



UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE  
„NICOLAE TESTEMIȚANU” DIN REPUBLICA MOLDOVA

Ophthalmology Department

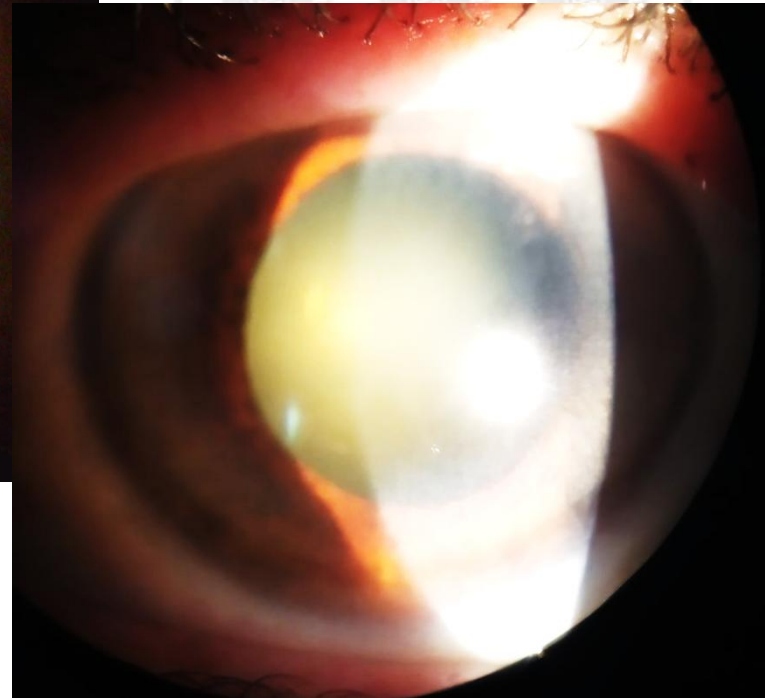
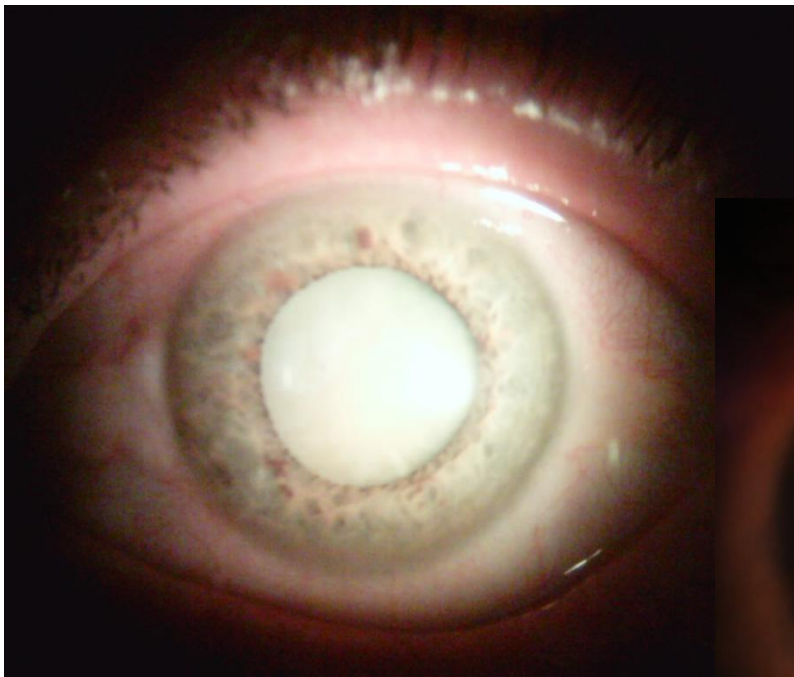
# CATARACT

*Professor  
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# Cataract

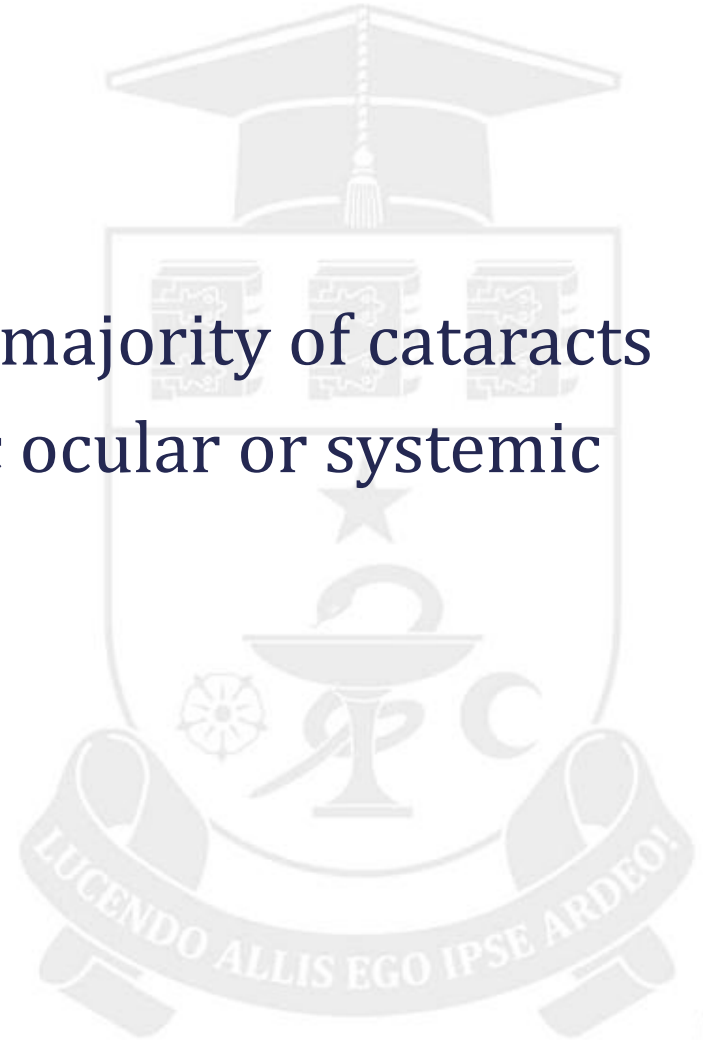
- Opacification of the lens of the eye





# Cataract

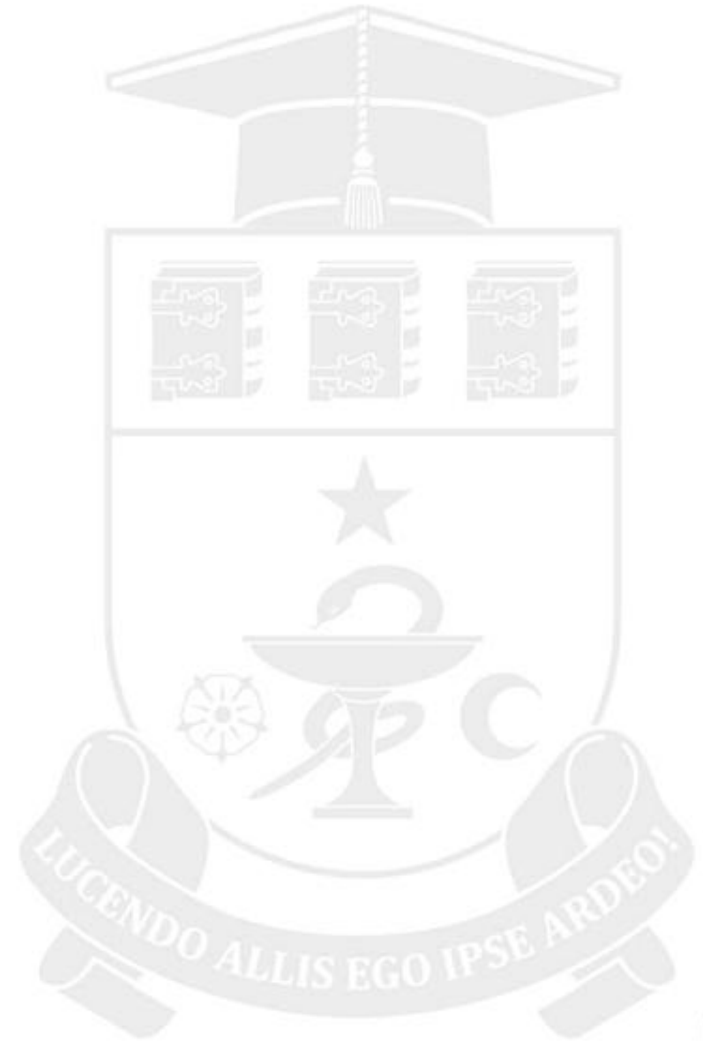
- Congenital
- Inherited
  - age-related - the large majority of cataracts
  - associated with specific ocular or systemic disease





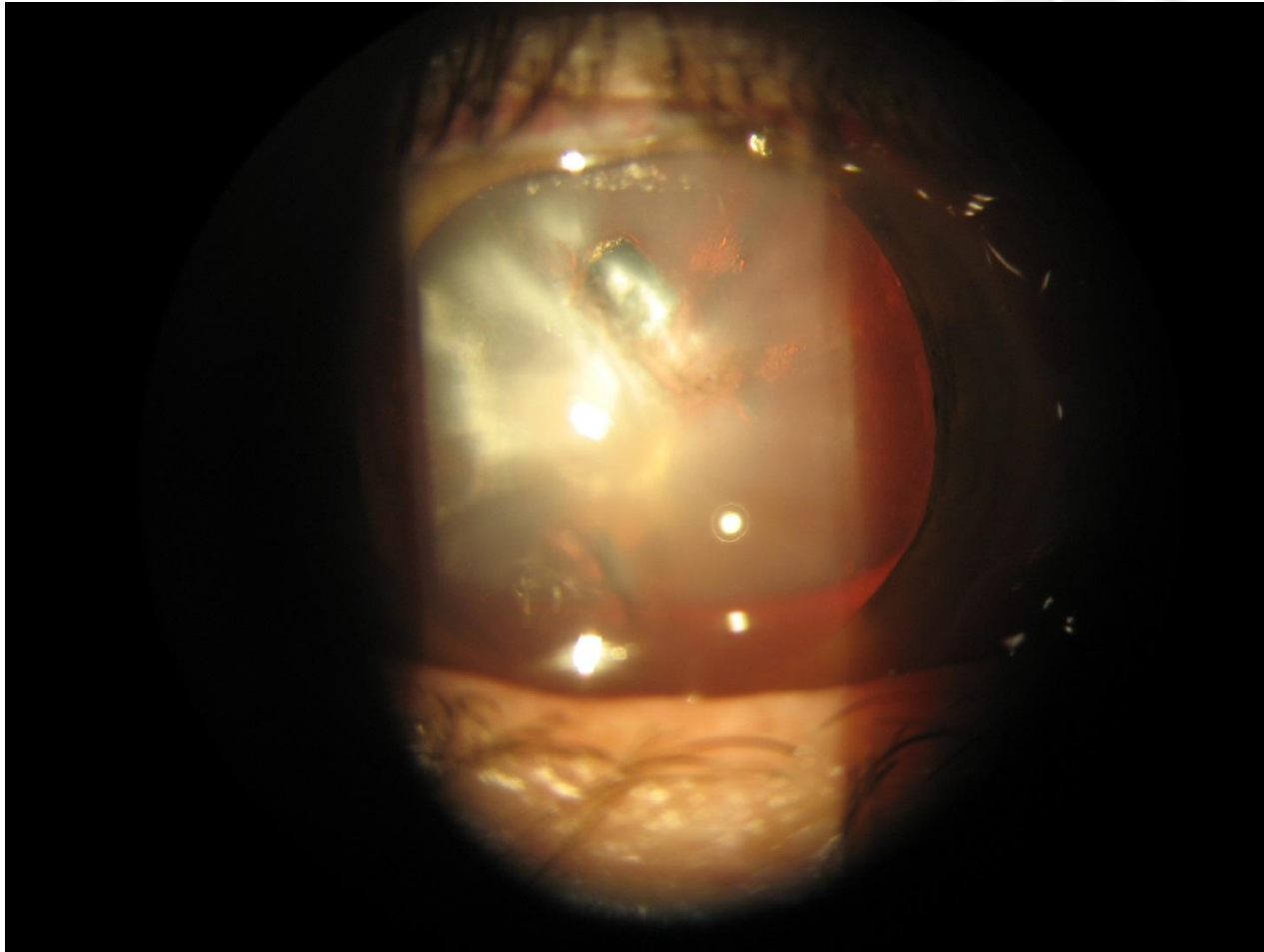
# Ocular conditions

- trauma
- uveitis
- high myopia
- topical medication
- intraocular tumour





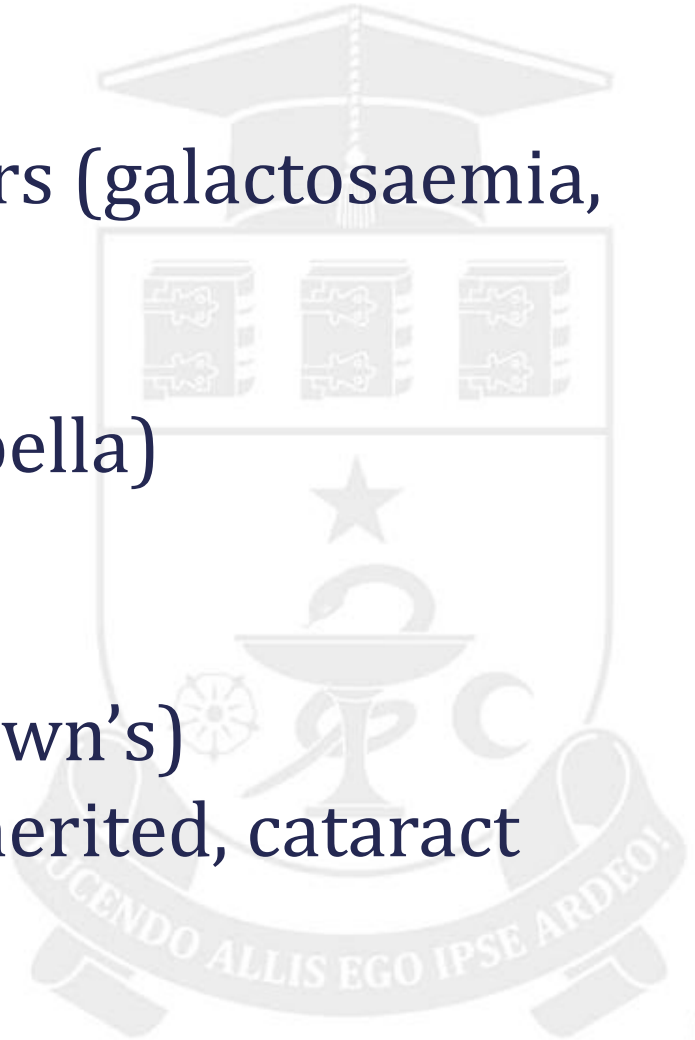
# Traumatic cataract with foreign body into the lens





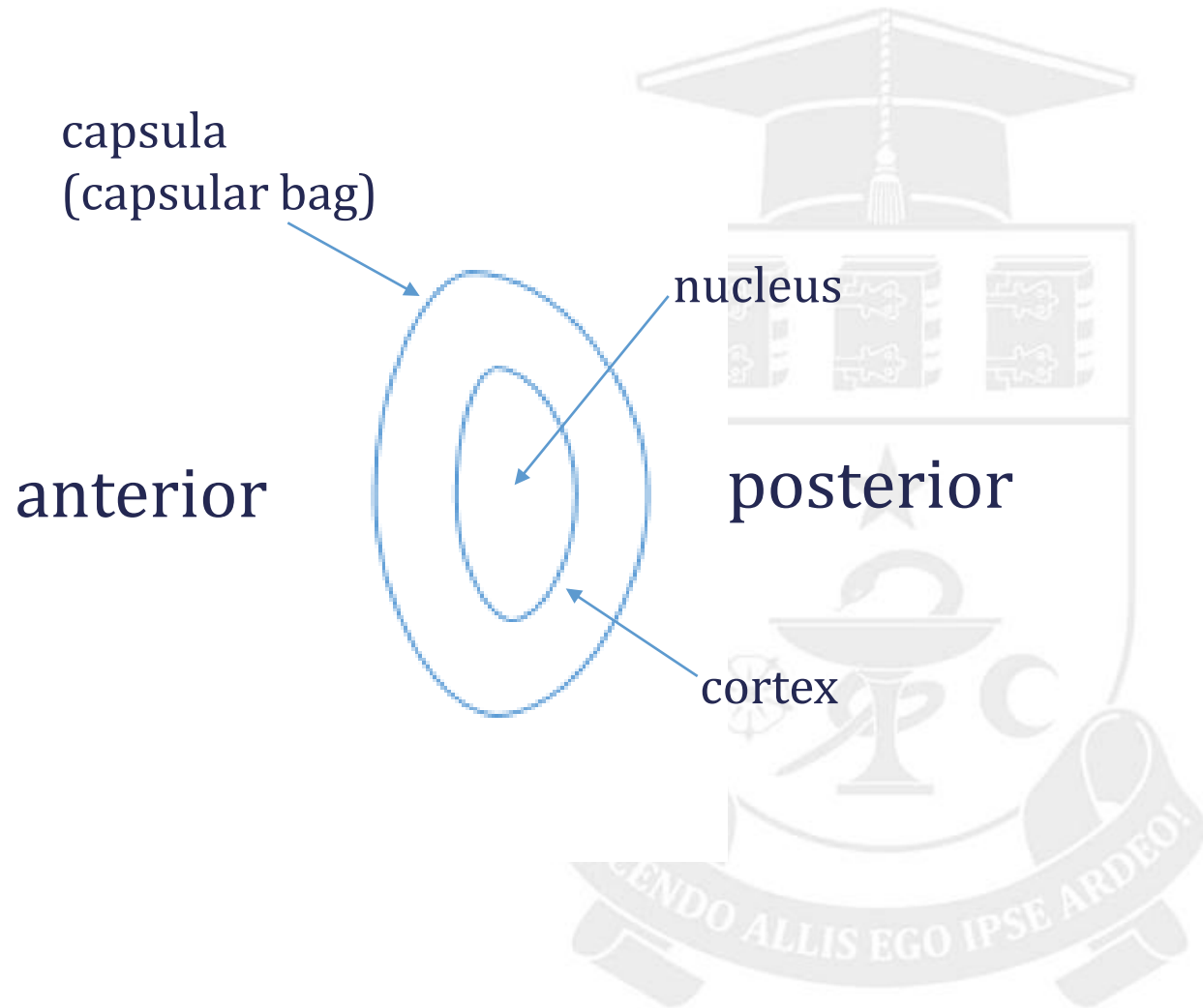
# Systemic causes

- Diabetes
- Other metabolic disorders (galactosaemia, hypocalcaemia)
- Systemic drugs
- Infection (congenital rubella)
- Myotonic dystrophy
- Atopic dermatitis
- Systemic syndromes (Down's)
- Congenital, including inherited, cataract
- X-radiation





# Transparent lens





# Types of cataract

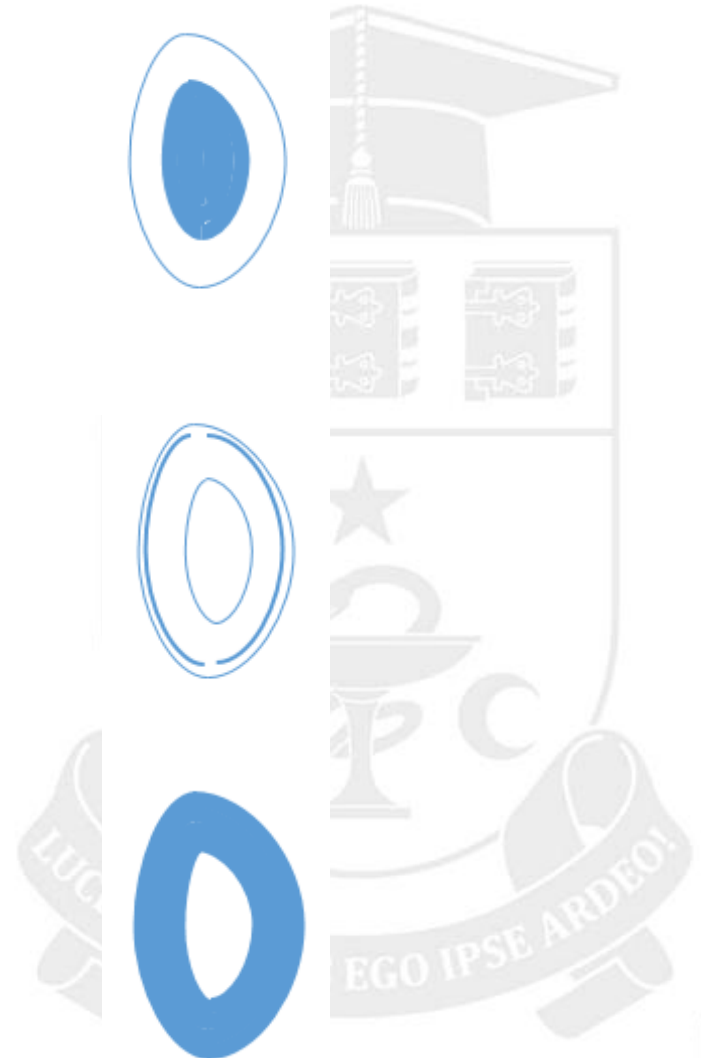
- Nuclear



- Subcapsular



- Cortical

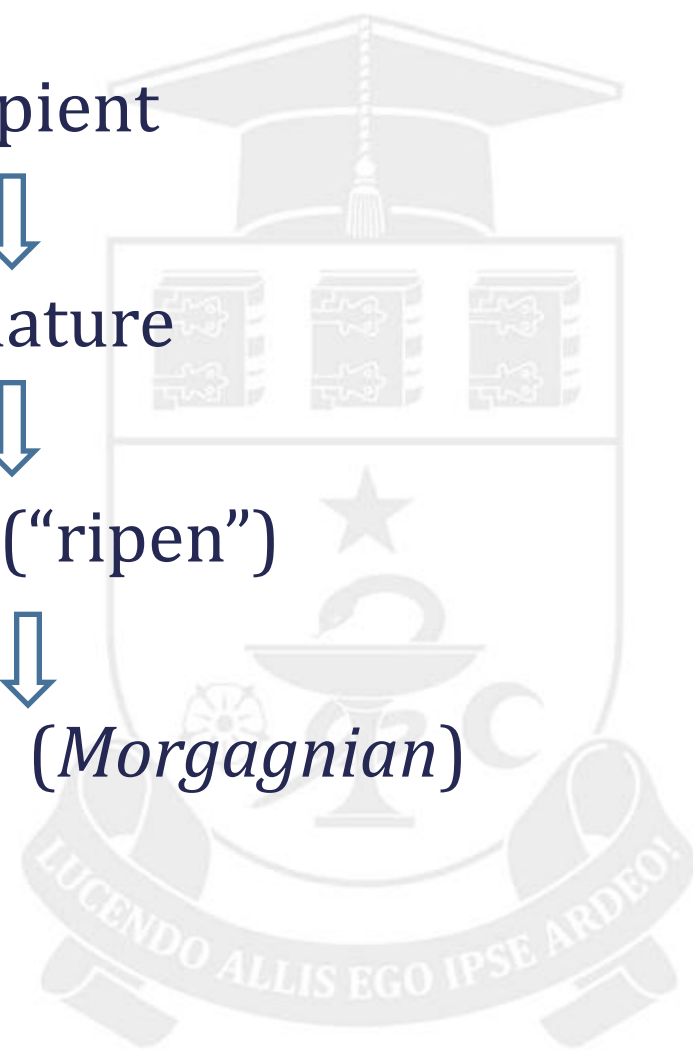






# Evolution forms of age-related cataract

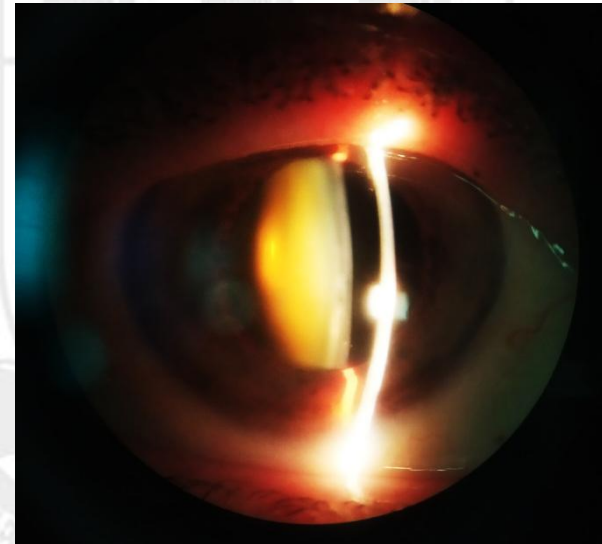
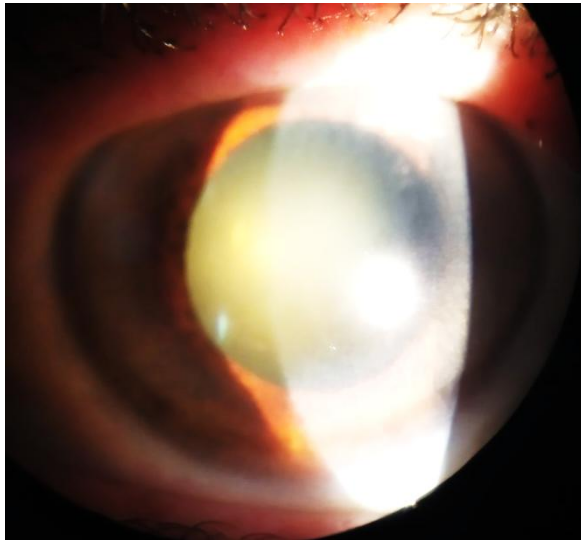
- Incipient
- ↓
- Immature
- ↓
- Mature (“ripen”)
- ↓
- Hypermature (*Morgagnian*)





# Immature cataract

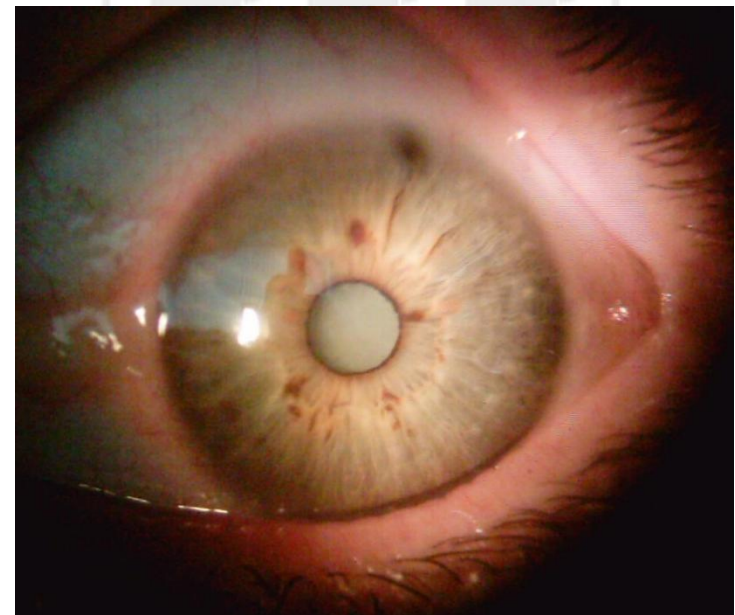
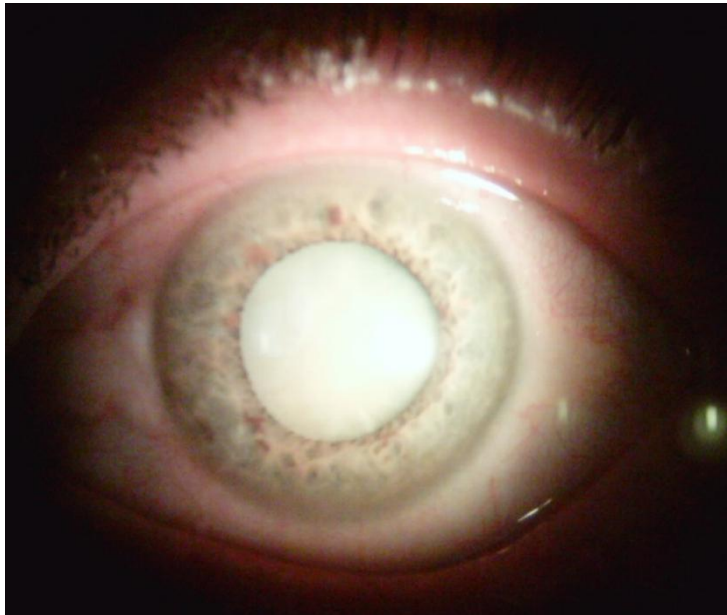
- partially lens opacity
- reduced VA (visual acuity)





# Mature cataract

- total lens opacity
- only light perception VA





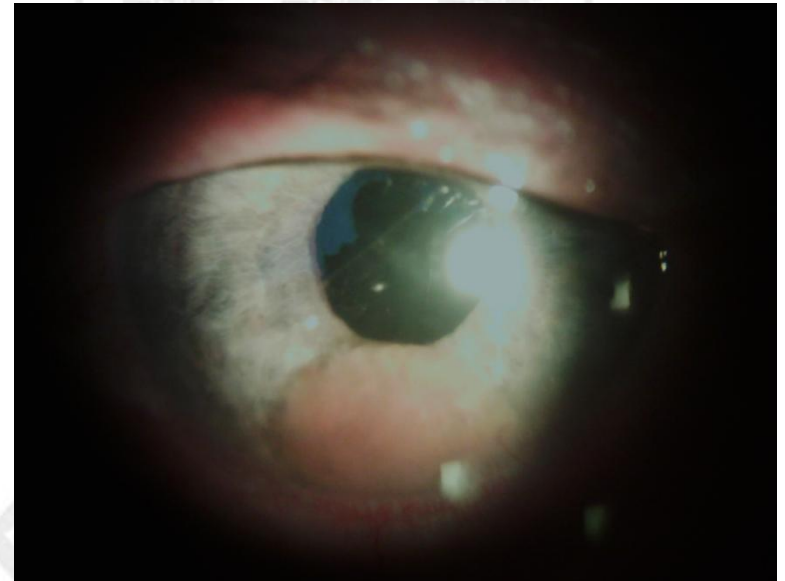
# Intumescent cataract

- intumescent cataract – some special form/condition of the cataract evolution, when the lens is intensively hydrated by absorption of liquid (water) from aqueous humor and important increase in its size;
- result of this lens „grow” is deformation of the anterior chamber angle with narrowing of it, respectively with aqueous humor outflow retention and increase of intraocular pressure (IOP);
- can provoke secondary phacomorphic glaucoma;
- patients need not delaying cataract surgery.



# Hypermature (Morgagnian) cataract

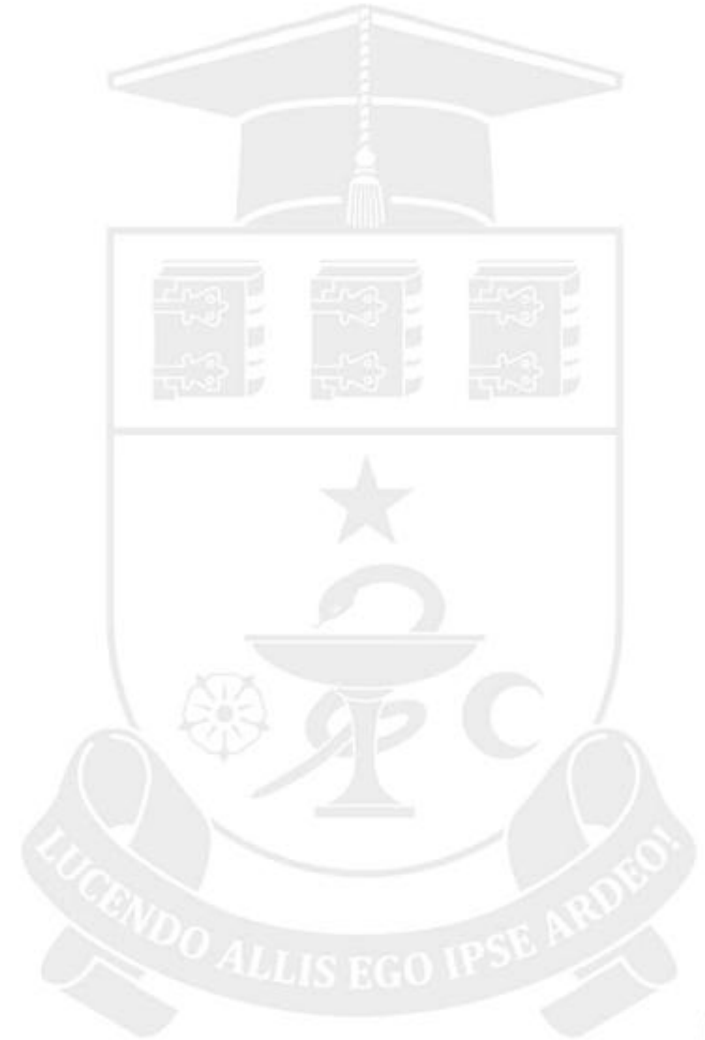
- total lens opacity with cortex liquefaction and drop of the lens nucleus in the down of the capsular bag
- only light perception VA
- can provoke secondary phacolytic glaucoma
- Morgagnian cataract with lens nucleus drop into the anterior chamber





# Congenital cataract

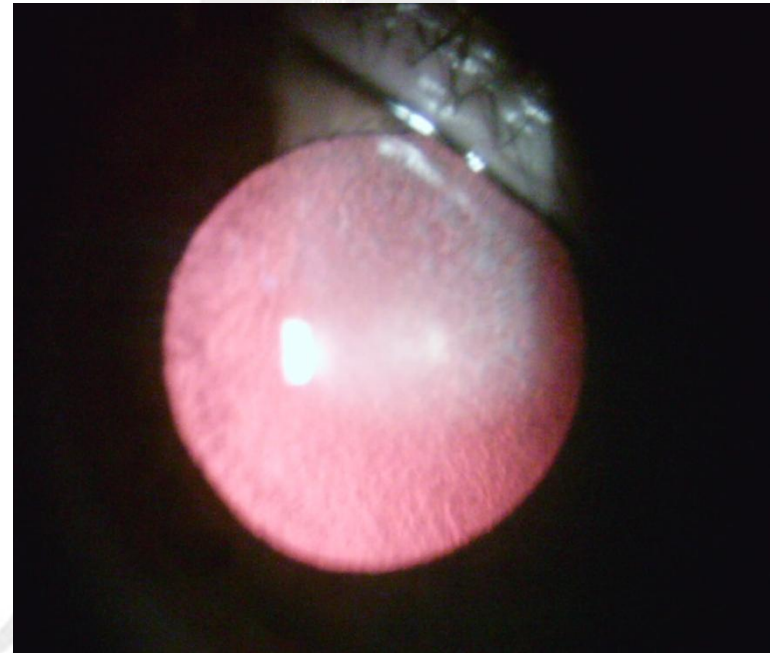
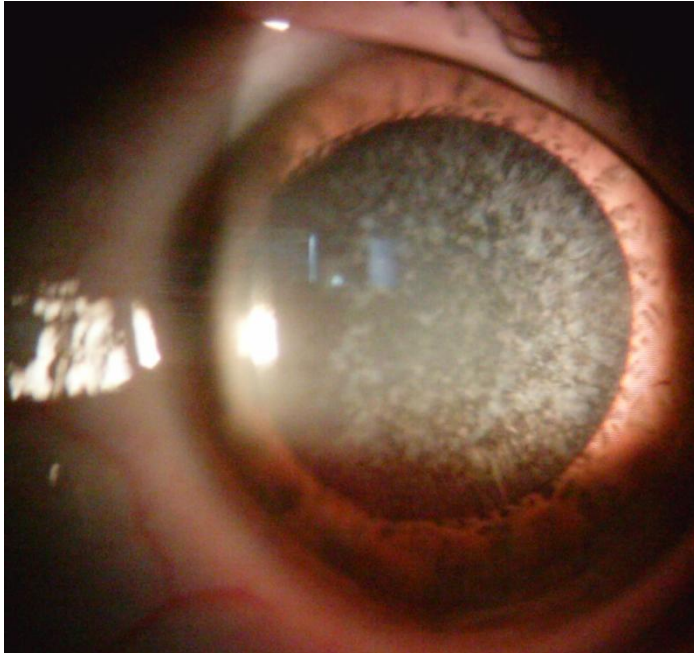
- Polar
- Sutural
- Coronary
- Cerulean
- Nuclear
- Capsular
- Lamellar
- Complete
- Membranous







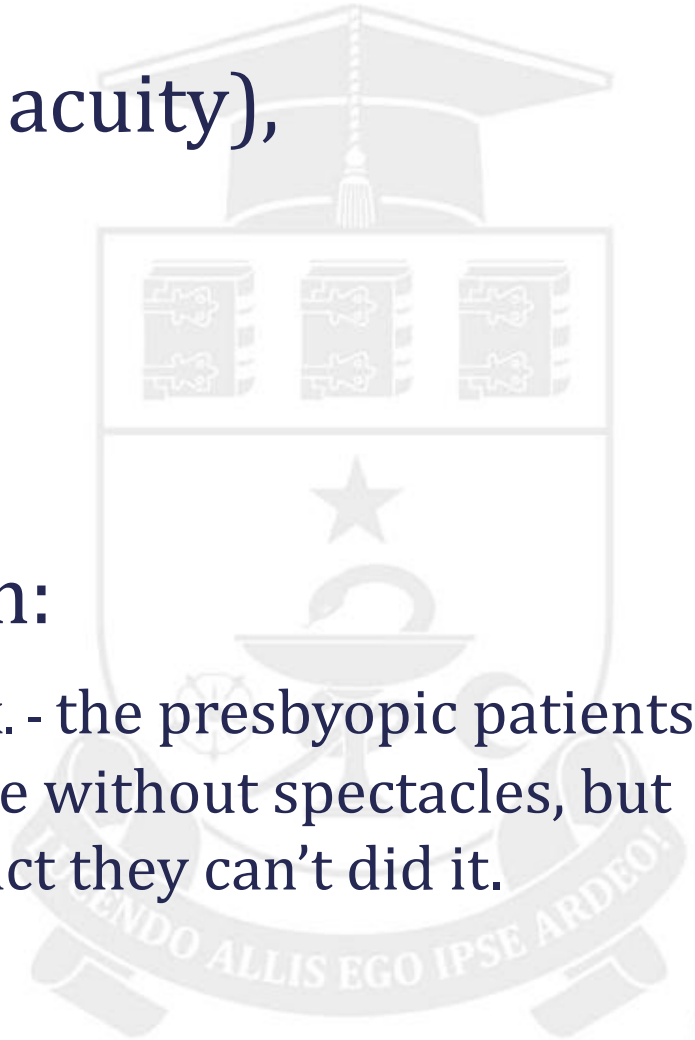
# Congenital (Cerulean) cataract





# Symptoms

- loss of vision (of visual acuity),
- glare
- no pain
- no red eye
- change of eye refraction:
  - usually more myopic: ex. - the presbyopic patients start to read at near distance without spectacles, but before to develop the cataract they can't did it.

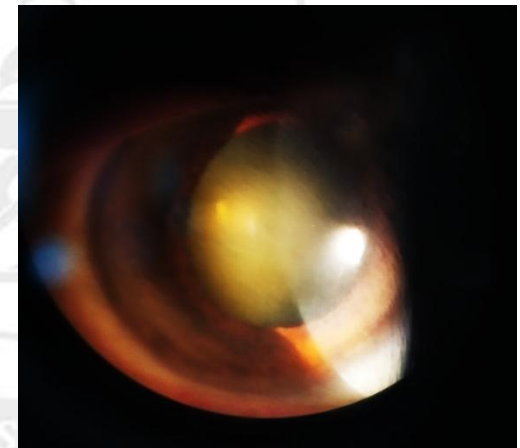
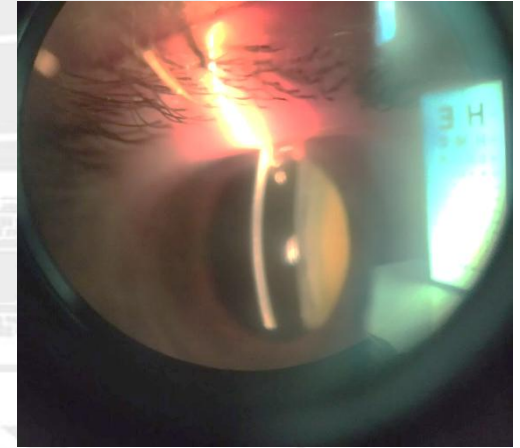






# Special sign in immature nuclear cataract

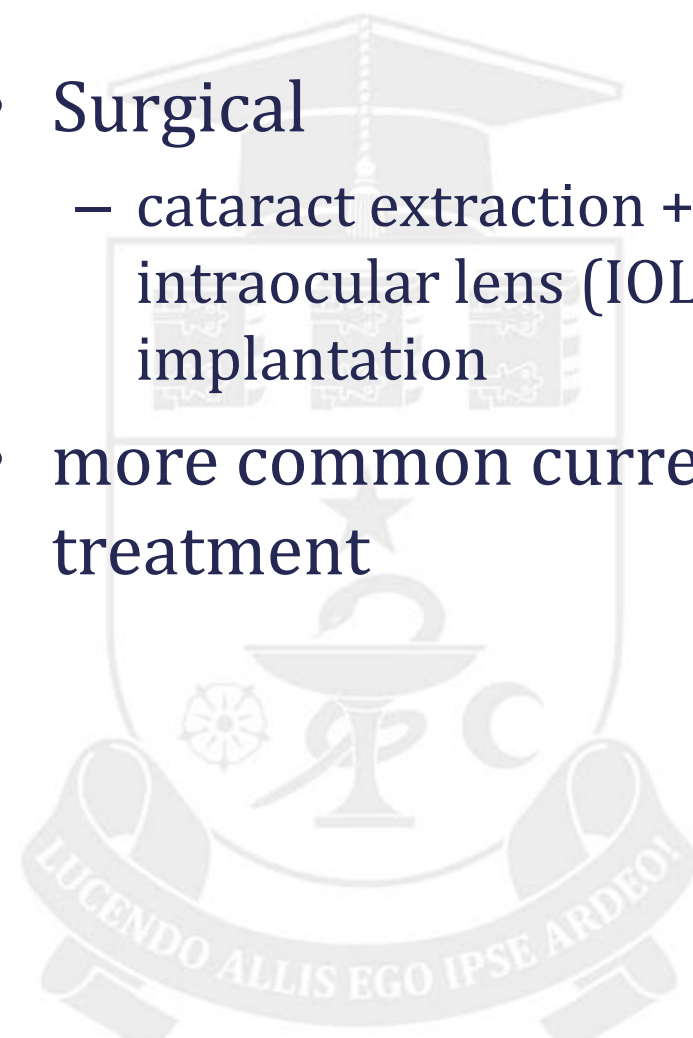
- “day blindness” – which mean worse vision in bright light and improvement of the vision in dim light;
  - this is explained by reduce pass of the light to the retina in result of reactive constriction of the pupil to the high level of the light and central opacity of the lens, which occlude the small pupil;
  - in contrary condition with low level of the light the pupil is relatively dilated and the light pass to the retina through transparent part of the lens – cortex – between opaque lens nucleus and pupillary margin.





# Treatment

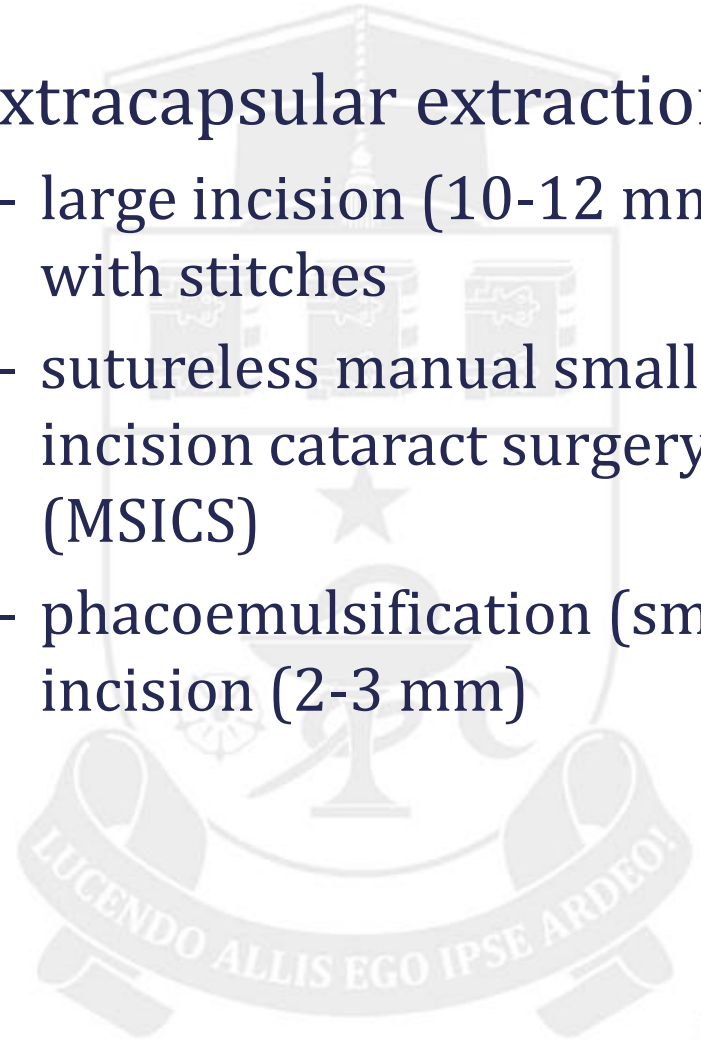
- Medical
  - eye drops:
    - Azapentacenum
    - Taurini
    - Vitamins/antioxidants/  
coenzymes complexes
- usually in initial/earlier cataract stages for stop/reduce it progression
- Surgical
  - cataract extraction + intraocular lens (IOL) implantation
- more common current treatment





# Surgical treatment

- Intracapsular extraction
  - using:
    - capsular forceps
    - erysiphakes
    - cryoprobe (cryoextraction)
      - with zonulolysis
- Extracapsular extraction
  - large incision (10-12 mm) with stitches
  - sutureless manual small incision cataract surgery (MSICS)
  - phacoemulsification (smallest incision (2-3 mm))





# Surgical treatment

- Phacoemulsification is more advanced cataract surgery method:
  - smallest sutureless incision (2-3 mm)
  - ultrasonic energy on the tip for emulsification of the lens nucleus
  - simultaneous irrigation/aspiration
- Femtosecond laser assisted (for):
  - corneal incisions
  - capsulorexis
  - dividing of a lens nucleus





# Intraocular lens implantation

- in anterior chamber/camerular angle
- intrapupilar fixation
- iris-clips fixation in anterior/posterior chamber
- in posterior chamber on lens capsula/bag
- into the capsular bag
- in sulcus with scleral fixation (stitch/sutureless)





# Intraocular lens (IOL)

- |                     |   |                        |
|---------------------|---|------------------------|
| • non-foldable      | ↔ | • foldable             |
| • multi-pieces      | ↔ | • monoblock            |
| • monofocal         | ↔ | • two/three/multifocal |
| • spheric           | ↔ | • toric                |
| • two haptics       | ↔ | • forth haptics        |
| • non-accommodative | ↔ | • accommodative        |





# Indications for cataract surgery

- In adult cataract – when the reduction of the vision is interfering with the patient's quality of life (no wait for the cataract to “ripen”)
- In congenital cataract, especially, total cataract – in the first month of the life for prevent the amblyopia

