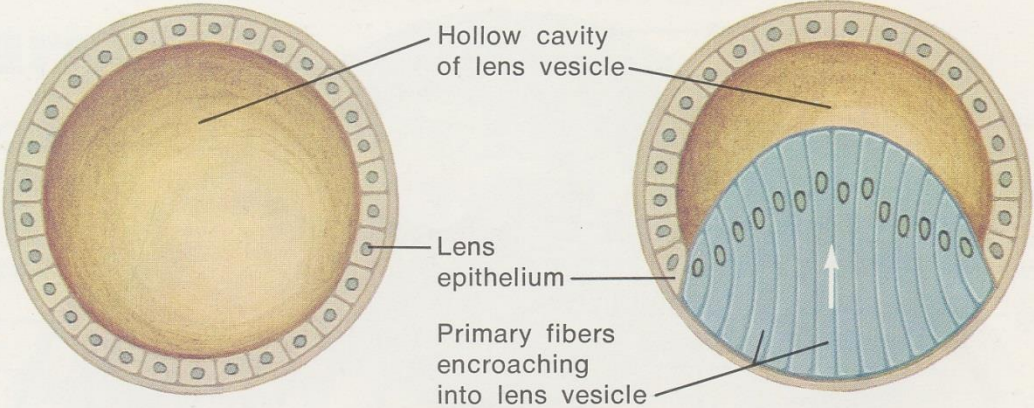


# LEĆA

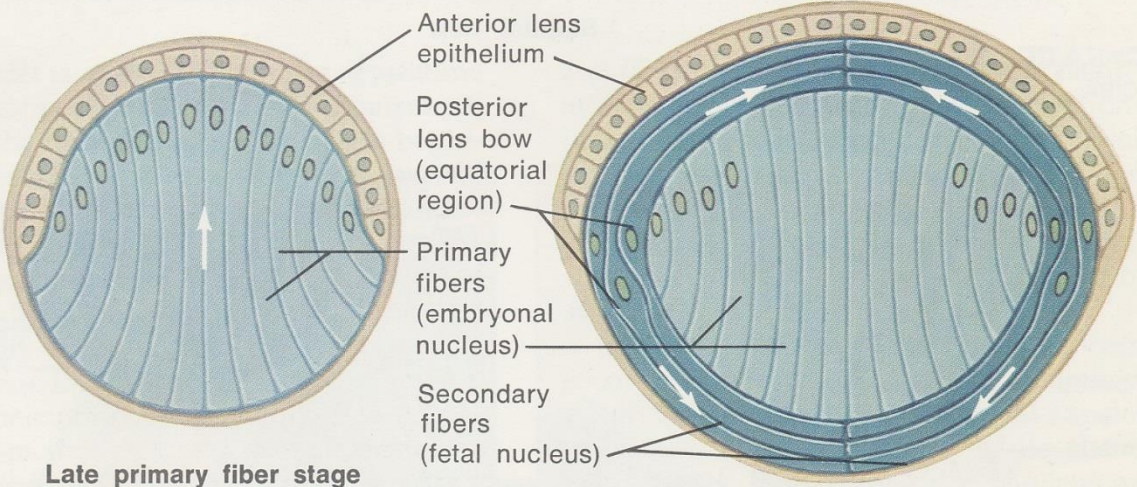
LENS CRYSTALLINA

### Embryology of Lens (Schematic)



Vesicle stage

Early primary fiber stage



Late primary fiber stage

Early secondary fiber stage

# ANATOMIJA LEĆE

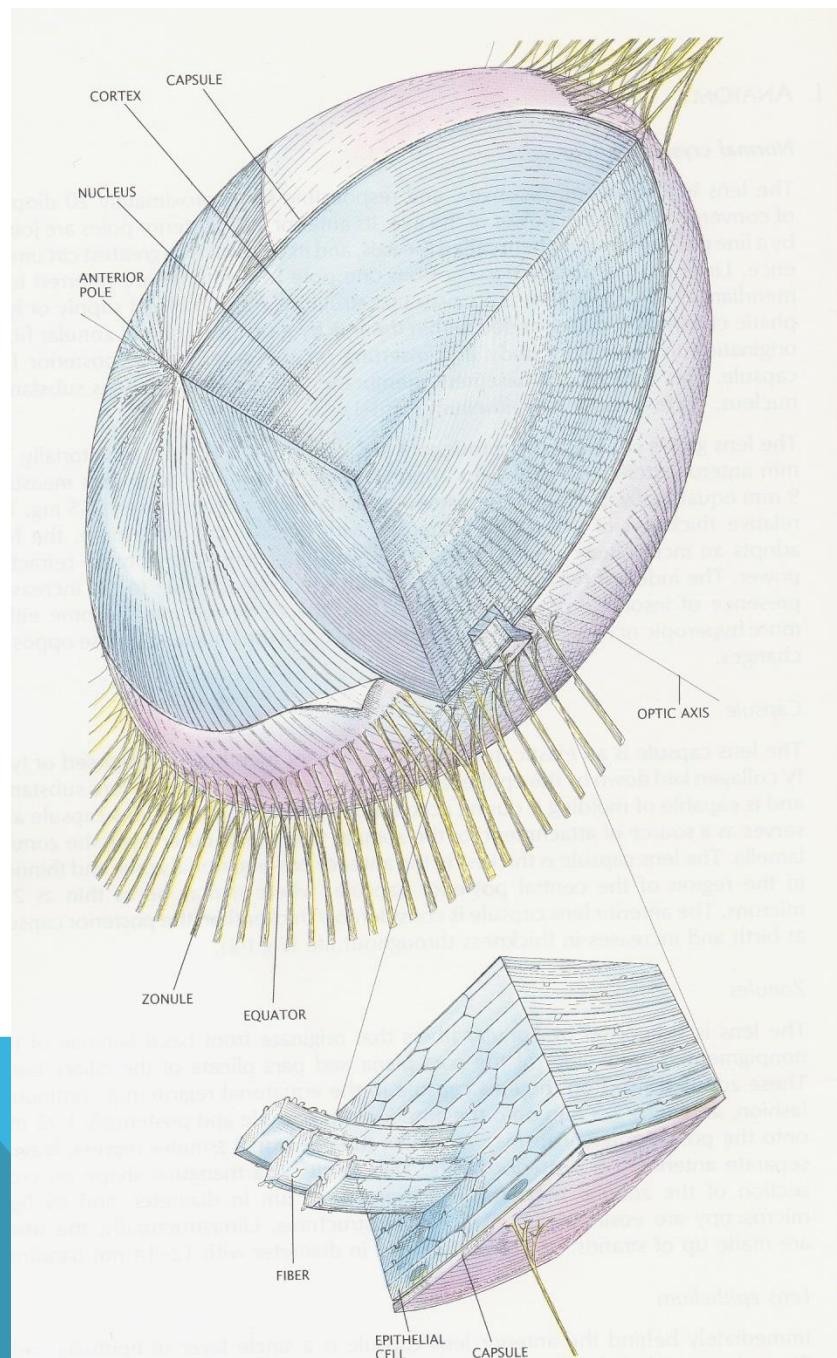
Bikonveksna, promjer 9 mm

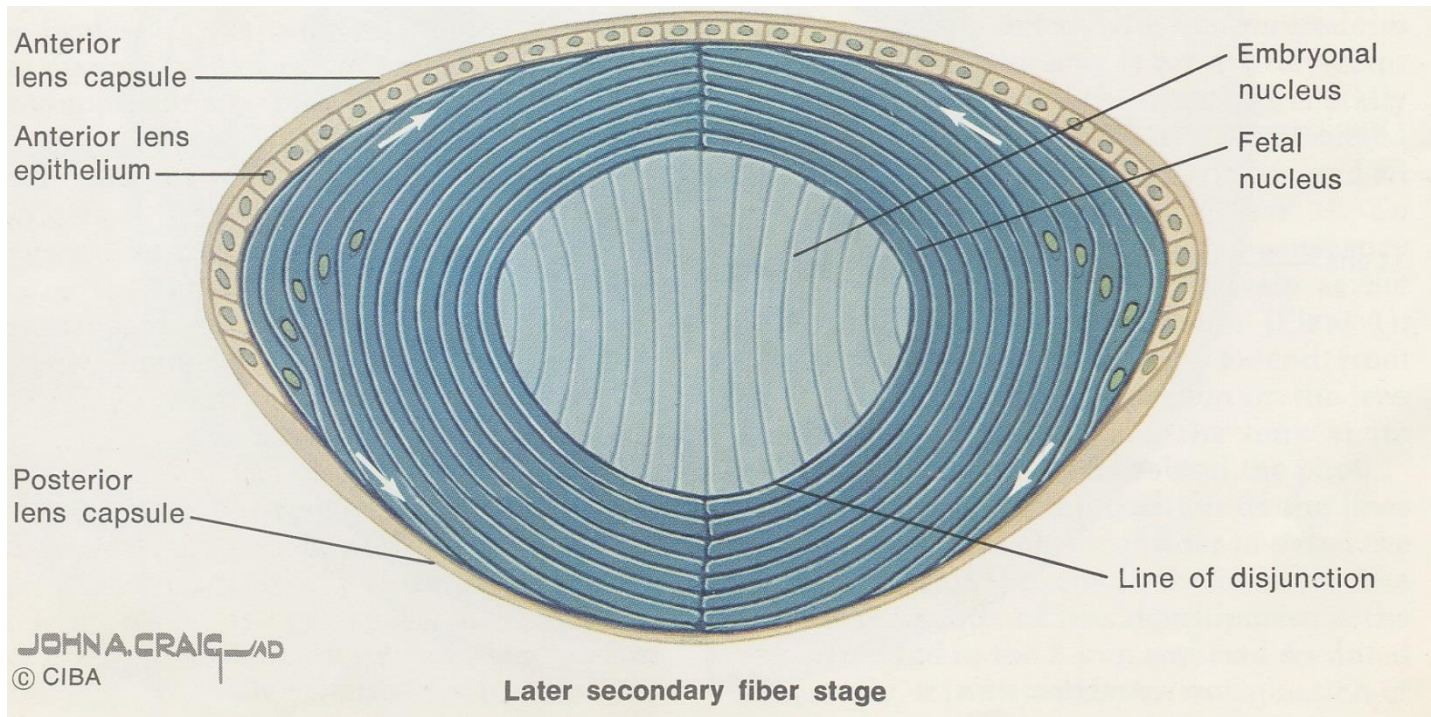
Facies anterior, facies posterior

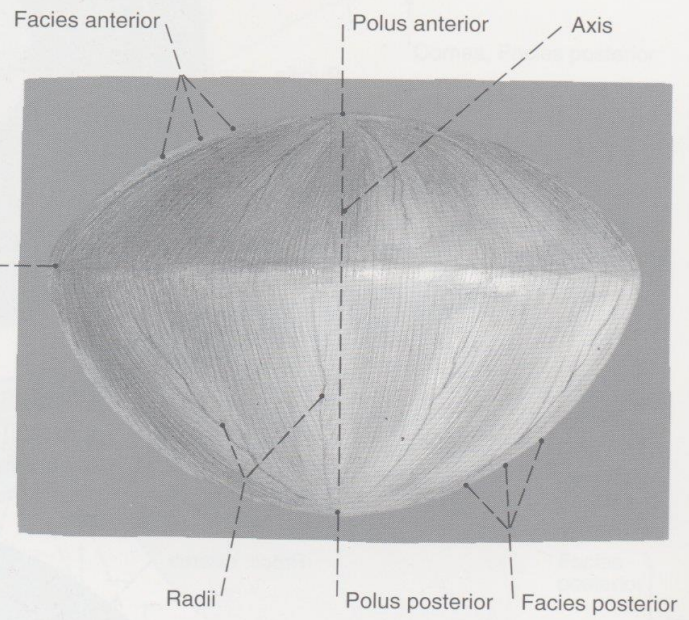
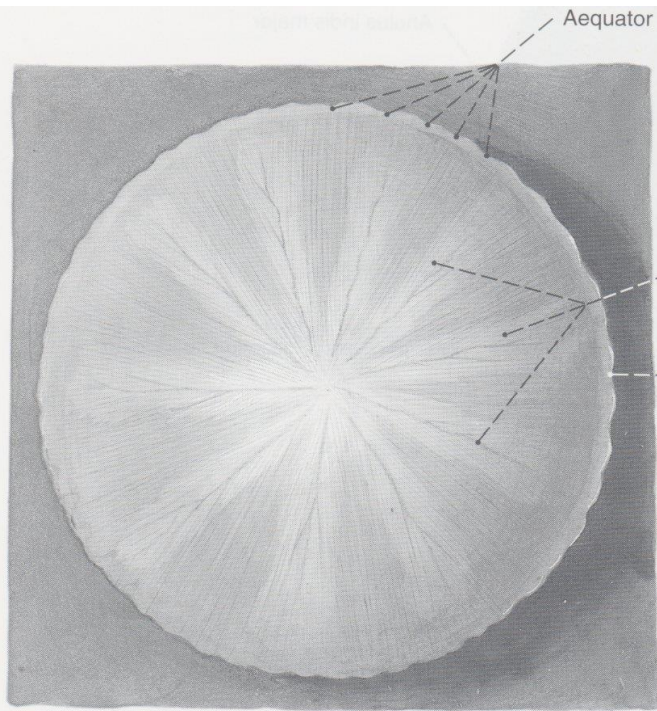
Polus anterior, polus posterior

Axis lentis, equator lentis

Zonula ciliaris





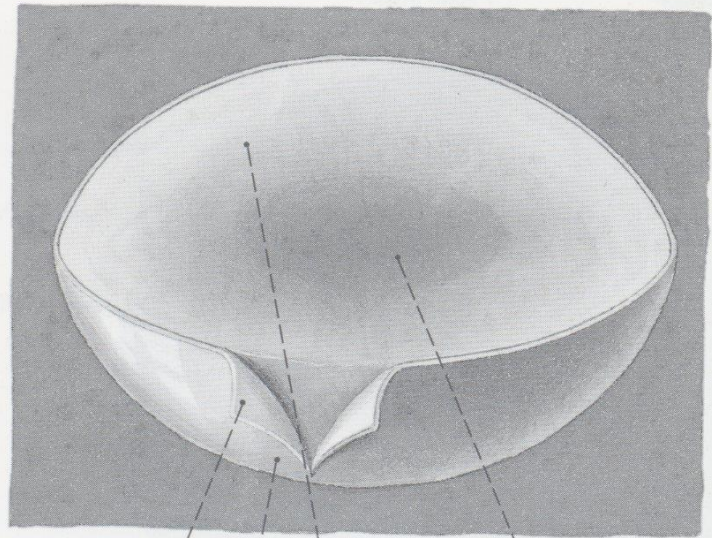


# HISTOLOGIJA LEĆE

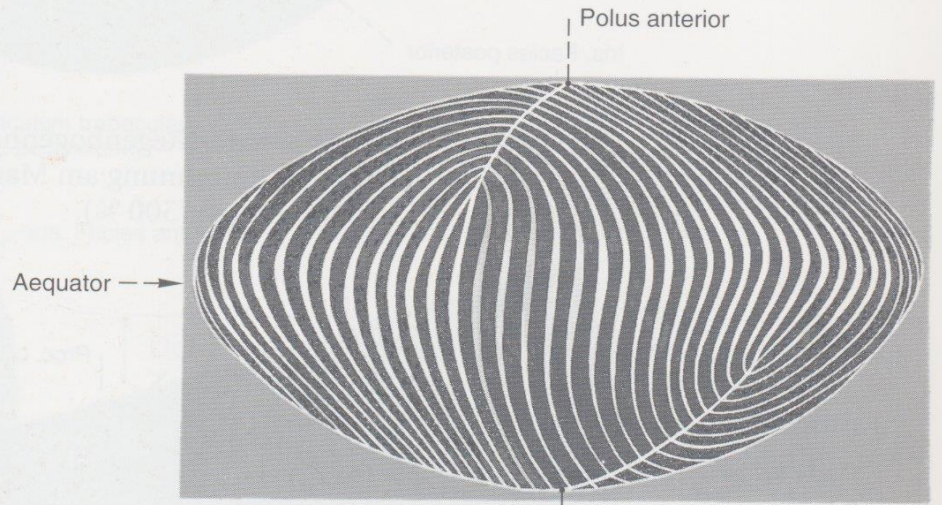
Epithelium lentis

Substantia lentis

- cortex lentis
- nucleus lentis



Capsula lentis  
Facies anterior  
Cortex lentis  
Nucleus lentis  
Substantia lentis



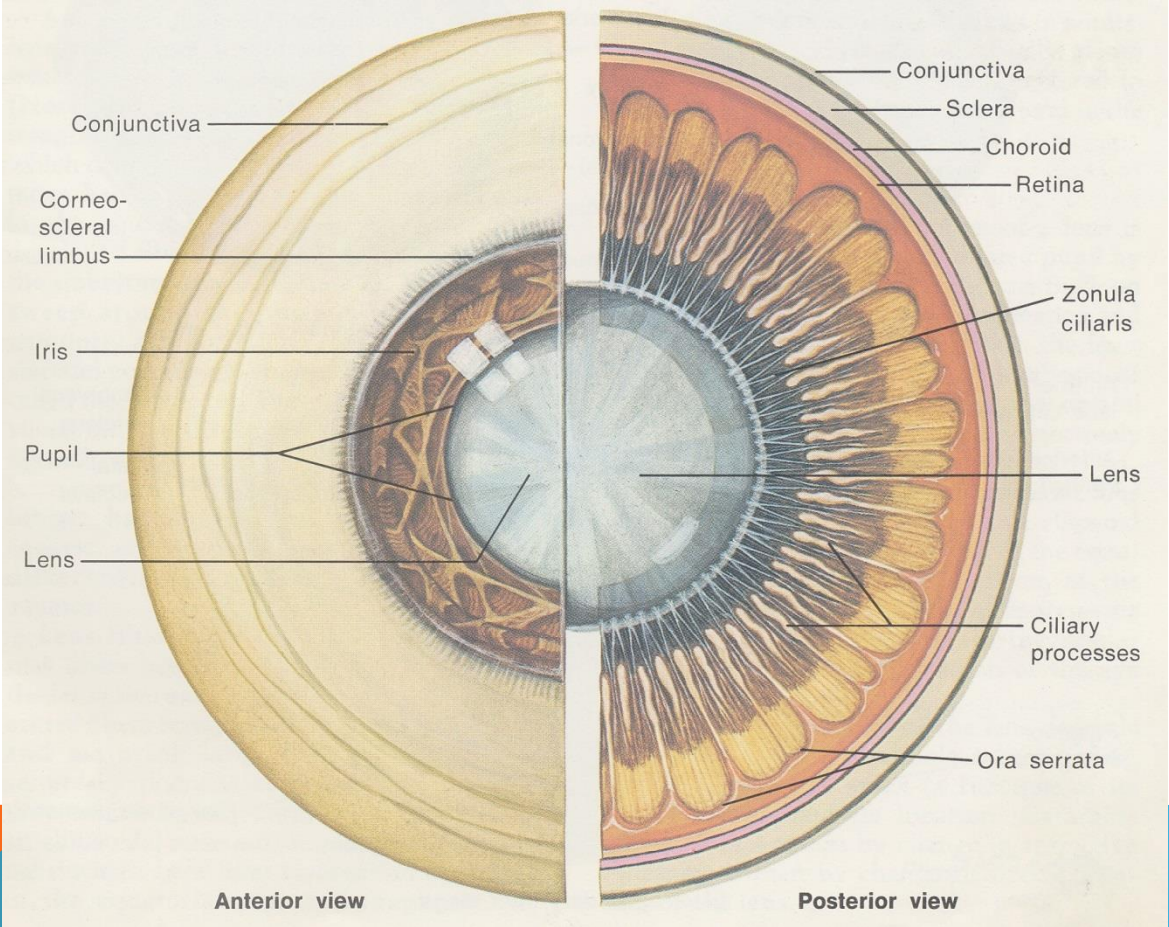
Polus anterior  
Aequator  
Polus posterior

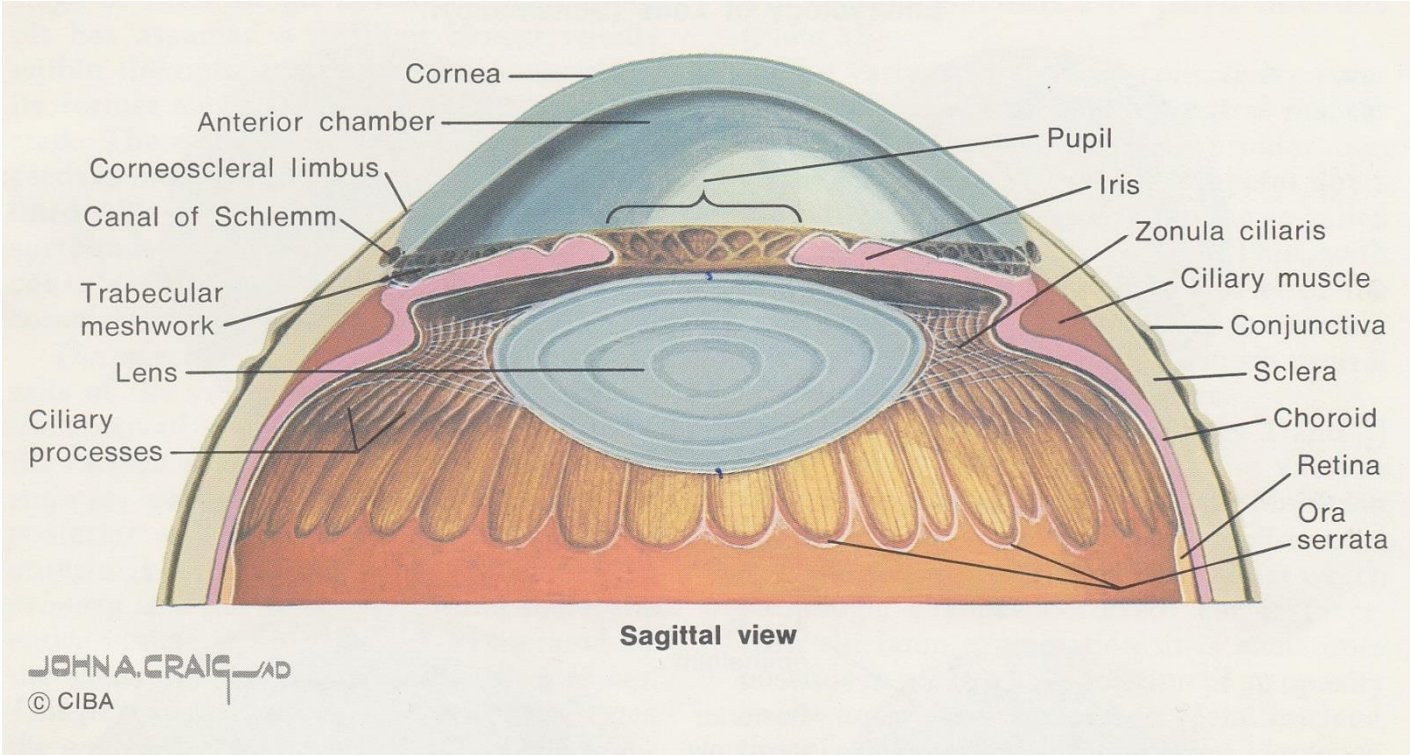


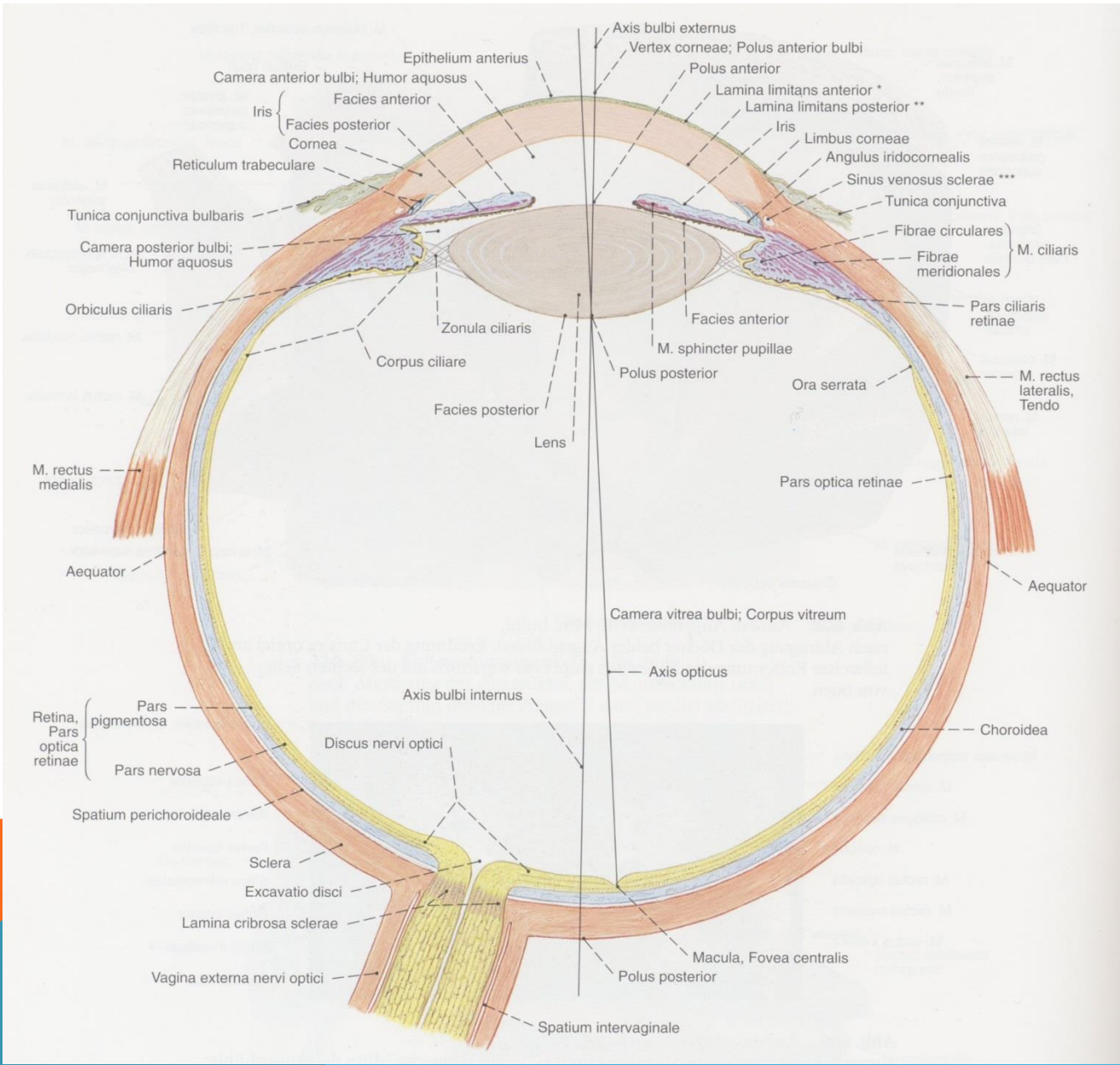
# SMJEŠTAJ LEĆE U OKU

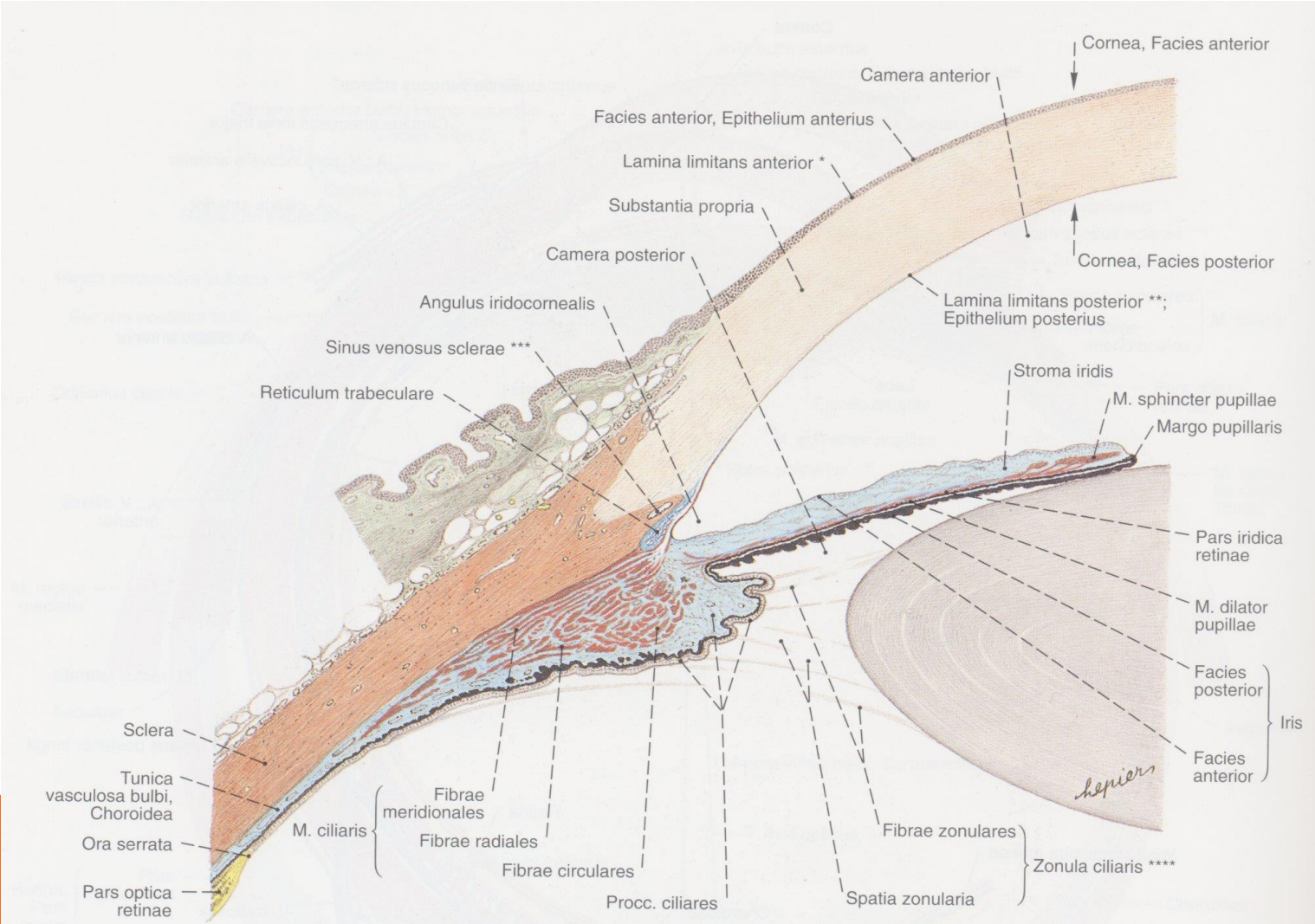
U stražnjoj očnoj sobici, između stražnje površine šarenice i staklastog tijela u tzv. fossi hyaloidei











# FUNKCIJA LEĆE

Fokusira zrake svjetla na mrežnicu

Varijabilni element u totalnoj refraktivnoj  
sposobnosti oka



# ΚΑΤΑΡΑΚΤΑ

Καταρράκτης – vodopad

Podjela katarakti



## Cataract Symptoms



Normal image



Image with central opacification;  
note change in color perception



Table 7.1 Classification of cataracts according to time of occurrence

<b>Acquired cataracts (over 99% of all cataracts)</b>	<ul style="list-style-type: none"><li>❖ Senile cataract (over 90% of all cataracts)</li><li>❖ Cataract with systemic disease<ul style="list-style-type: none"><li>– Diabetes mellitus</li><li>– Galactosemia</li><li>– Renal insufficiency</li><li>– Mannosidosis</li><li>– Fabry's disease</li><li>– Lowe's syndrome</li><li>– Wilson's disease</li><li>– Myotonic dystrophy</li><li>– Tetany</li><li>– Skin disorders</li></ul></li><li>❖ Secondary and complicated cataracts<ul style="list-style-type: none"><li>– Cataract with heterochromia</li><li>– Cataract with chronic iridocyclitis</li><li>– Cataract with retinal vasculitis</li><li>– Cataract with retinitis pigmentosa</li></ul></li><li>❖ Postoperative cataracts<ul style="list-style-type: none"><li>– Most frequently following vitrectomy and silicone oil retinal tamponade</li><li>– Following filtering operations</li></ul></li><li>❖ Traumatic cataracts<ul style="list-style-type: none"><li>– Contusion or perforation rosette</li><li>– Infrared radiation (glassblower's cataract)</li><li>– Electrical injury</li><li>– Ionizing radiation</li></ul></li><li>❖ Toxic cataract<ul style="list-style-type: none"><li>– Corticosteroid-induced cataract (most frequent)</li><li>– Less frequently from chlorpromazine, miotic agents, or busulfan</li></ul></li></ul>
<b>Congenital cataracts (less than 1% of all cataracts)</b>	<ul style="list-style-type: none"><li>❖ Hereditary cataracts<ul style="list-style-type: none"><li>– Autosomal dominant</li><li>– Recessive</li><li>– Sporadic</li><li>– X-linked</li></ul></li><li>❖ Cataracts due to early embryonic (trans-placental) damage<ul style="list-style-type: none"><li>– Rubella (40–60%)</li><li>– Mumps (10–22%)</li><li>– Hepatitis (16%)</li><li>– Toxoplasmosis (5%)</li></ul></li></ul>

# SENILNA KATARAKTA

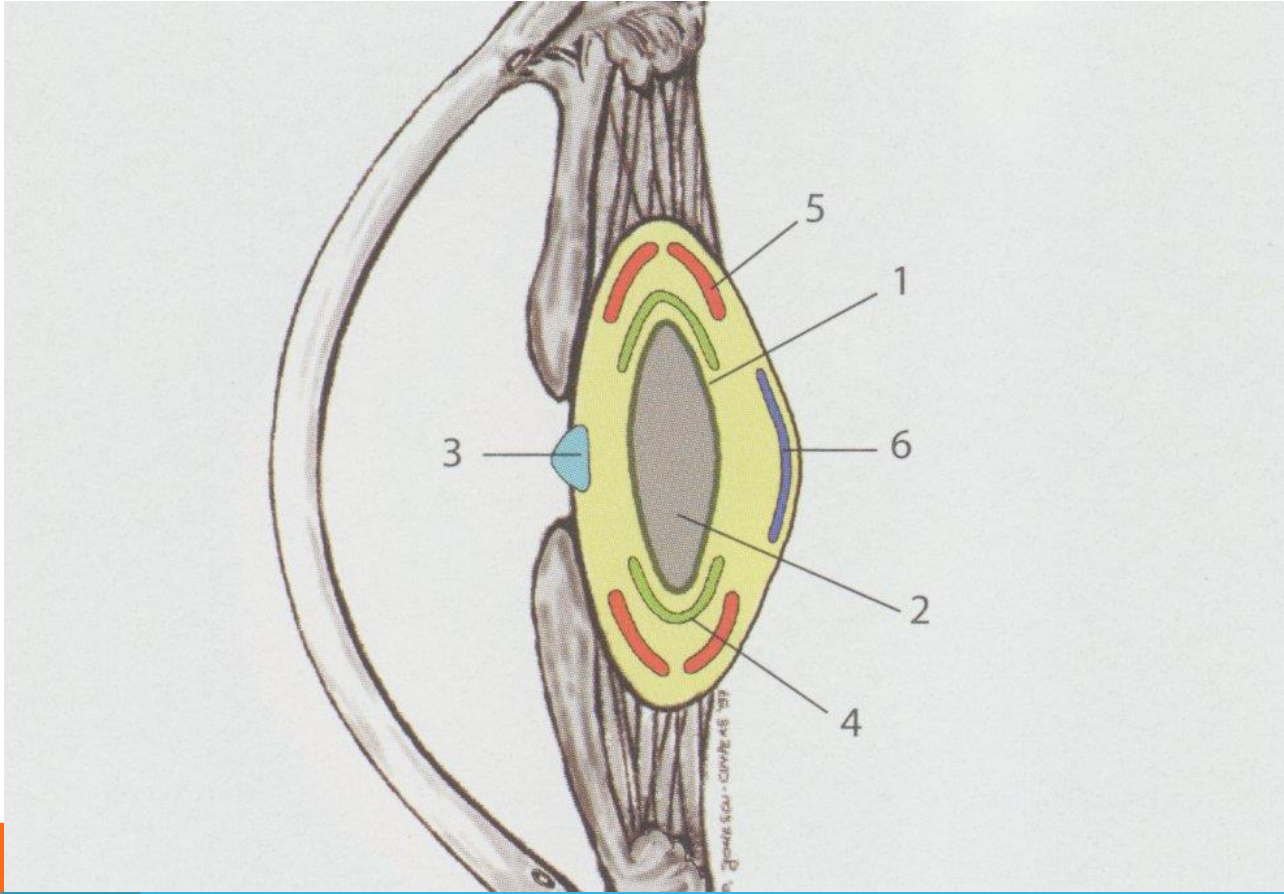
Preko 90% svih katarakti

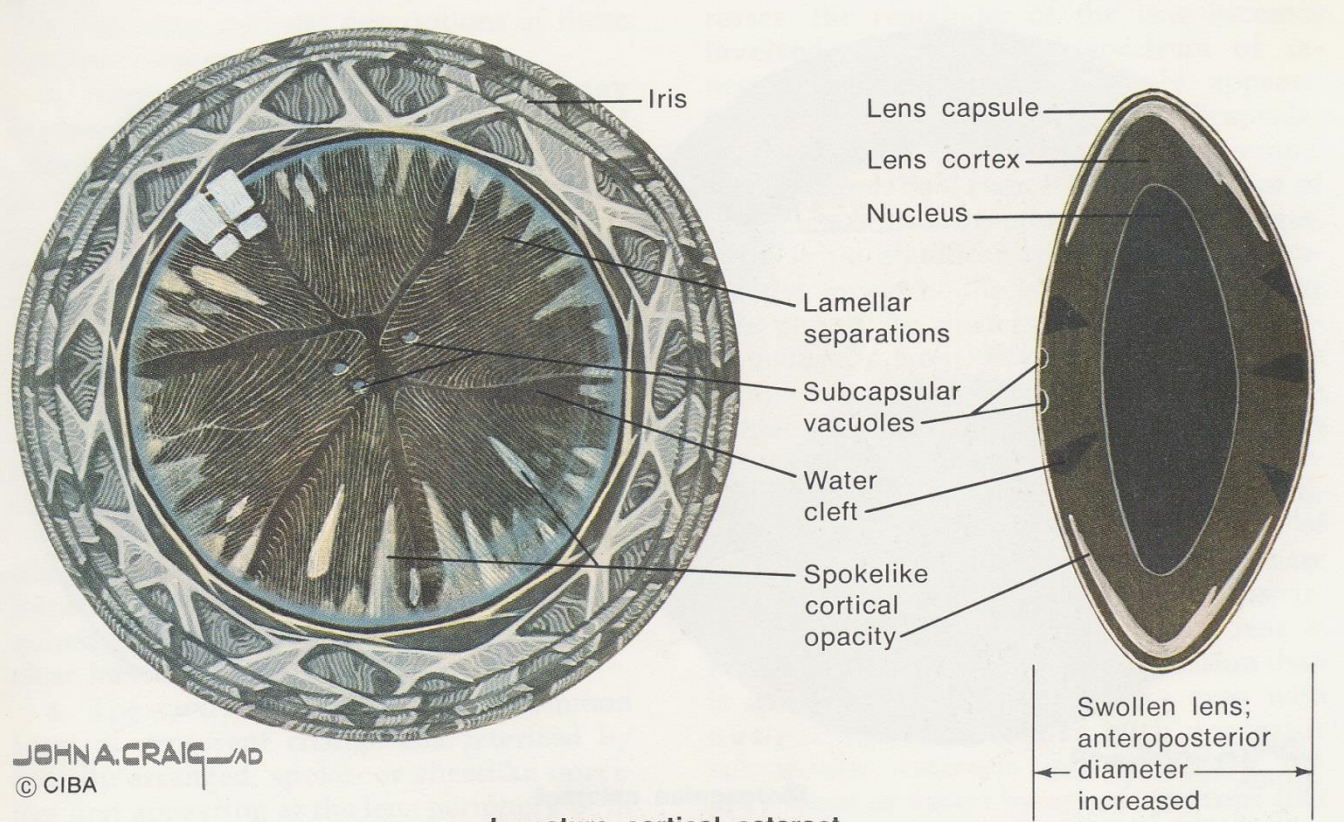
KLASIFIKACIJA:

- prema zrelosti – Cataracta incipiens
  - Cataracta immatura
  - Cataracta matura
  - Cataracta hypermatura

## **morfološka klasifikacija**

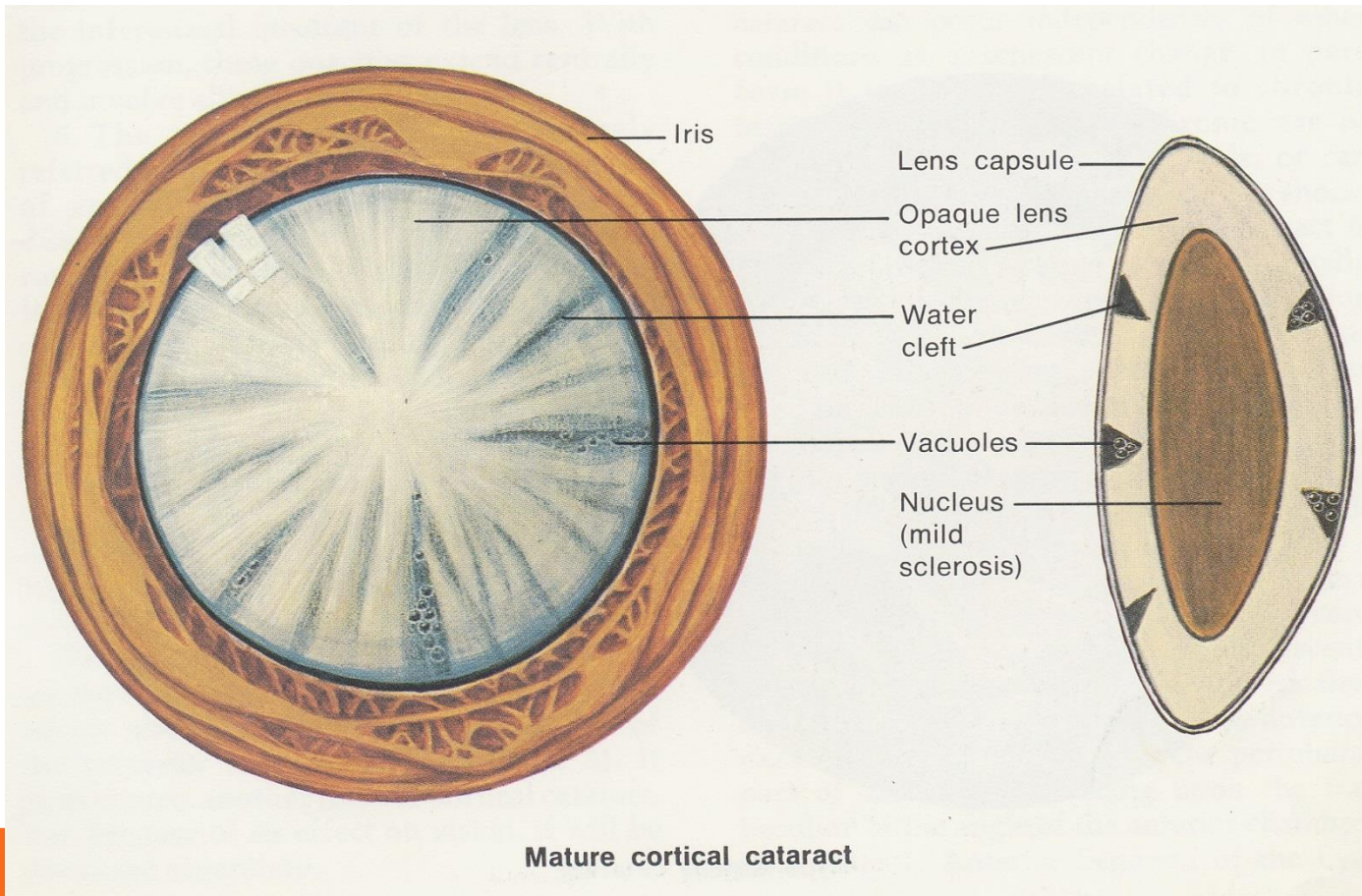
- Cataracta corticalis**
- Cataracta subcapsularis anterior**
- Cataracta subcapsularis posterior**
- Cataracta nuclearis**
- Cataracta matura**
- Cataracta hypermatura**

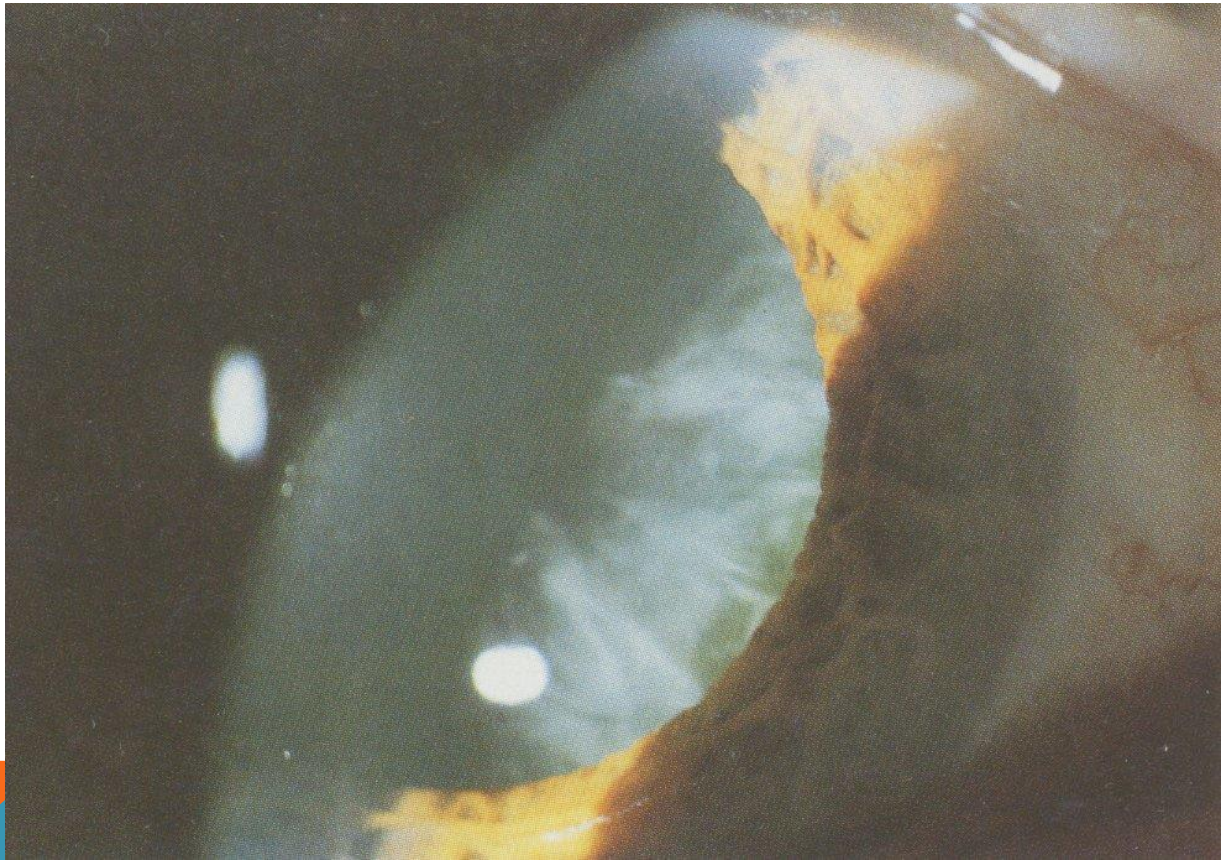


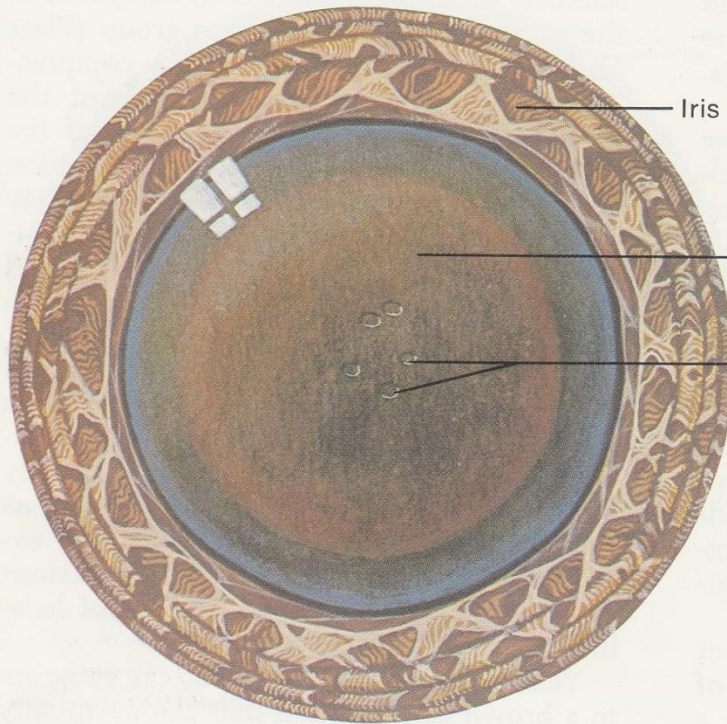


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Immature cortical cataract







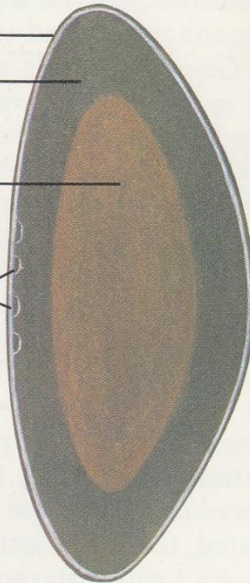
Iris

Lens capsule

Lens cortex

Sclerotic nucleus

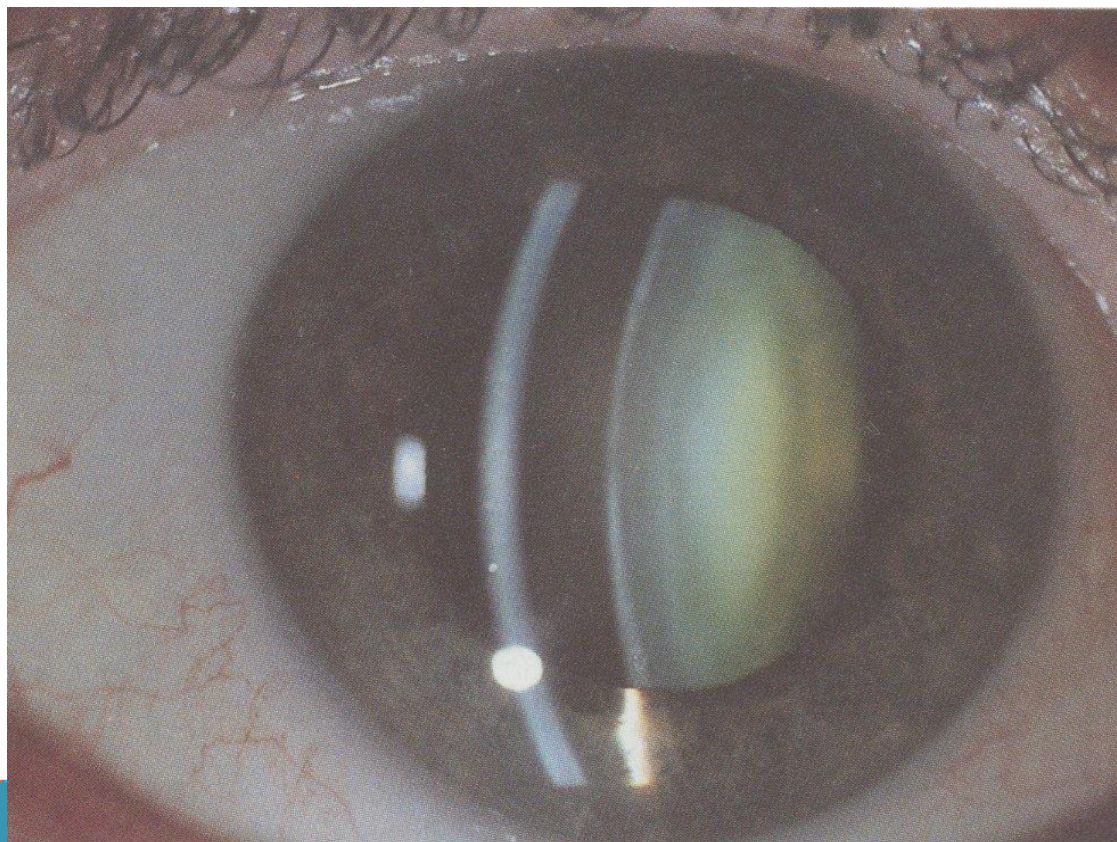
Subcapsular vacuoles

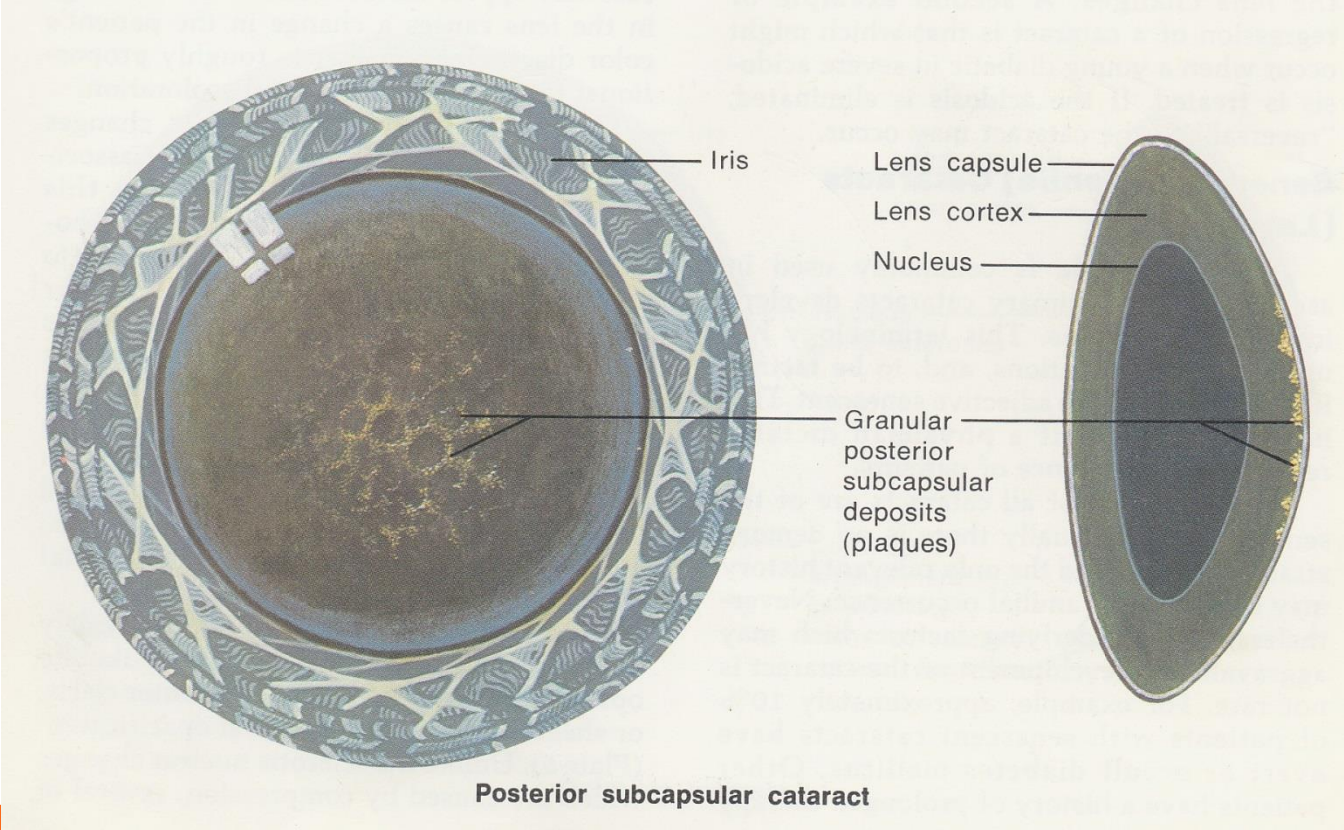


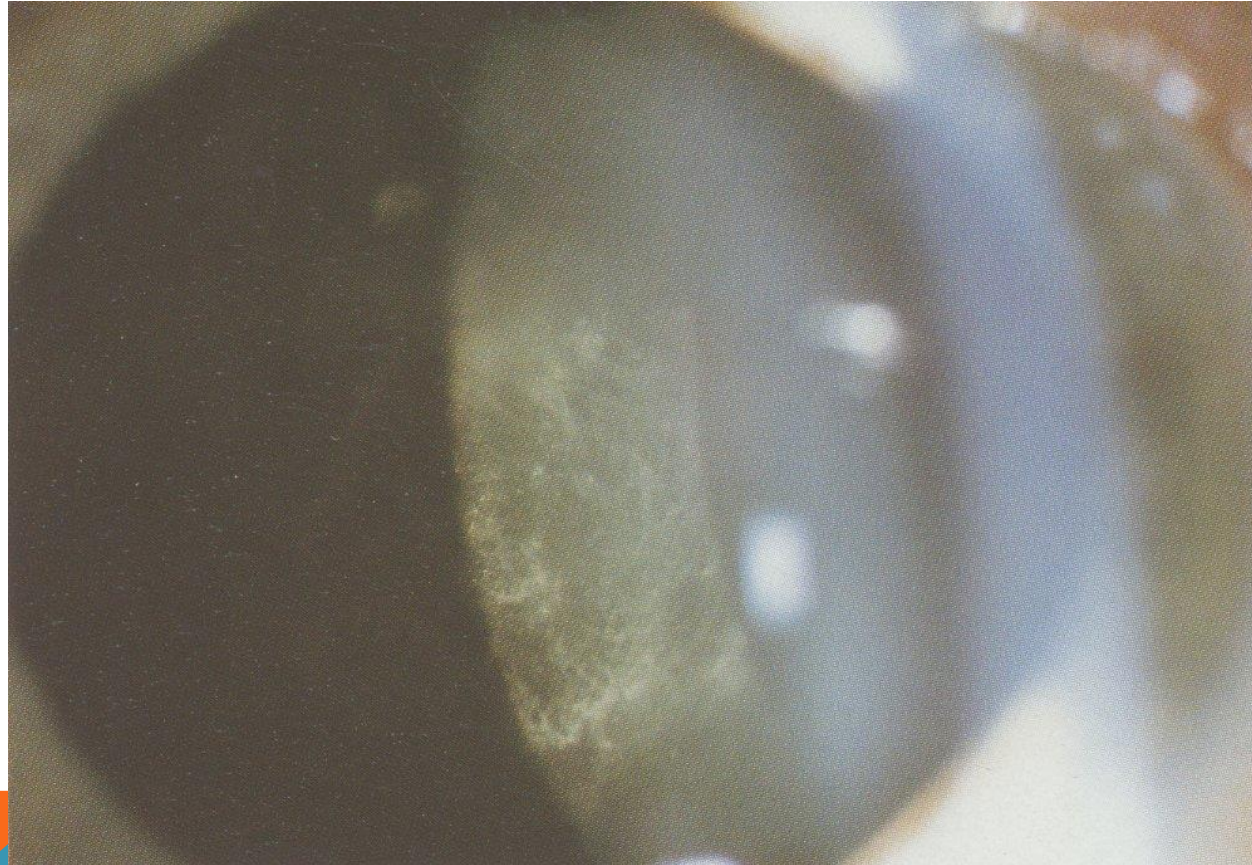
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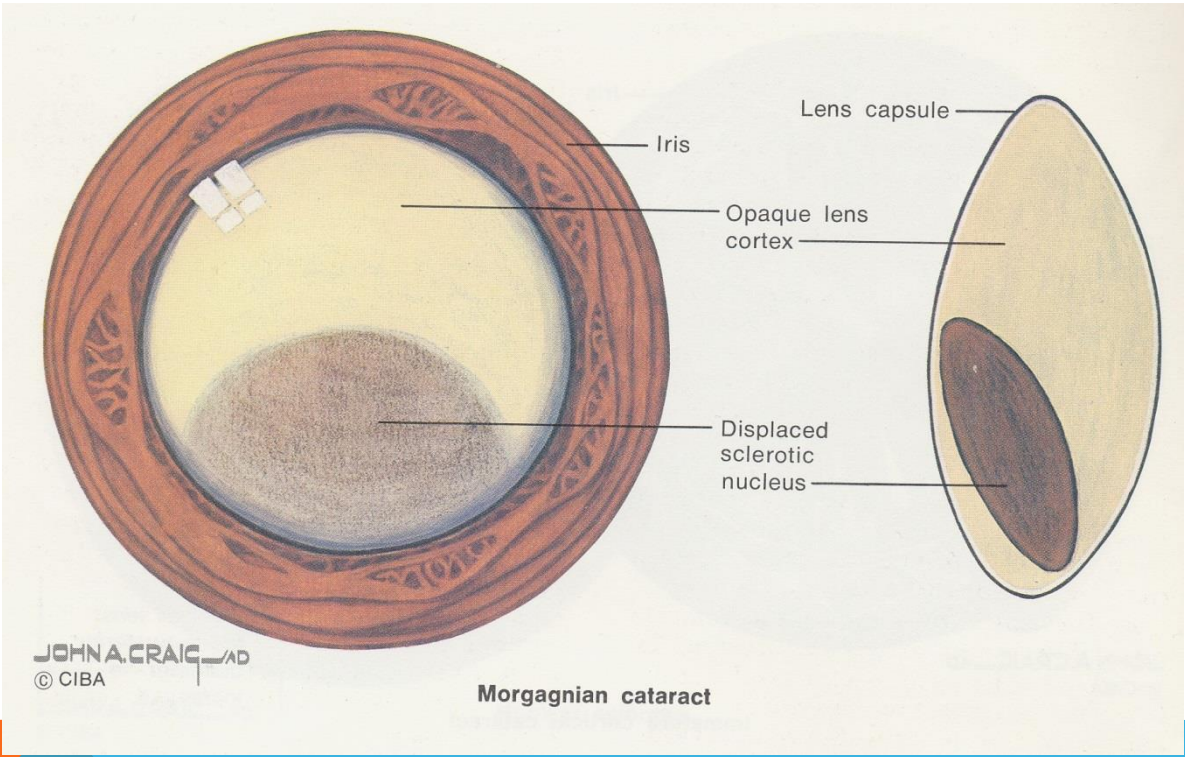
**Nuclear sclerosis**



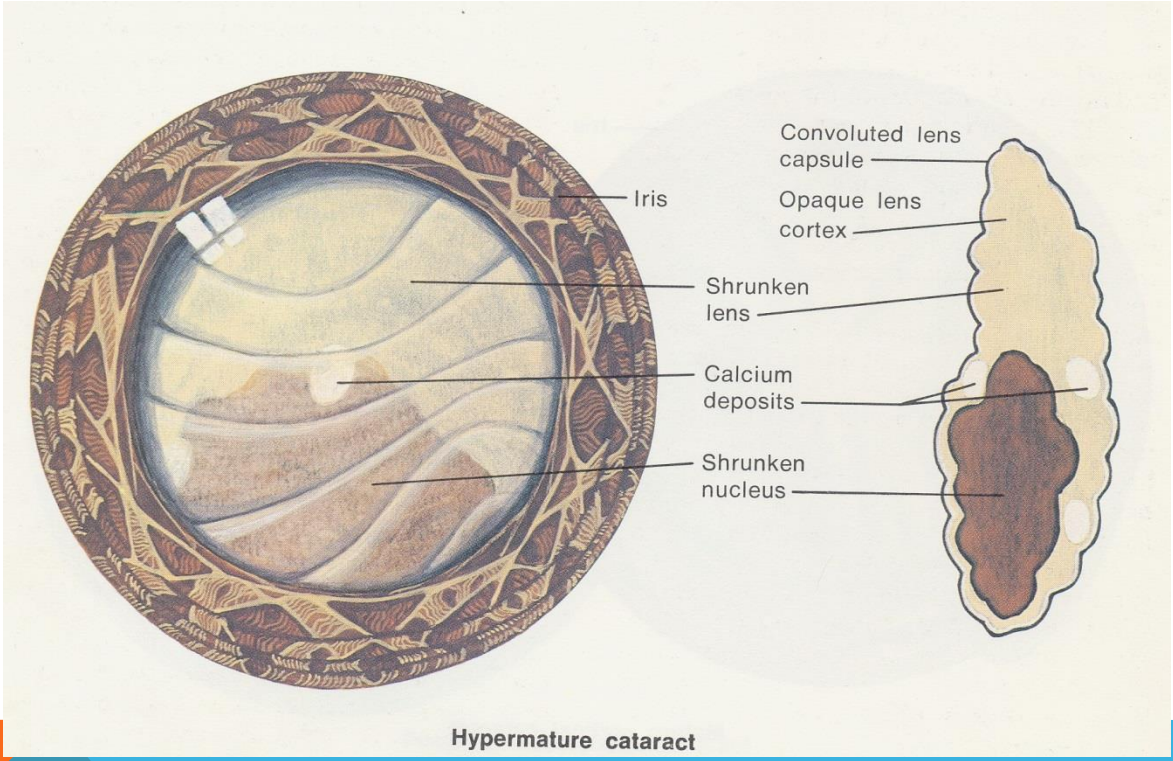


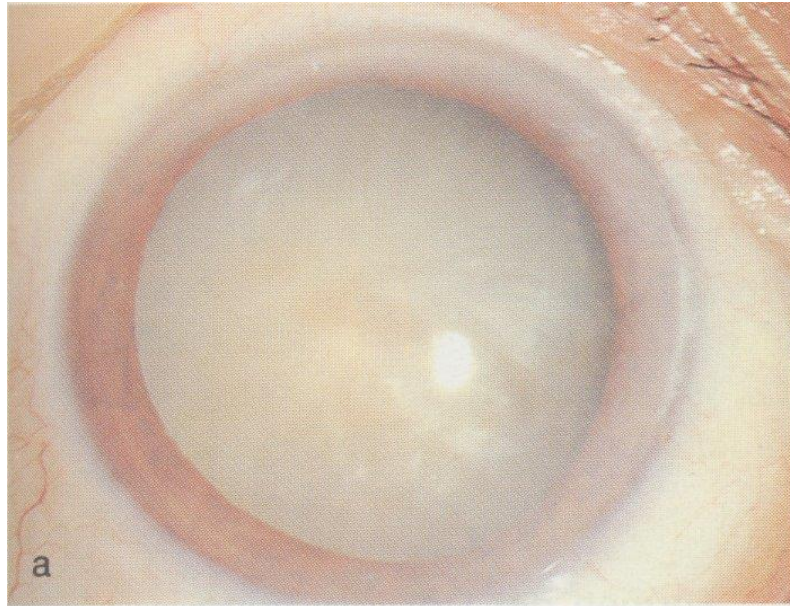


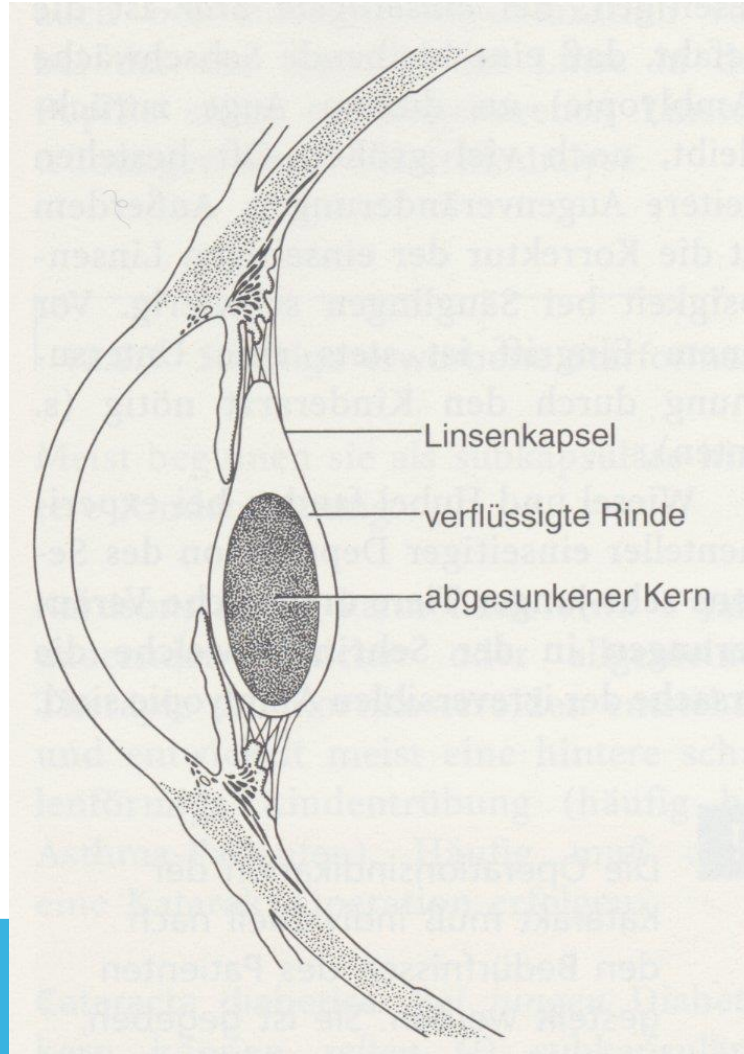




**Morgagnian cataract**






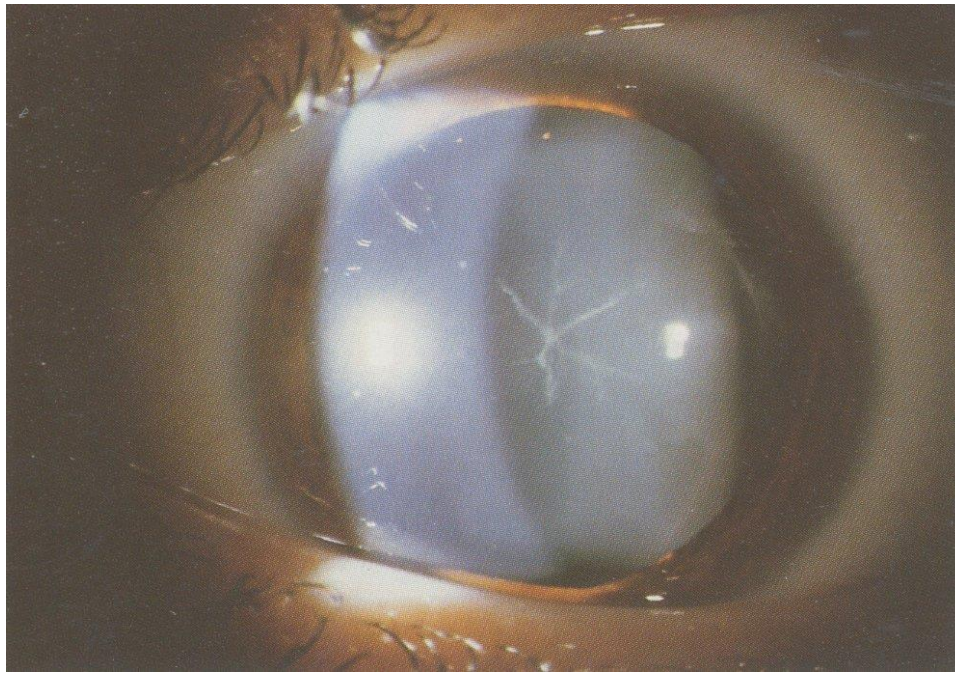


# OSTALE STEČENE KATARAKTE

Povezane sa sistemskim bolestima

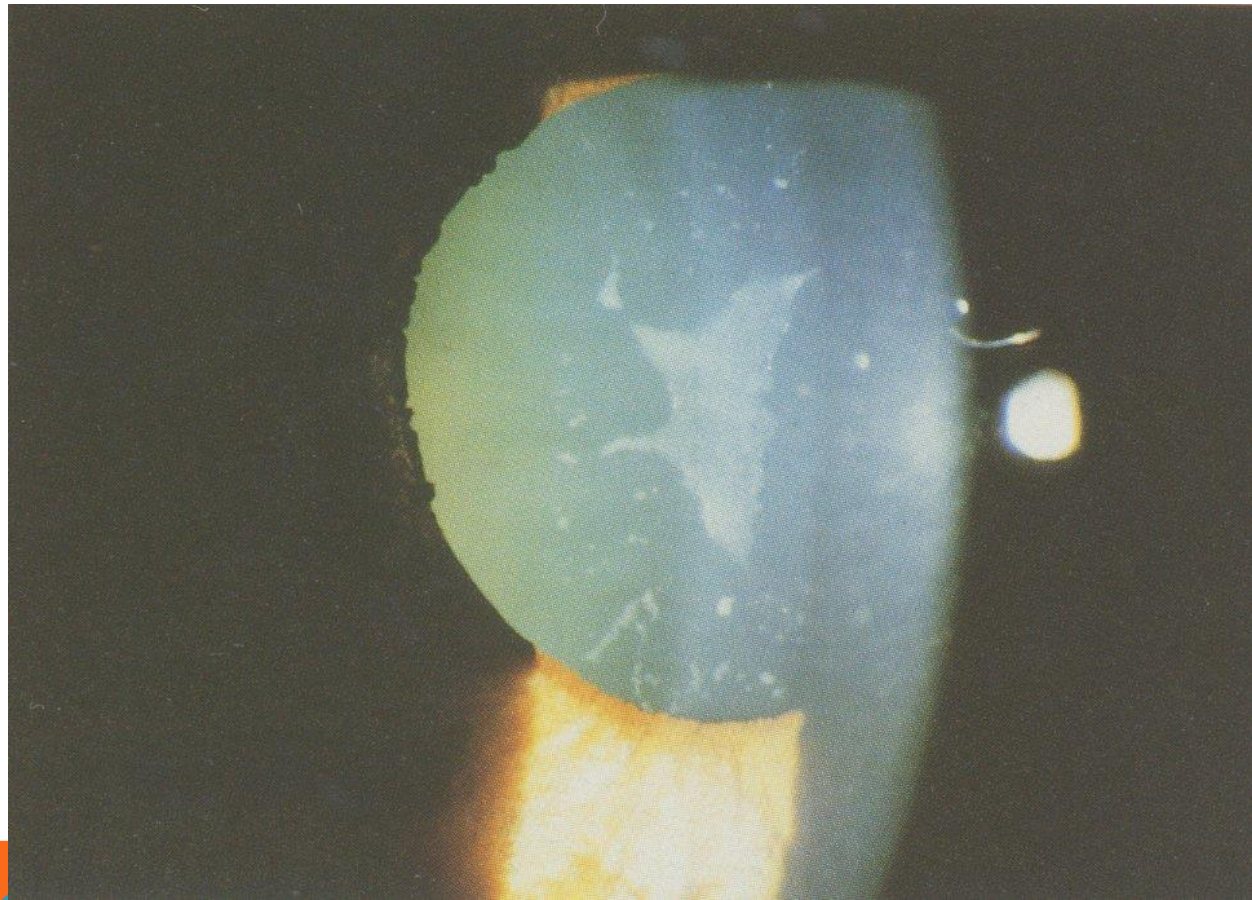
- Diabetes mellitus
  - Galaktozemija
  - Bubrežna insuficijencija
  - Wilsonova bolešt
  - Tetanija
  - Dermatološke bolesti
- 





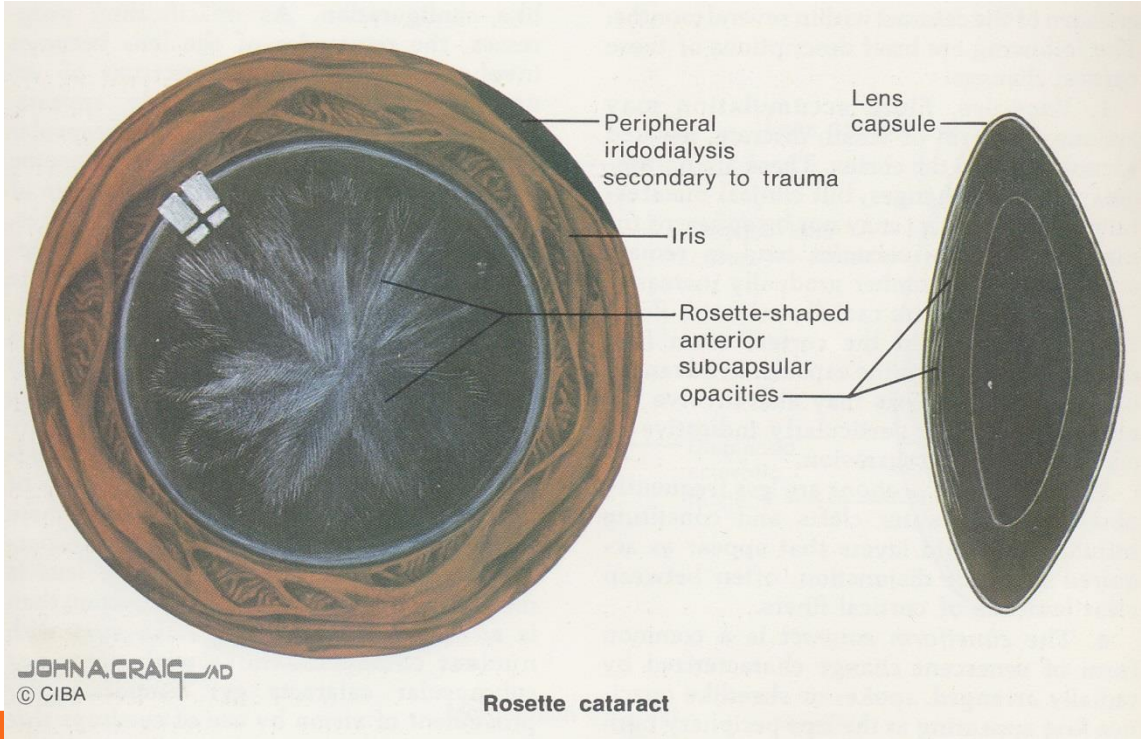
## Sekundarne i komplicirane katarakte

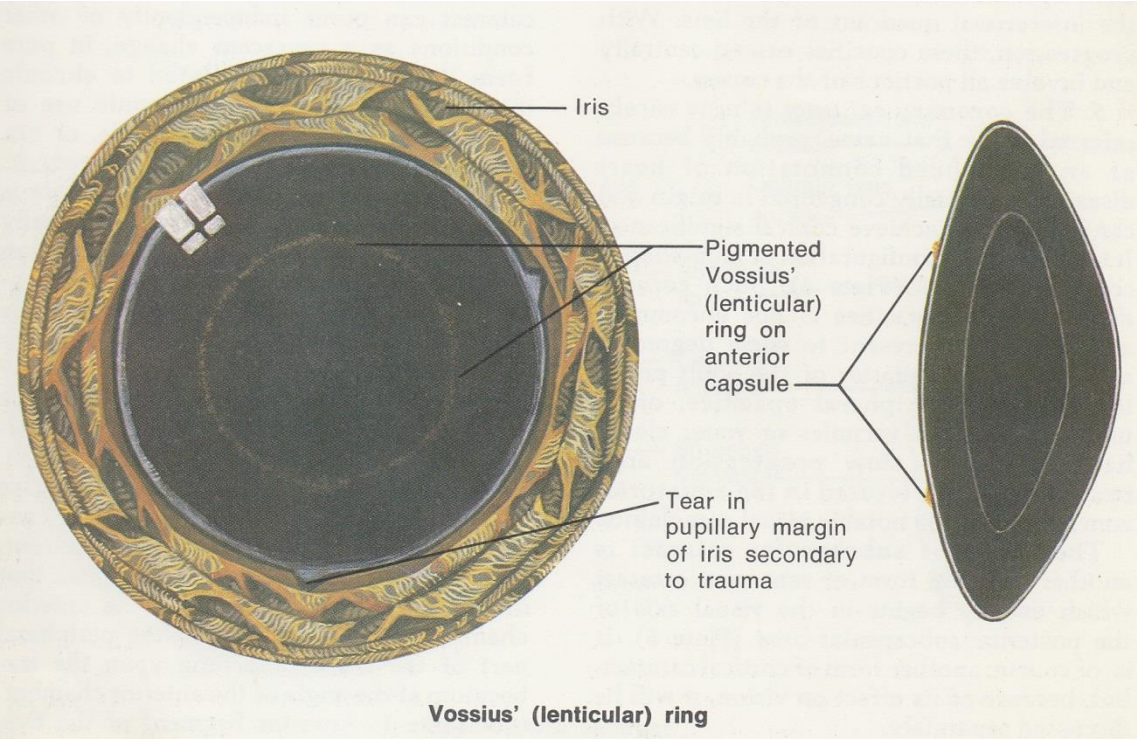
- Kronični iridociklitis
- Glaukom
- Retinitis pigmentosa

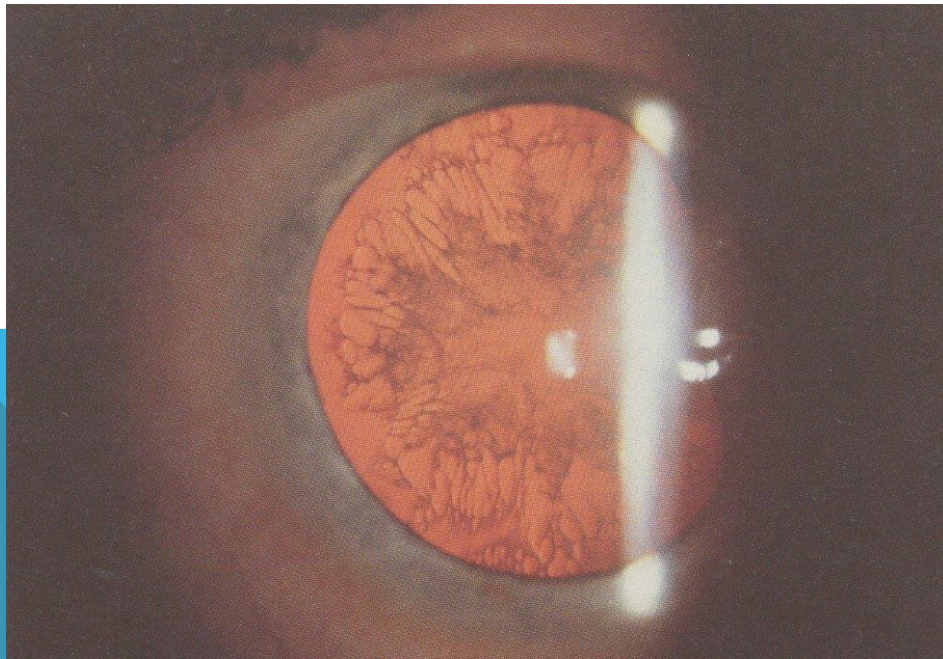
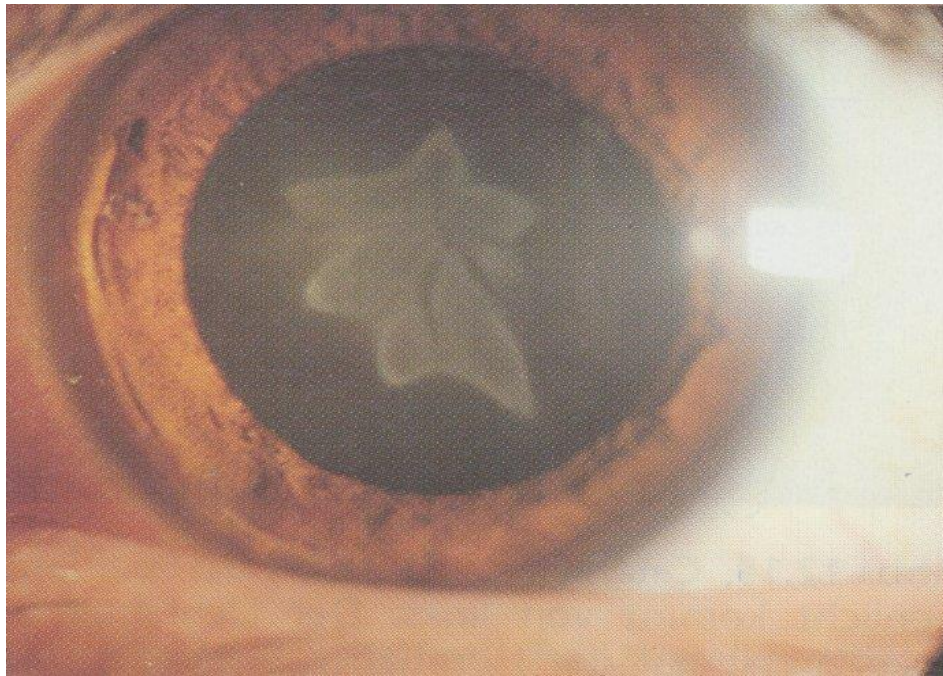


## Traumatske katarakte

- Nakon kontuzije
- Infracrveno zračenje
- Ozljeda strujom
- Zračenje





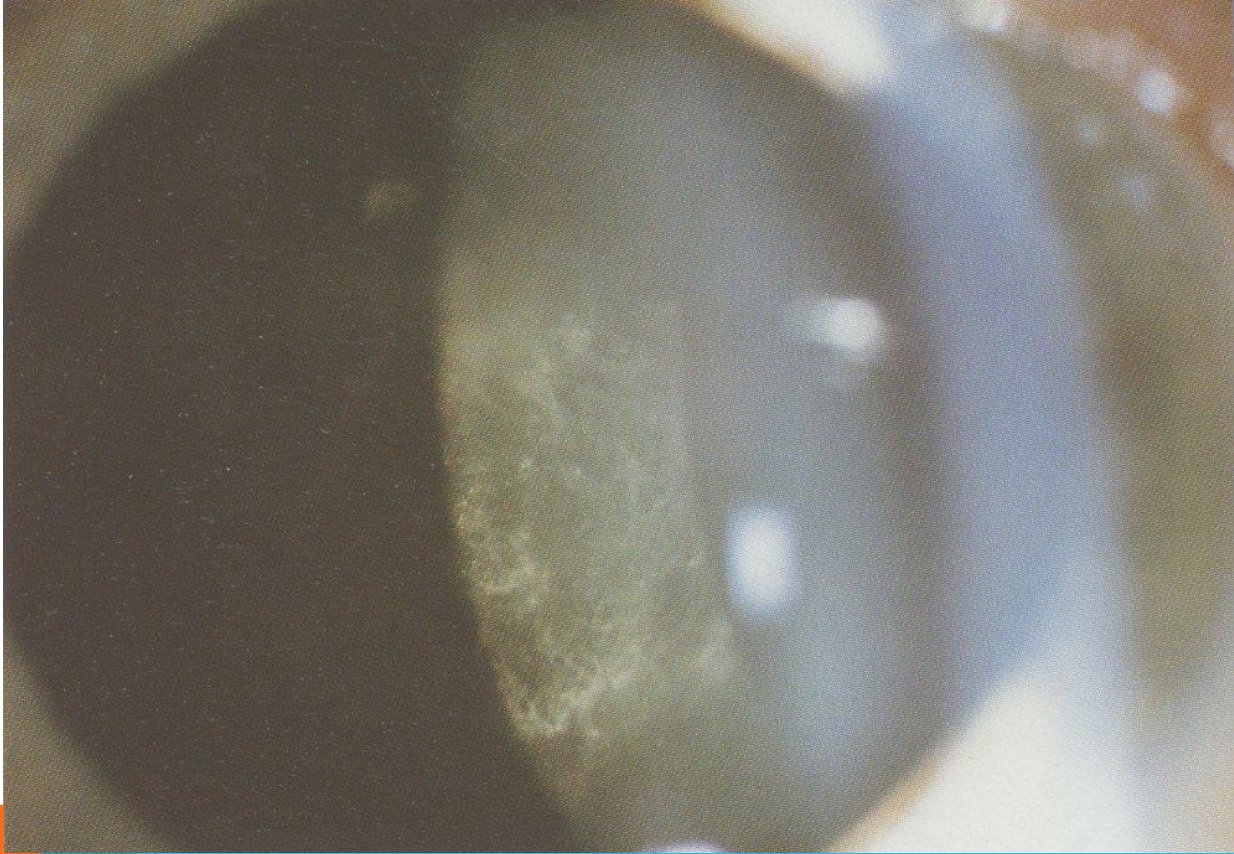


Toksična katarakta

- Uzrokovana kortikosteroidima





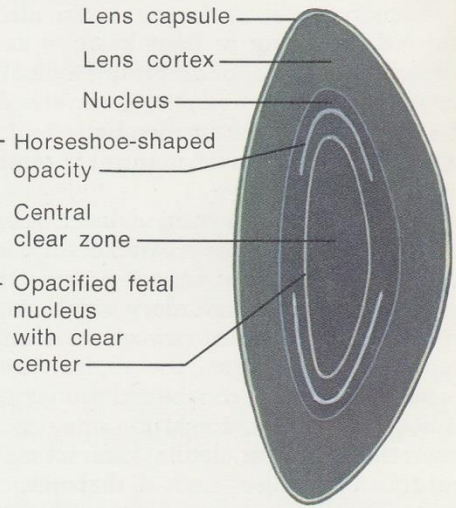
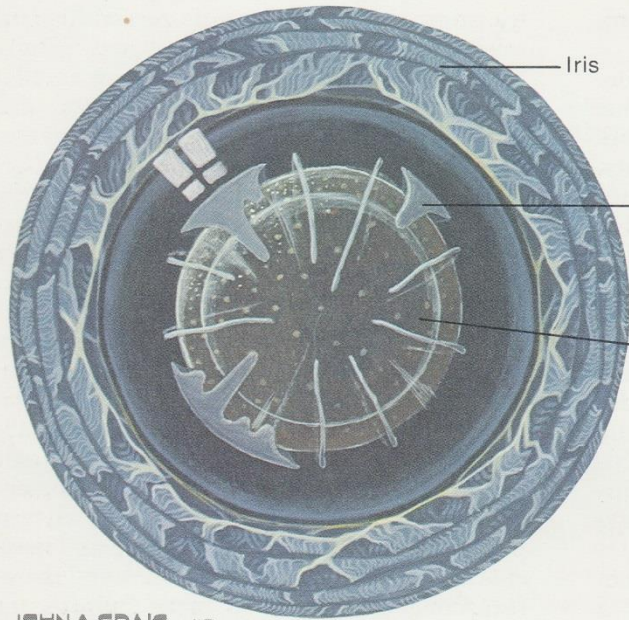


# KONGENITALNE KATARAKTE

NASLJEDNE – autosomno dominantne, recesivne, X-vezane

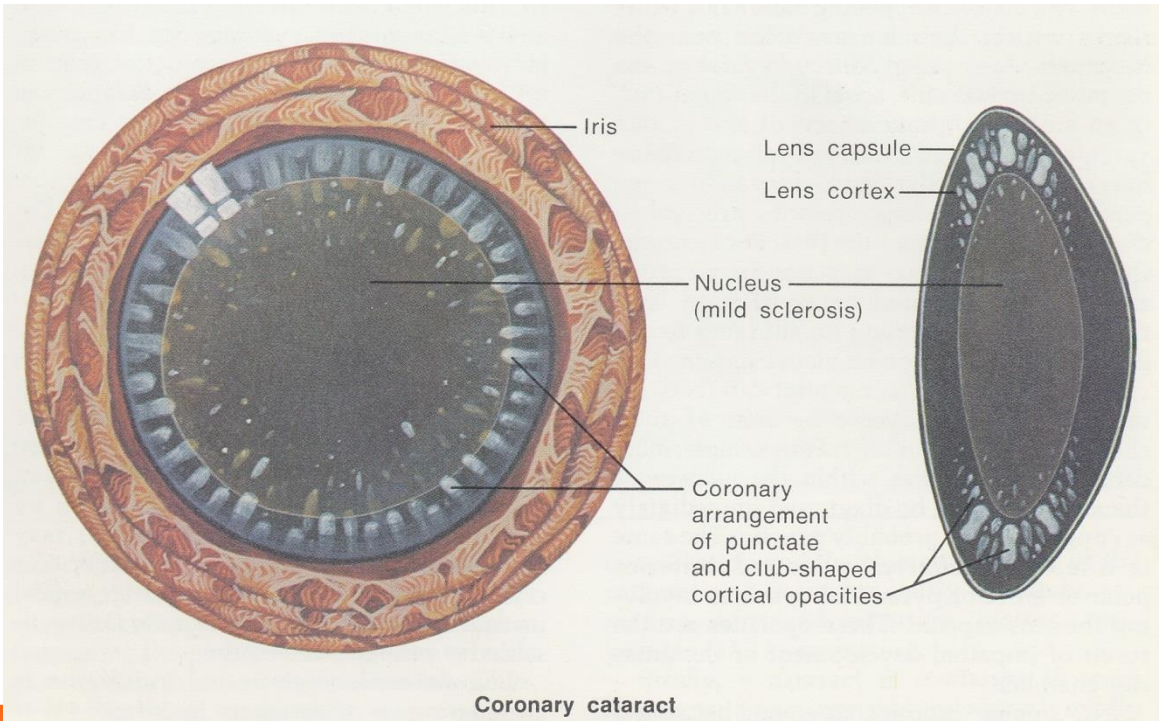
Oblici

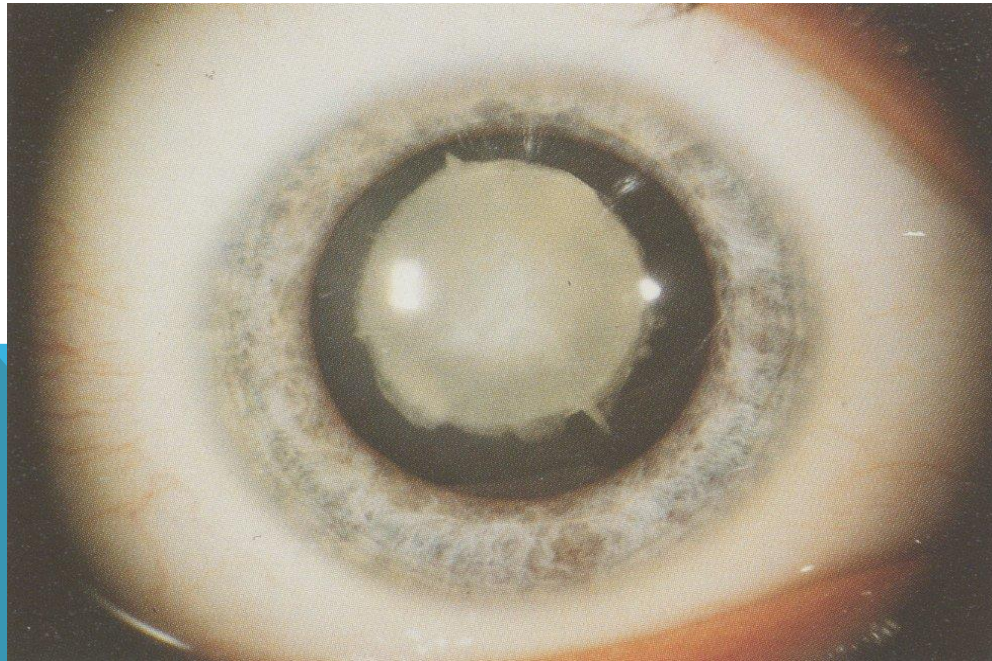
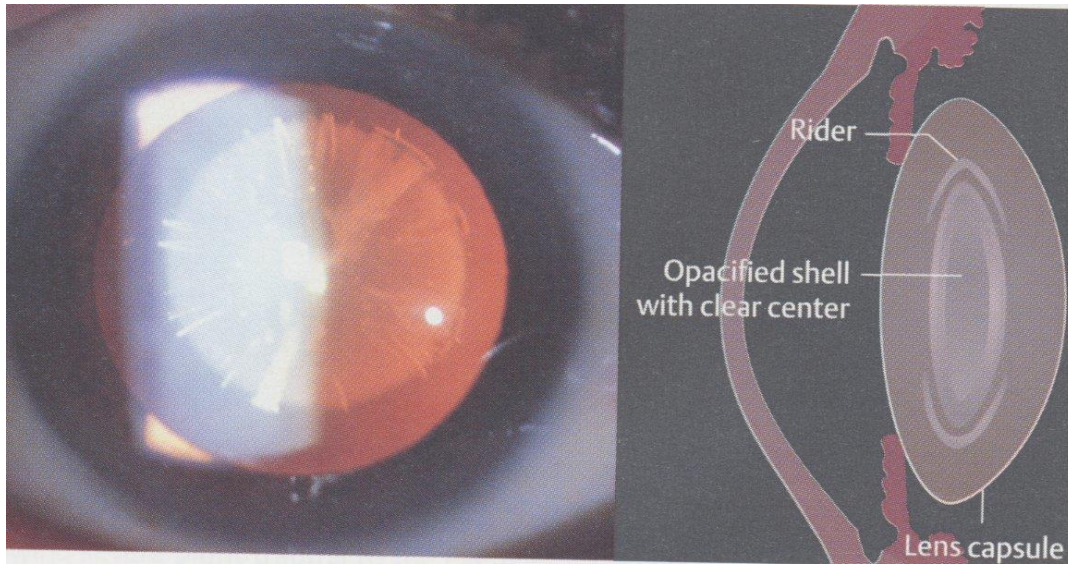
- Cataracta zonularis
- Cataracta nuclearis
- Cataracta coronaria
- Cataracta cerulea

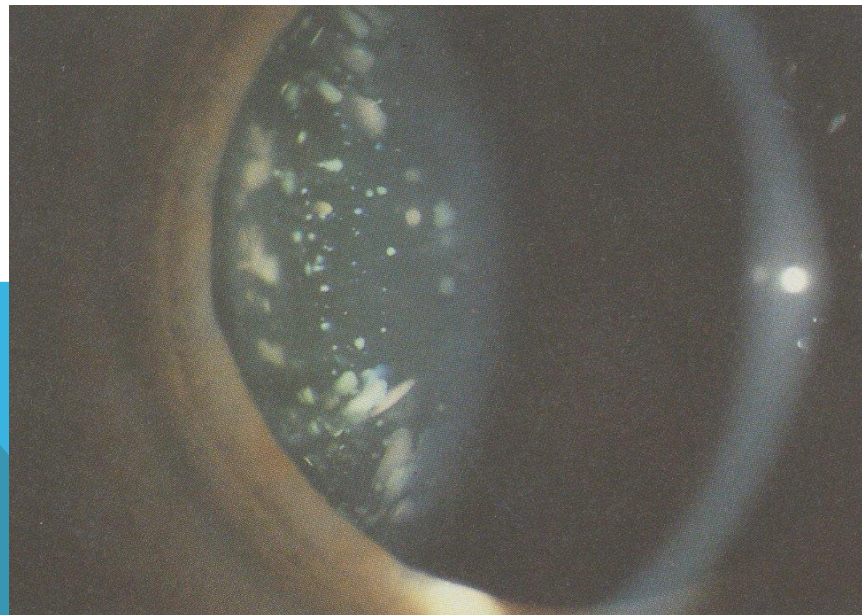
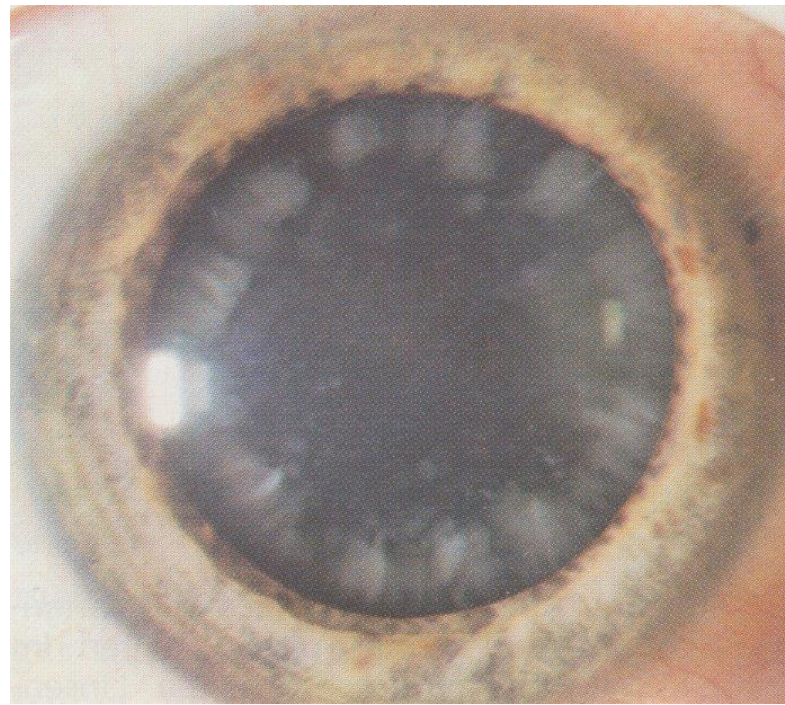


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Zonular cataract







# KATARAKTA ZBOG TRANSPLACENTARNE INFEKCIJE U PRVOM TRIMESTRU

- Rubella
- Mumps
- Hepatitis
- Toxoplasmosis

# POREMEĆAJ POLOŽAJA LEĆE

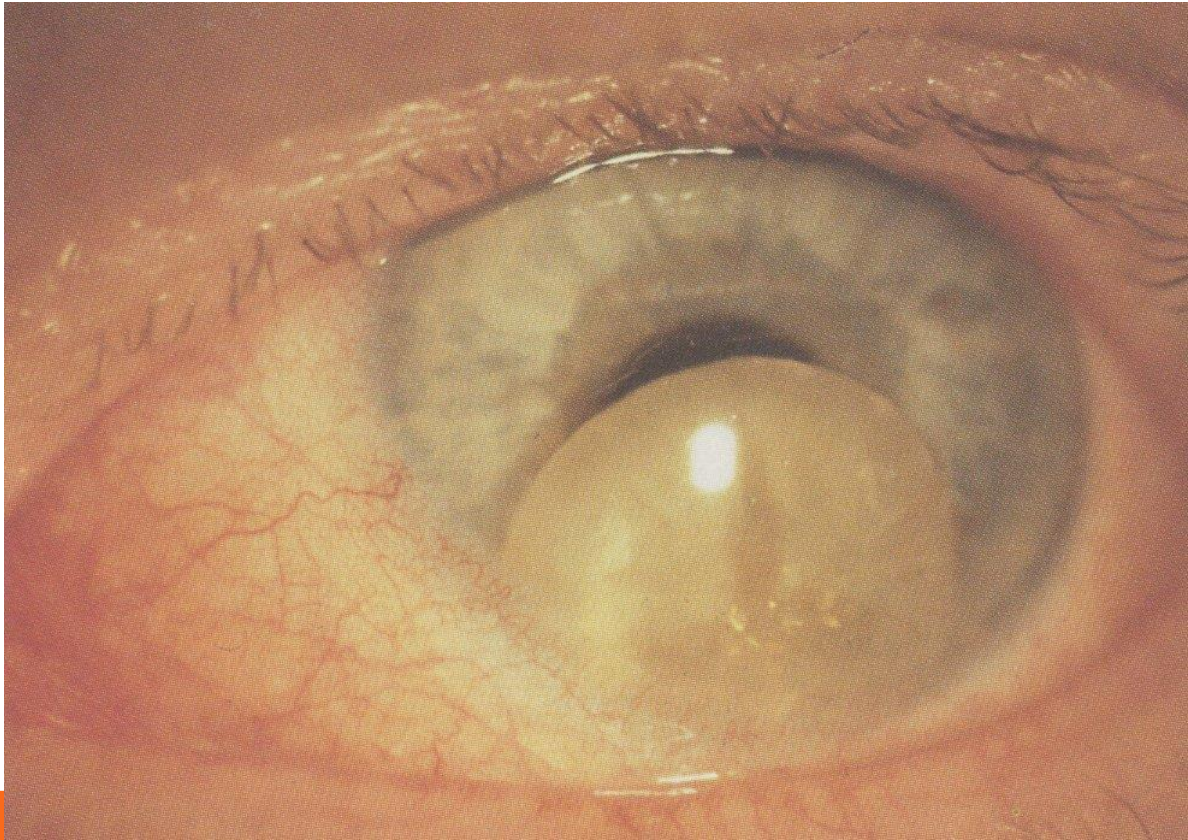
Subluksacija

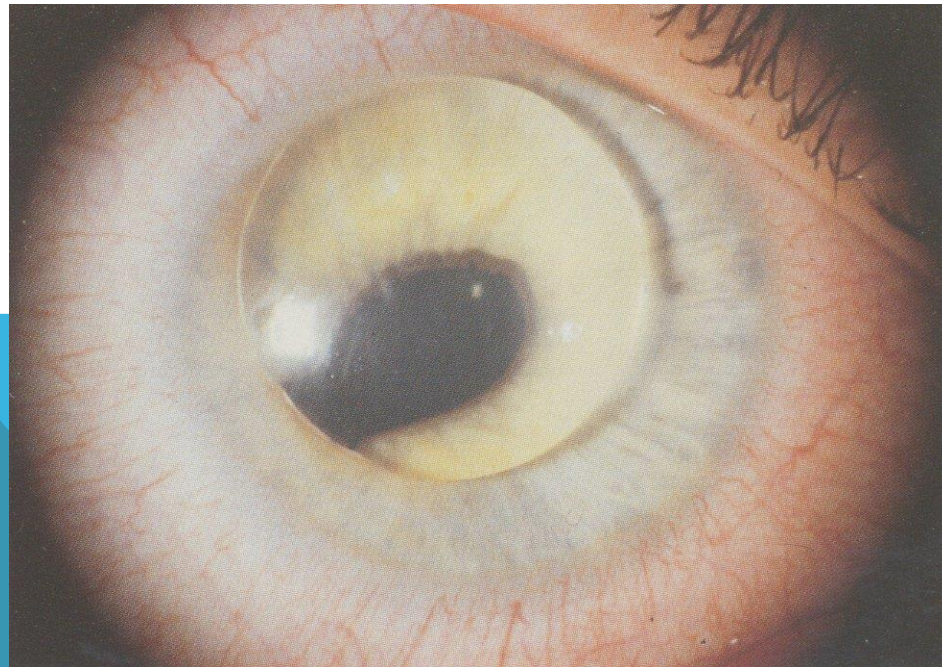
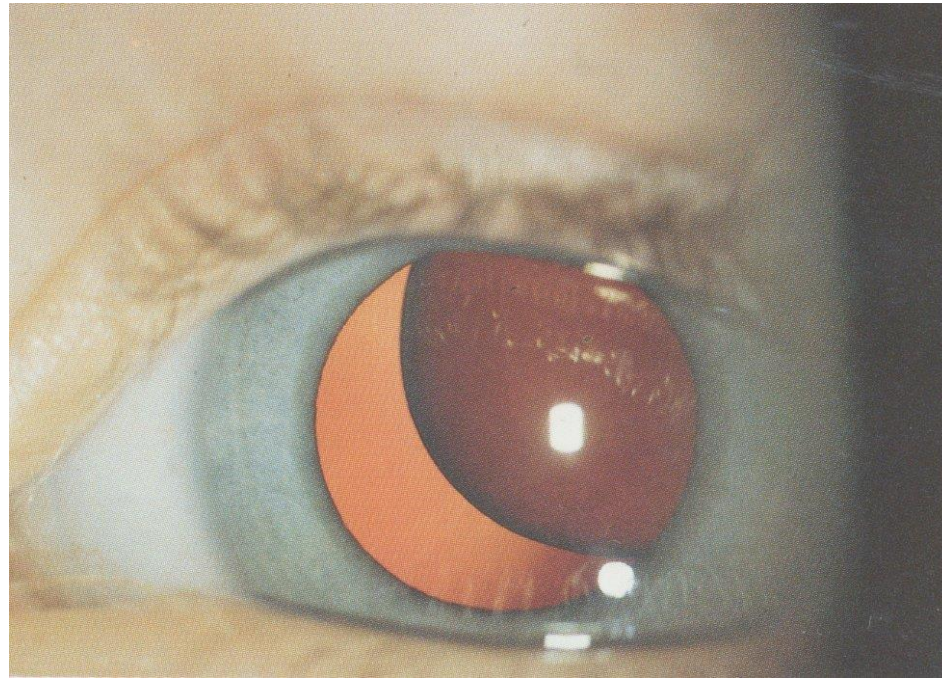
Luksacija

Uzroci

- Trauma
- Marfanov sindrom
- Weil-Marchesanijev sindrom
- Homocistinurija









# OPERACIJE LEĆE

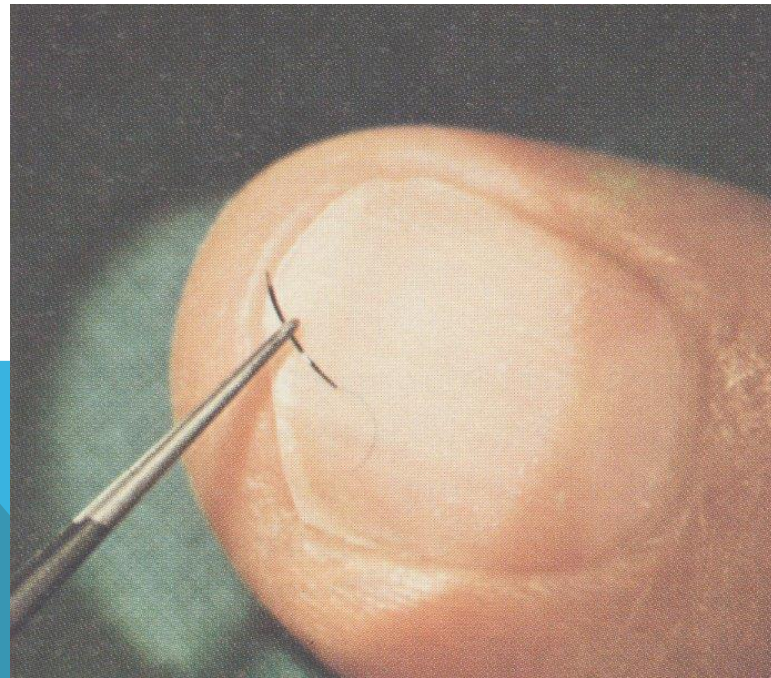
KOD ODRASLIH

Intrakapsularna ekstrakcija

Ekstrakapsularna ekstrakcija

Fakoemulzifikacija





## Intracapsular cataract extraction.

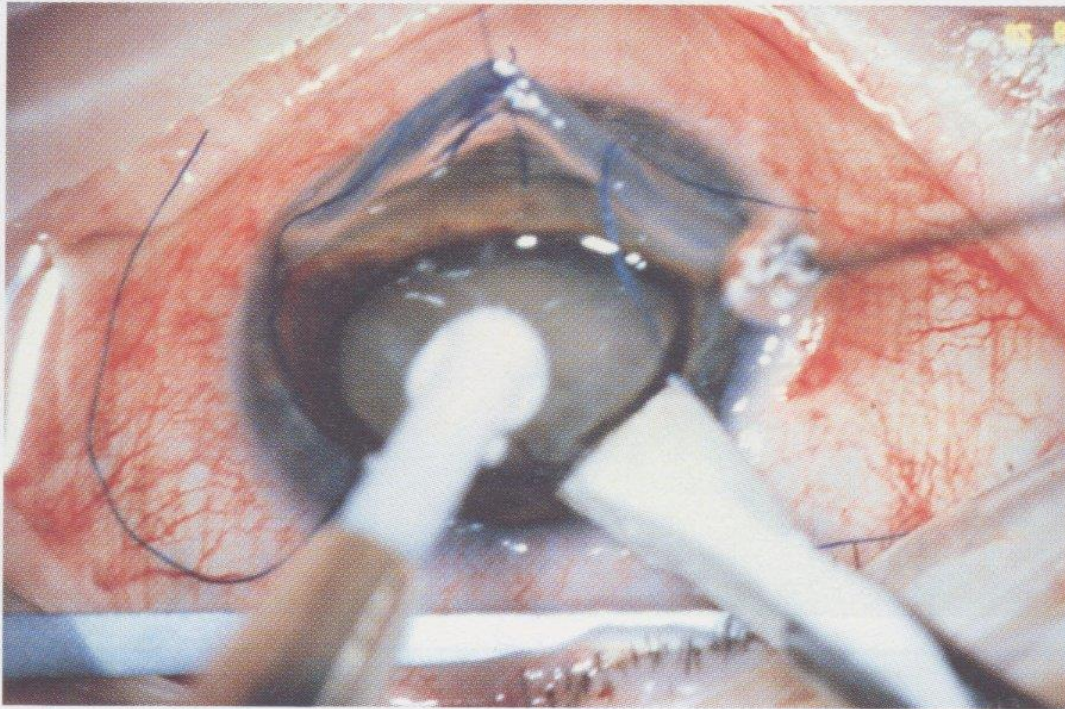
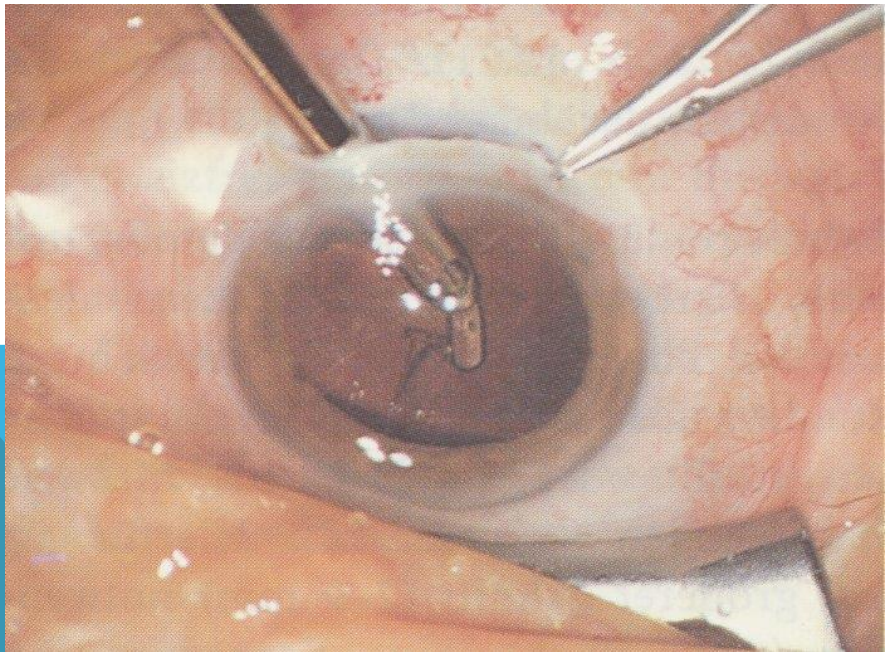
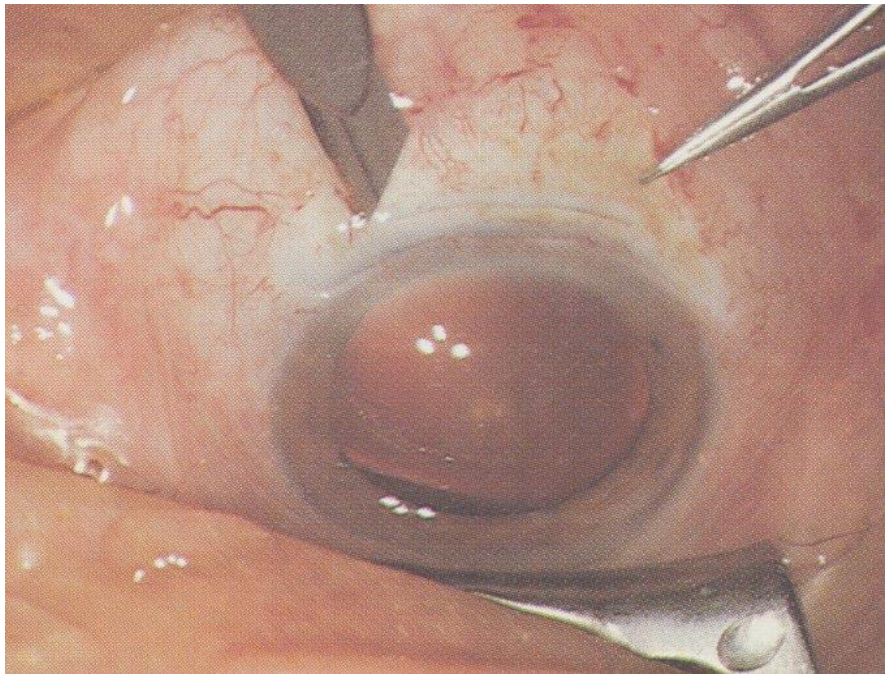
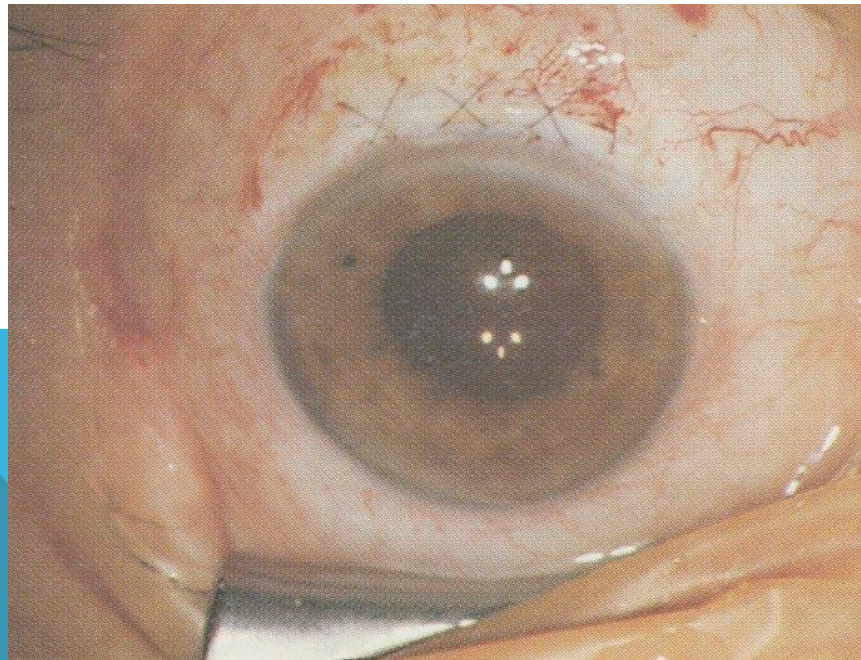
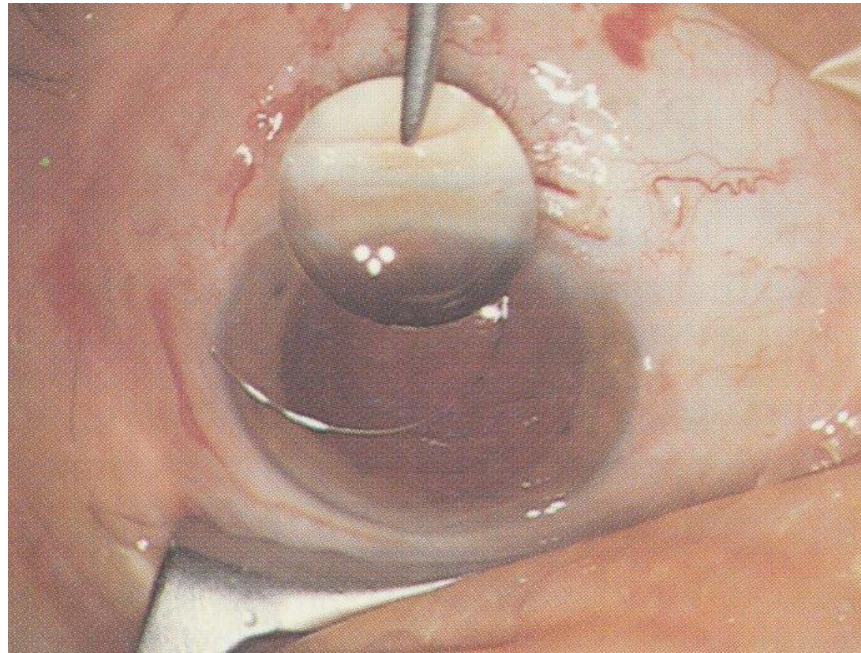
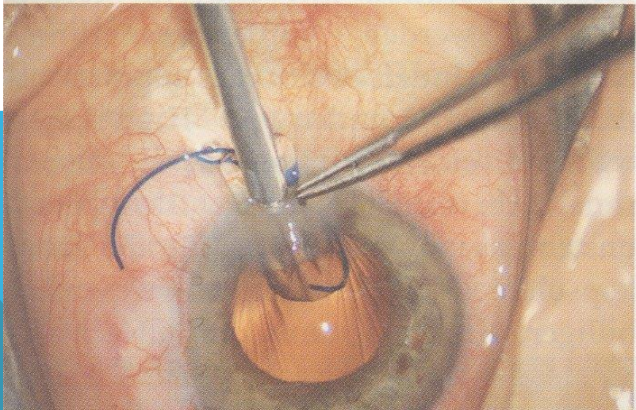
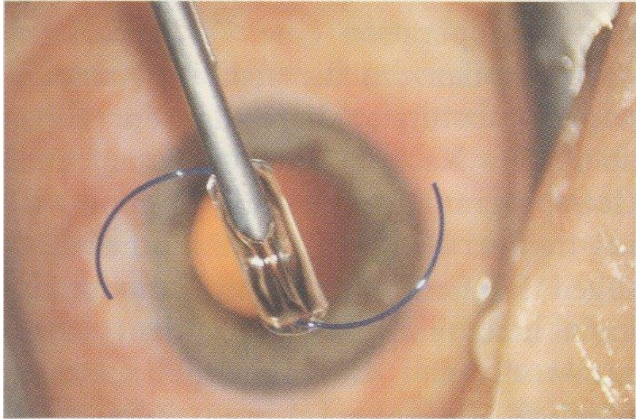
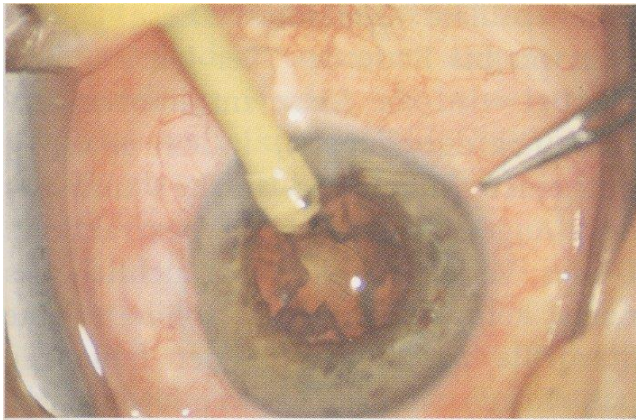


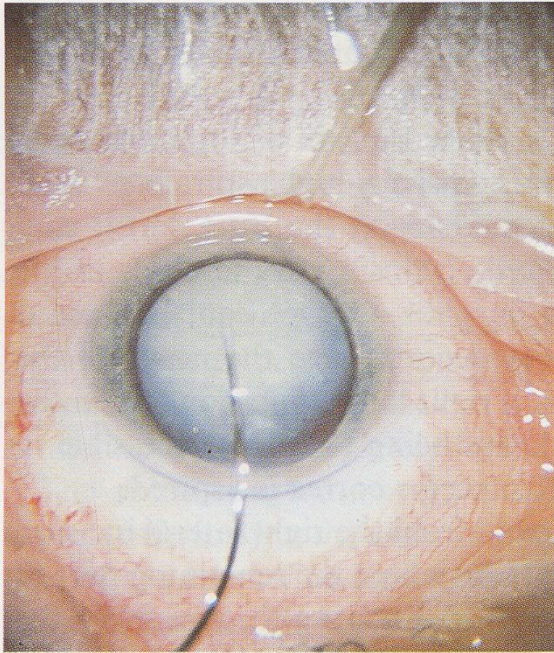
Fig. 7.17 The lens is frozen in its capsule with a cryoprobe and removed from the eye through a large superior corneal incision. The photograph is from the surgeon's perspective.



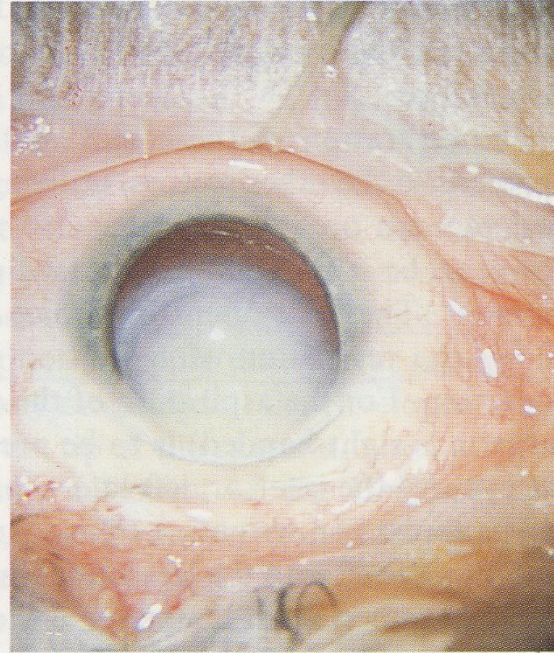








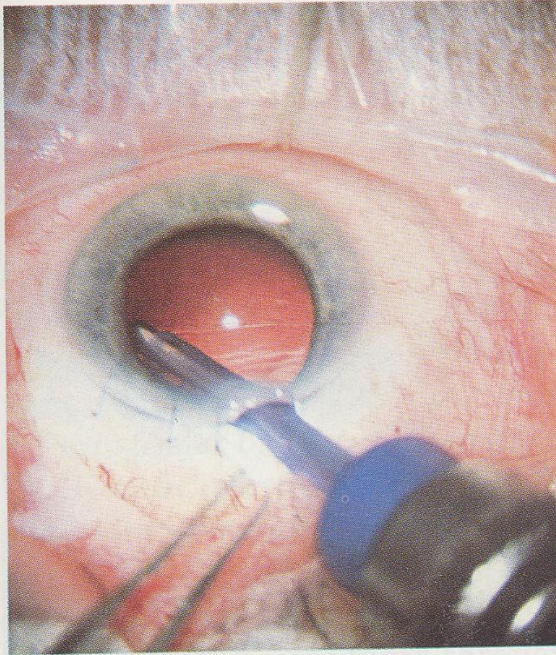
*Plate 3.*



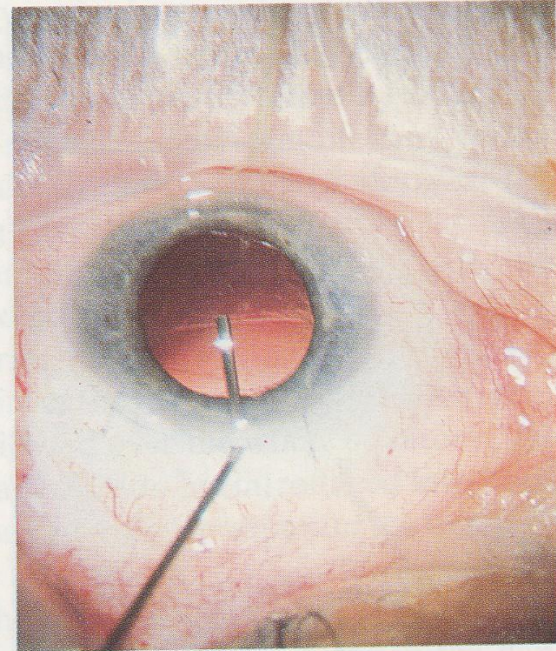
*Plate 4.*

PLATE 3. The nucleus is partially luxated into the anterior chamber by means of the needle used to inject BSS.

PLATE 4. Scleral pressure is exerted with the curved irrigation needle and the nucleus is delivered.



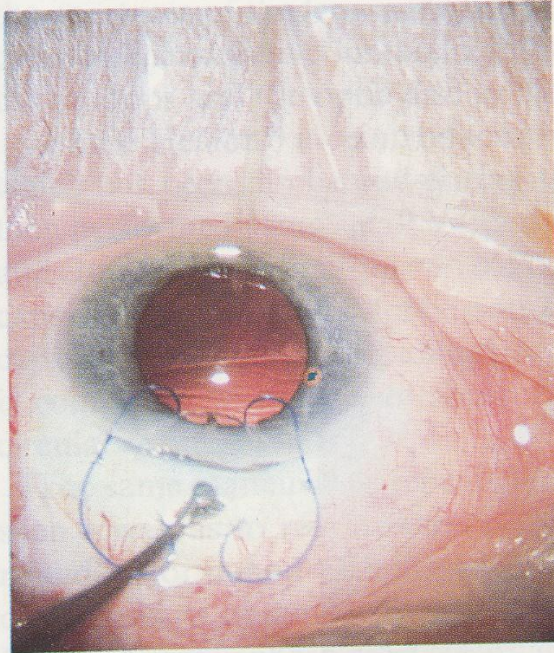
*Plate 5.*



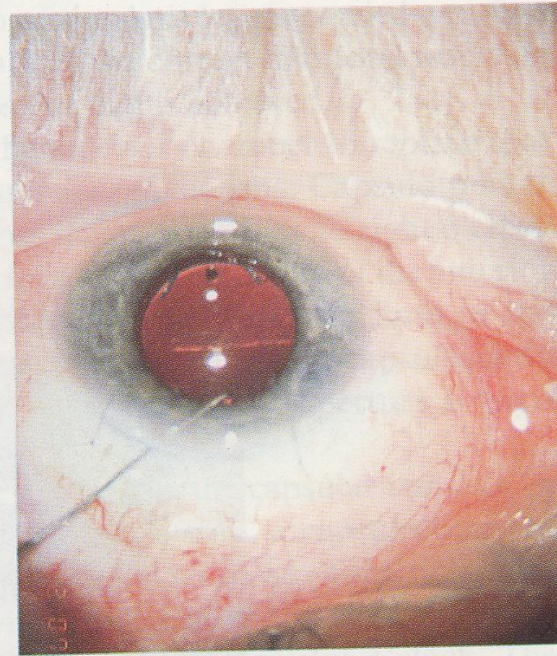
*Plate 6.*

PLATE 5. The irrigation-aspiration tip is introduced into one sector and then into the other sector, in order to remove all of the cortex.

PLATE 6. Healon<sup>®</sup> is injected to open up the capsular bag and to form the anterior chamber.



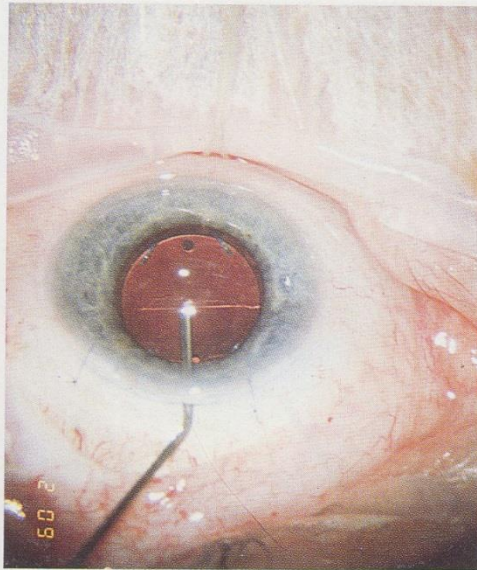
*Plate 7.*



*Plate 8.*

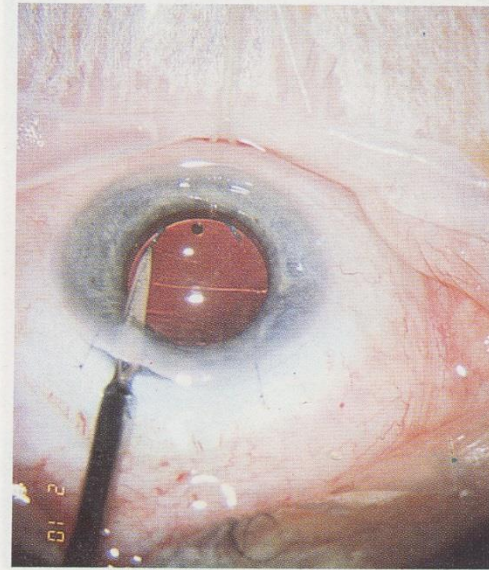
PLATE 7. The Anis lens is introduced by means of lens-holding forceps of the Buratto-type.

PLATE 8. The lens is turned at first clockwise (in order to cause the left part of the loop to pass under the superior capsular flap), and then counter-clockwise, to achieve also the positioning of the right part of the loop.



*Plate 9.*

PLATE 9. The same Healon<sup>®</sup> is injected under the optic disc and capsular flap, in order to separate the capsule from the optic disc and thus favor penetration of the scissors.



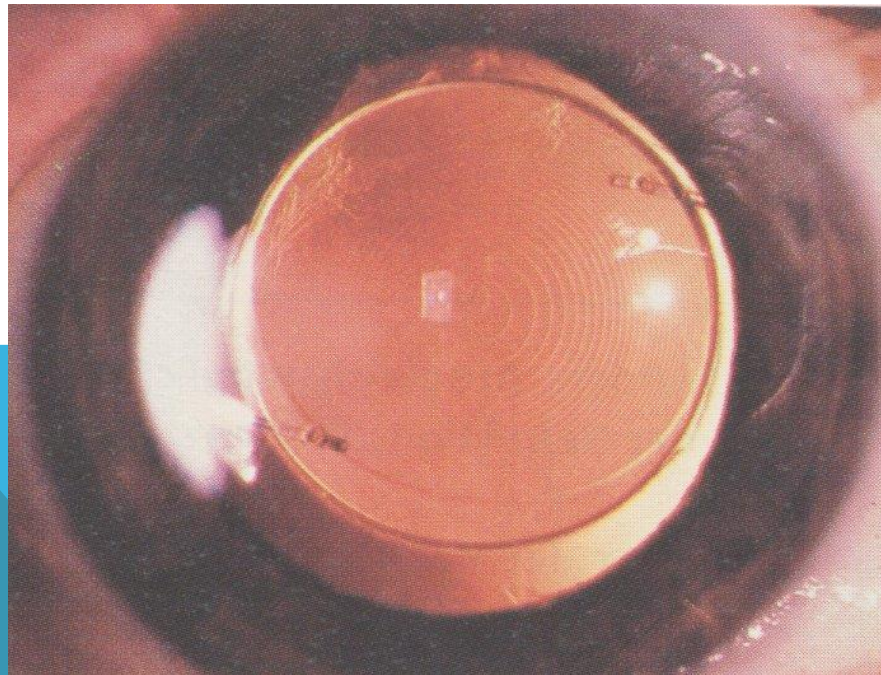
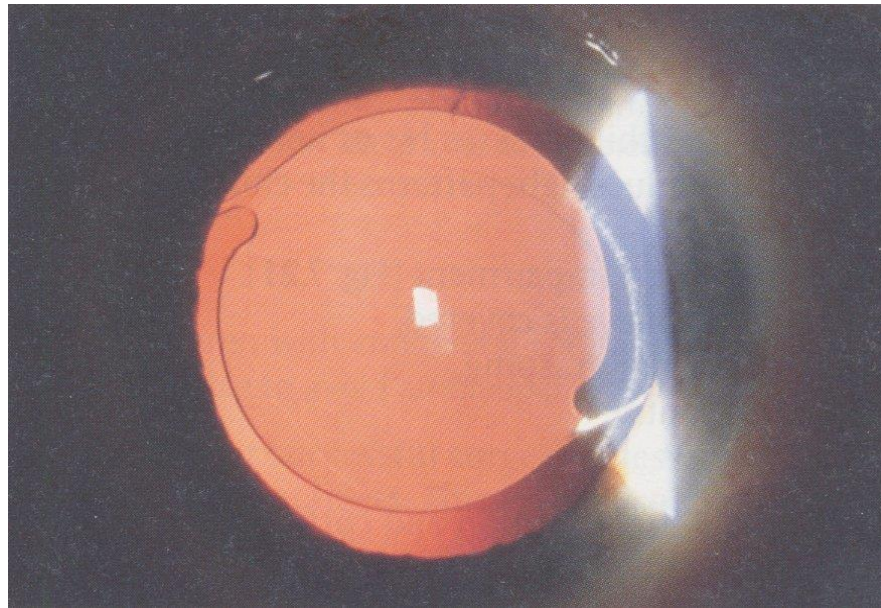
*Plate 10.*

PLATE 10. Vannas scissors are introduced. The left capsular side is cut at first, followed by the right side.



*Plate 11.*

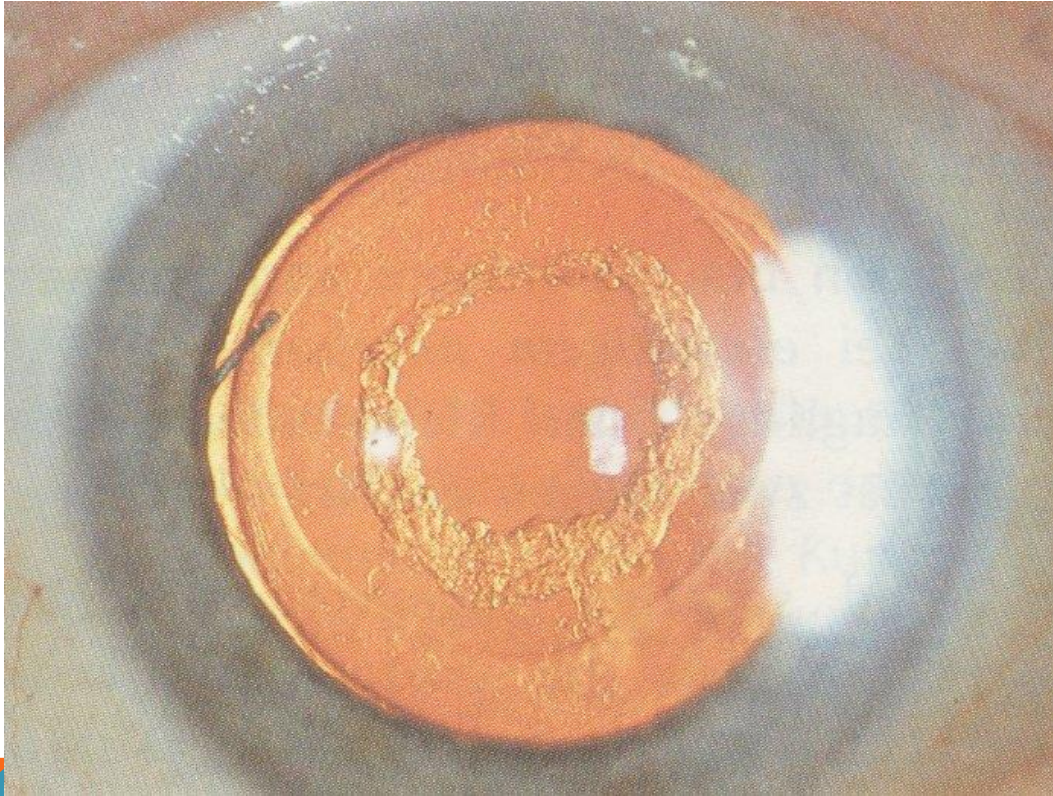
PLATE 11. Acetylcholine is applied and suture is placed.



Cataracta secundaria

- Nd:YAG laser kapsulotomija





## Mogućnosti korekcije

- intraokularne leće
- kontaktne leće
- naočale

## KOD DJECE

- operirati što je moguće ranije
  - IOL se (ne) ugrađuje??
  - korekcija mekanim kontaktnim lećama
  - korekcija naočalama
  - potrebna intenzivna ortoptička terapija
- 