. On clinical examination, his unaided vision in RE was 20/200 not improving with pinhole. On slit lamp bio-microcopy, cornea showed a localized, circumscribed horizontally oval area of Microcystic Epitheliopathy measuring 9.5mm horizontally and 6mm vertically with mild localized stromal edema and striate keratopathy. Superior and inferior cornea was clear with no evidence of infiltrates [Figure 1a]. Corneal sensations were drastically reduced in RE in all four quadrants. LE had clear cornea and immature senile cataract [Figure 1b].

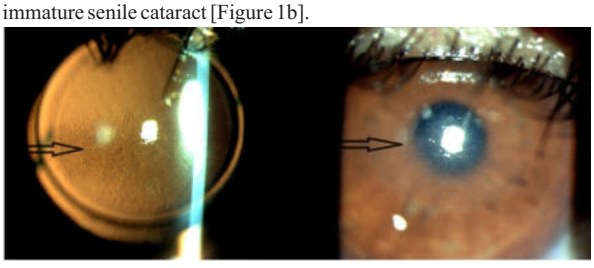

Figure 1(a): RE cornea shows a localized circumscribed horizontally oval area of microcystic epitheliopathy measuring 9.5mm horizontally and 6mm vertically [Black Arrow].

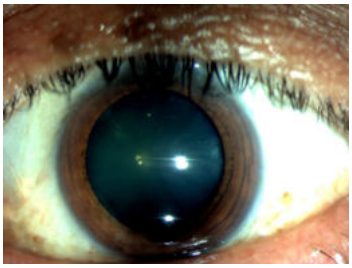

Figure 1(b): LE shows a clear cornea and immature senile cataract.

Rest of the anterior and posterior segment examination was normal in both eyes. His intraocular pressure (IOP) was 14mm Hg and 16mm Hg in the RE and LE respectively. Specular microscopy did not reveal any information for RE and normal study in LE . His pre-operative Specular microscopy showed a cell density of 2541/mm^2 and 2489/mm^2 in RE and LE respectively with mild Pleomorphism and polymegethism. There was no evidence of guttae or cell drop out areas.

Determining the differential diagnosis of corneal epithelial keratopathy beyond a standard ophthalmic evaluation should involve obtaining a detailed medication and systemic history. The following differential diagnosis was considered:

Toxic keratopathy: Iatrogenic toxicity occurs in patients as a result of both short-term and, more often, long-term use of topical medications.[3] Benzalkonium chloride preservative used in a number of topical medications has been linked to epitheliopathy. [3] But our patient was not on any topical medications for one month. Some systemic drugs associated with microcystic epitheliopathy induce corneal epithelial changes characterized by deposits that might present as a vortex keratopathy (cornea verticillata), diffuse corneal haze, punctate keratopathy, or crystalline precipitates. [4] However, systemic administration of levodopa-carbidopa is not known to be associated with epitheliopathy. Viral keratitis: Although not common, epithelial cysts have been observed with viral keratitis, such as herpes zoster keratitis, herpes simplex, and epidemic hemorrhagic conjunctivitis. The clinical challenge was whether the cysts are solely associated to epithelial oedema or to direct viral insult of the epithelial cells. [5] Paraproteinemic keratopathy: Crystalline deposits associated with paraproteinemia can be seen in 1% of cases with monoclonal gammopathies [6] and in other systemic disorders like lymphomas, leukemias, and some autoimmune conditions. [7] It is a bilateral condition with gray-white, yellow or brown polychromatic, iridescent dot like crystals in any layer of cornea. Unilateral presentation in our case made this a less likely diagnosis. Hypoxia: The most common cause for microcystic epitheliopathy is contact lens-induced hypoxia. But there was no history of contact lens wear. [2] Corneal dystrophies: Meessmann's corneal dystrophy presents within first few months of life with intraepithelial microcysts and Epithelial Basement Membrane dystrophy occurs in adults and appears with cysts (dots or Cogan's microcysts) beneath the basement membrane or within the epithelial layer alone. However unilateral involvement and sudden onset of symptoms made this an unlikely diagnosis. [5]

Patient was started on topical steroids and lubricants considering an inflammatory etiology. After 7 days there was no improvement in symptoms or signs. He was advised to undergo polymerase chain reaction assay to rule out viral etiology, which he refused. After obtaining neurological clearance, we started him on oral Acyclovir 400 mg 5 times a day with slow tapering of steroids. Three days after initiating treatment, his stromal edema and striate keratopathy resolved. At the tenth day of follow-up, microcysts had resolved, only a faint haze was noted on the cornea, which cleared within a week[Figure 2]. His visual acuity had returned to 20/20 and IOP is 12mm Hg in RE.

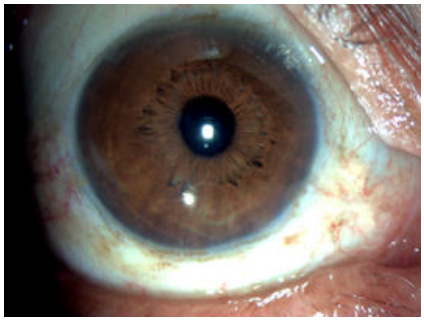

Figure 2: RE Cornea clear with no stromal edema, striate keratopathy or microcystic epitheliopathy.

DISCUSSION:

Epithelial Microcysts and edema are associated with more deterioration of vision than stromal edema. [8] In cases of Microcystic Epitheliopathy, establishing an etiology is essential to allow successful management of the patient. The classical clinical presentation of viral keratitis includes dendritic or geographic ulcers, with mild conjunctival injection, ciliary flush and mild stromal edema. It is imperative to point out that viral keratitis can present with an atypical presentation, as was seen in our case. [9] Rarely, the sole presentation of viral keratitis may be Microcystic Epitheliopathy. [5] A high clinical suspicion is advised in unilateral cases with reduced corneal sensations.

As many as 50% to 60% of patients have latent HSV-1 (type 1) infection and harbor the dormant virus in their sensory ganglia. Cataract surgery can reactivate the virus and cause secondary infections. [10, 11] Majority of such cases present within 1-5 weeks of cataract surgery. [10, 12] Underlying systemic illness or reduced immunocompetence can also lead to reactivation of the virus. [13] However, no association between Parkinson disease and herpetic keratitis has been reported.

CONCLUSION:

Viral Keratitis can have an atypical presentation and it should be considered as a differential in cases of non-resolving unilateral Microcystic Epitheliopathy.

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