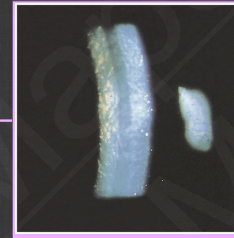


# Fuchs Endothelial Dystrophy

## Case Description

70-year-old woman with bilateral blurred vision that is worse upon awakening in the morning

## Image Description



"beaten metal" appearance of the corneal endothelium with mild stromal edema

## Differential Diagnosis

### Fuchs ED

- non-hereditary most common
- AD
- predictors of corneal decompensation following intraocular surgery
  - Endothelial cell density <1000
  - coefficient of variation >0.4
  - Hexagonality <50%
  - CCT >640
  - morning increase in corneal thickness
  - presence of epithelial edema

### ICE syndrome

- unilateral
- beaten-metal appearance
- iris thinning
- corectopia
- polycoria
- high IOP

### pseudophakic bullous keratopathy

- AD
- grouped vesicles, broad bands
- corectopia
- iridocorneal adhesions
- high IOP

### pigment dispersion syndrome

- pigment mimics guttae

### CHED

- bilateral corneal edema at birth

worse in the morning

## History

- onset & course of symptoms
  - decreased vision
  - variation during the day
  - pain
  - bullous keratopathy
- previous cataract surgery
- family history of similar condition or corneal graft

## Data acquisition

### Physical Exam

- BCVA
- IOP
- microcystic epithelial edema
- stromal corneal edema
- endothelial changes
  - corneal guttae
  - best seen with retroillumination
  - grouped vesicles, broad bands on retroillumination
  - PPMD
- fluorescein staining
  - intact/ruptured bullae
- Krukenberg spindle
  - pigment dispersion syndrome
- examine other eye
  - unilateral vs bilateral

## Additional Testing

- pachymetry (corneal thickness)
- specular microscopy
  - normal endothelial cell count
    - After birth=4000
    - Young adult= 3000
    - 60 years=2500

## Assessment

### Fuchs ED

## Treatment

### Medical

- warm air from a hair dryer at arm's length every morning
- sodium-chloride 5%
- if high IOP glaucoma drops

### Surgical

- DSAEK
  - endothelial transplant
- DMEK
  - removal of a relatively small area of abnormal Descemet
  - results in mitosis of normal endothelial cells from the periphery causing resolution of corneal edema
  - ± topical and/or intracameral Rho kinase (ROCK) inhibitor
- descemetorhexis
  - removal of a relatively small area of abnormal Descemet
  - results in mitosis of normal endothelial cells from the periphery causing resolution of corneal edema
  - ± topical and/or intracameral Rho kinase (ROCK) inhibitor
- PK
  - if anterior corneal scarring
- triple procedure
  - if stromal edema
  - evaluate corneal health before cataract surgery

## Patient Education

### General

- AD inheritance in some cases

### Course

- slowly progressive

### Complications

- worsening corneal edema after cataract surgery

### Follow-up

- corneal edema
- every 3-12 months

Descemet Membrane Endothelial Keratoplasty (DMEK) is very similar to DSAEK, except that the donor tissue implanted does not include any stromal tissue

100-200 micron thickness

10-15 micron thickness

high pachymetry readings or low endothelial cell count are not indications for triple procedure