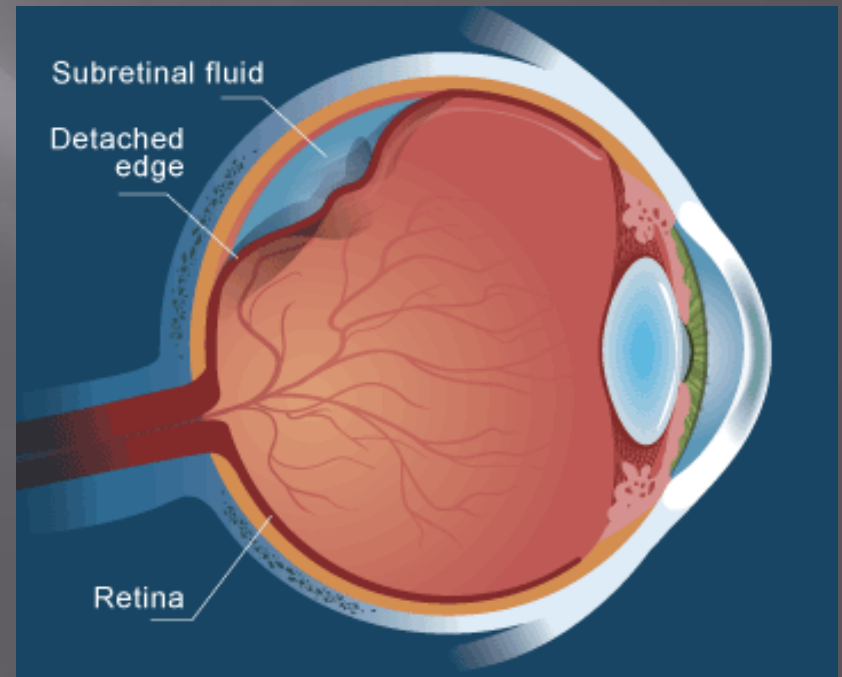


Retinal detachment

❖ Potential space between the neuroretina and its pigment epithelium.

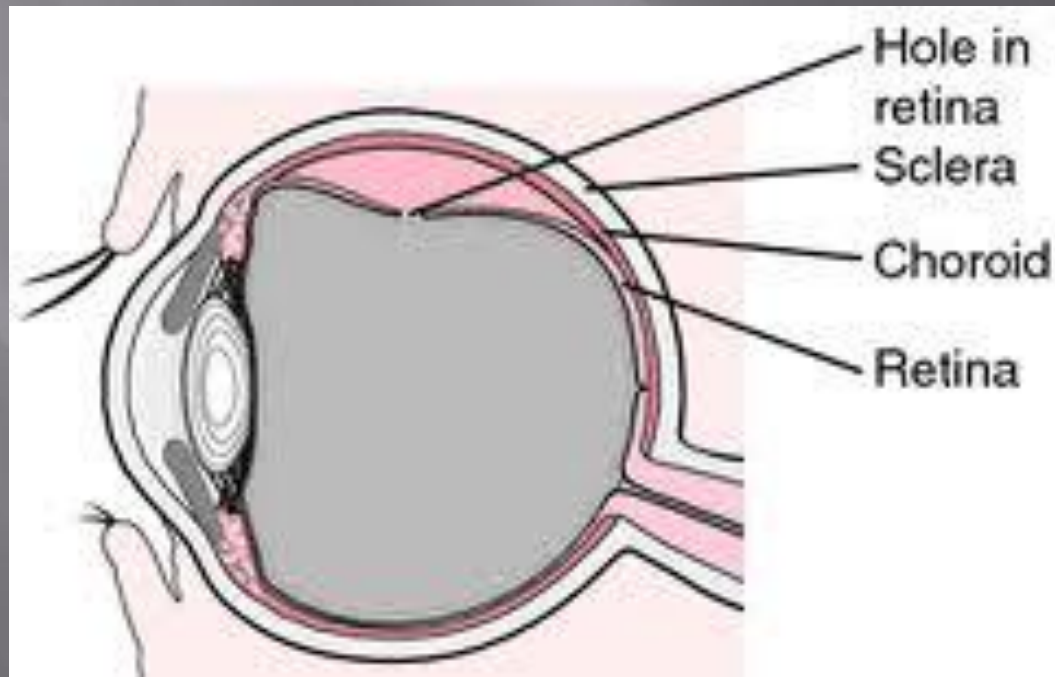
❖ Types:

- 1) Rhegmatogenous.
- 2) Tractional.
- 3) Exudative.



Rhegmatogenous

- ❖ Most common type.
- ❖ Tear occurs in retina, allowing vitreous to gain entry to the subretinal space.



Rhegmatogenous (con...)

- ❖ Incidence: 1 in 10,000.

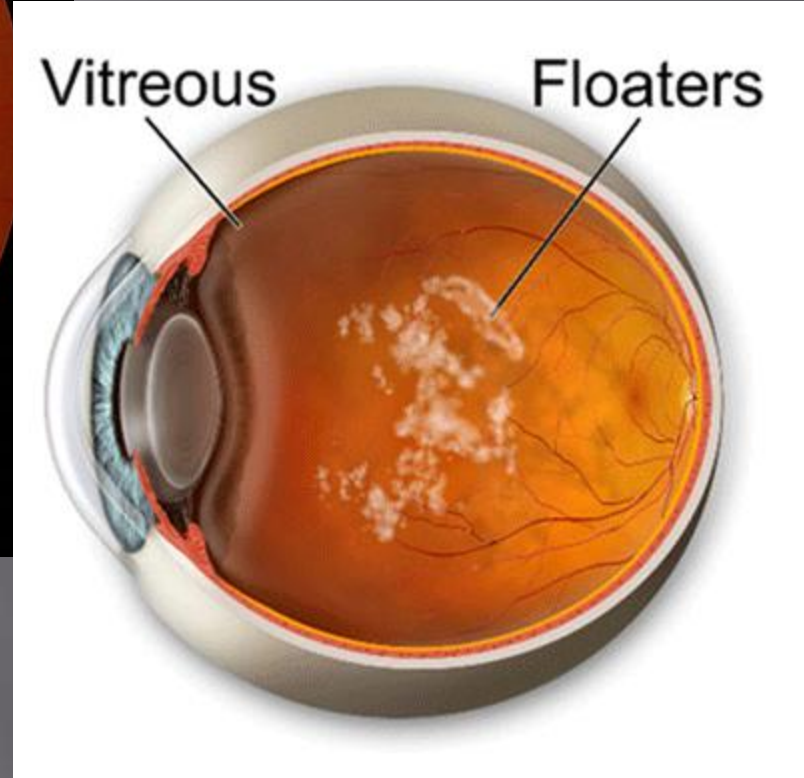
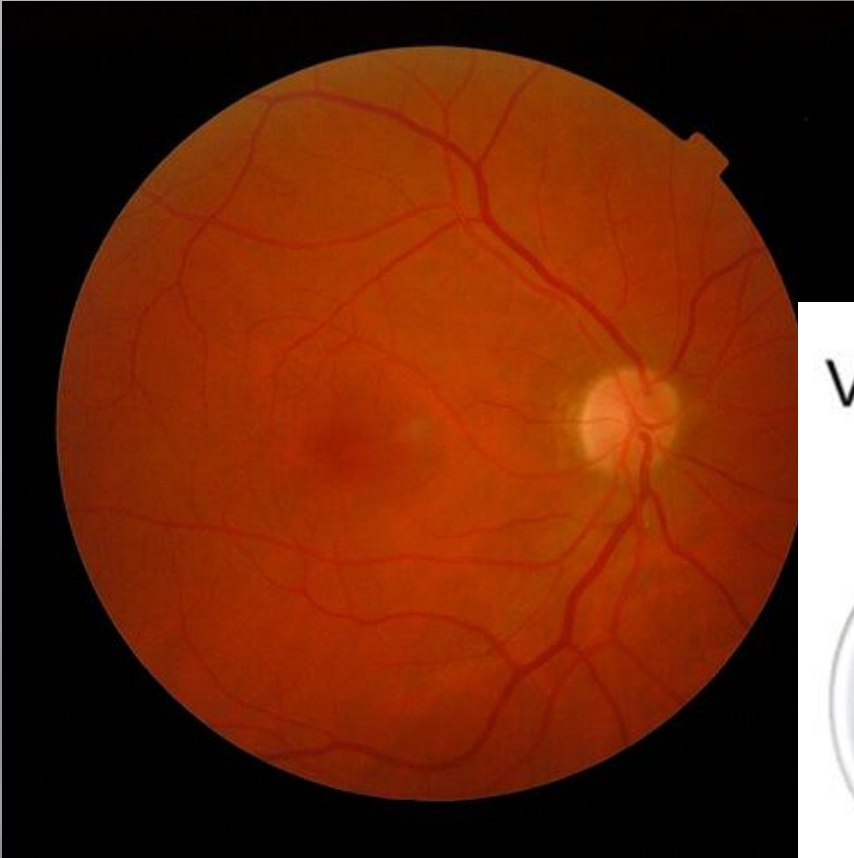
- ❖ Risk factors:
 - 1) Posterior vitreous detachment (90%).
 - 2) High myopia (refractive error more than -6).
 - 3) Surgical cataract complicated by vitreous loss.
 - 4) Severe eye trauma.

Rhegmatogenous (con..)

❖ Symptoms:

- Floaters and flashing light.
- Field defect, often describe as 'shadow' or 'curtain'.
- If macula detached there is a marked fall in visual acuity.

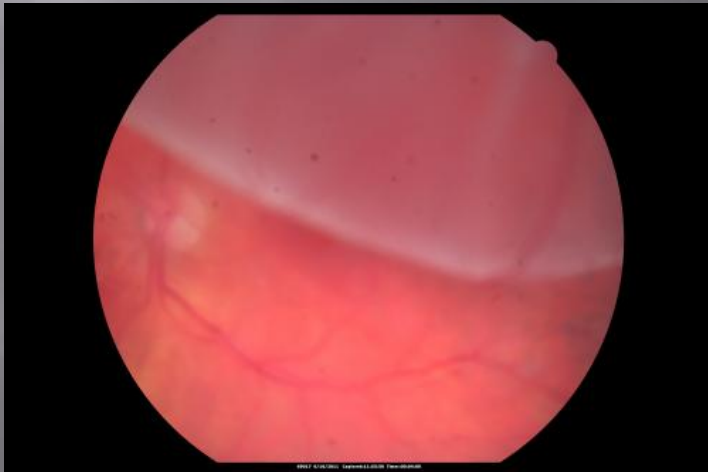
Rhegmatogenous (con..)



Rhegmatogenous (con..)

❖ Signs:

- Visible on ophthalmoscopy as pinkish grey membrane.
- If there is marked accumulation of fluid in subretinal space (bullous retinal detachment) **undulating movements of retina** will be observed as the eye moves.



Rhegmatogenous (con..)

❖ Signs:

- Tear in retina appears reddish pink because of underlying choroidal vessels.
- May be associated with debris in vitreous comprising blood (vitreous hemorrhage) or lid (operculum).

Rhegmatogenous (con..)

❖ Treatment:

• Surgery:

- 1) External (conventional) approach.
- 2) Internal (vitreoretinal) surgery.

• The essential principle behind both techniques is to close causative break and increase strength of attachment by inducing inflammation in the region either by local freezing with cryoprobe or with a laser.

Rhegmatogenous (con..)

❖ Treatment:

- 1) External (conventional) approach:
 - Break is closed by indenting the sclera with externally located strip of silicone.
 - It may first necessary to drain excessive accumulation of subretinal fluid by piercing of sclera and choroid with needle (**sclerostomy**).

Rhegmatogenous (con..)

❖ Treatment:

- 2) Internal (vitreoretinal) surgery:
 - Vitreous is removed by with a microsurgical cutter introduce into vitreous cavity through the pars plana, this relieves the vitreous traction on the break.
 - Temporary internal tamponade is then obtained by injecting an inert flurocarbon gas into vitreous cavity.

Rhegmatogenous (con..)

❖ Prognosis:

- If macula is attached and surgery successfully reattaches the peripheral retina, the outlook for vision is excellent.
- If macula is detached for more than 24 h prior to surgery the previous visual acuity probably not be recovered completely.
- If not successfully attached and surgery is complicated, then fibrotic changes may occur in retina (**proliferative vitreoretinopathy**).

Tractional

❖ Pulled off by contracting fibrous tissue on retinal surface.

❖ Causes:

- 1) Proliferative retinopathy of diabetes mellitus.
- 2) Vein occlusion.
- 3) Retinopathy of prematurity.
- 4) Proliferative vitreoretinopathy (PRV).

Difference between rhegmatogenous and traction

<u>Rhegmatogenous retinal detachment</u>	<u>Traction retinal detachment</u>
Bullous detachment	Concave detachment
Undulating movement of retina	No

Exudative

- ❖ Rare.
- ❖ Fluid accumulates in subretinal space as result of exudative process.
- ❖ Causes:
 - 1) Inflammations like uveitis.
 - 2) Tumors.
- ❖ Treat underlying cause

Retinitis pigmentosa

- ❖ Inherited disorder of photoreceptor.
- ❖ Affects both types of photoreceptors but the **rods** are affected in the first.
- ❖ Inheritance may be autosomal recessive, autosomal dominant, x-linked recessive or sporadic.

Retinitis pigmentosa (con...)

- ❖ Prevalence: 1 in 4,000.
- ❖ Symptoms:
 - Night blindness generally precedes tunnel vision by years or even decades.

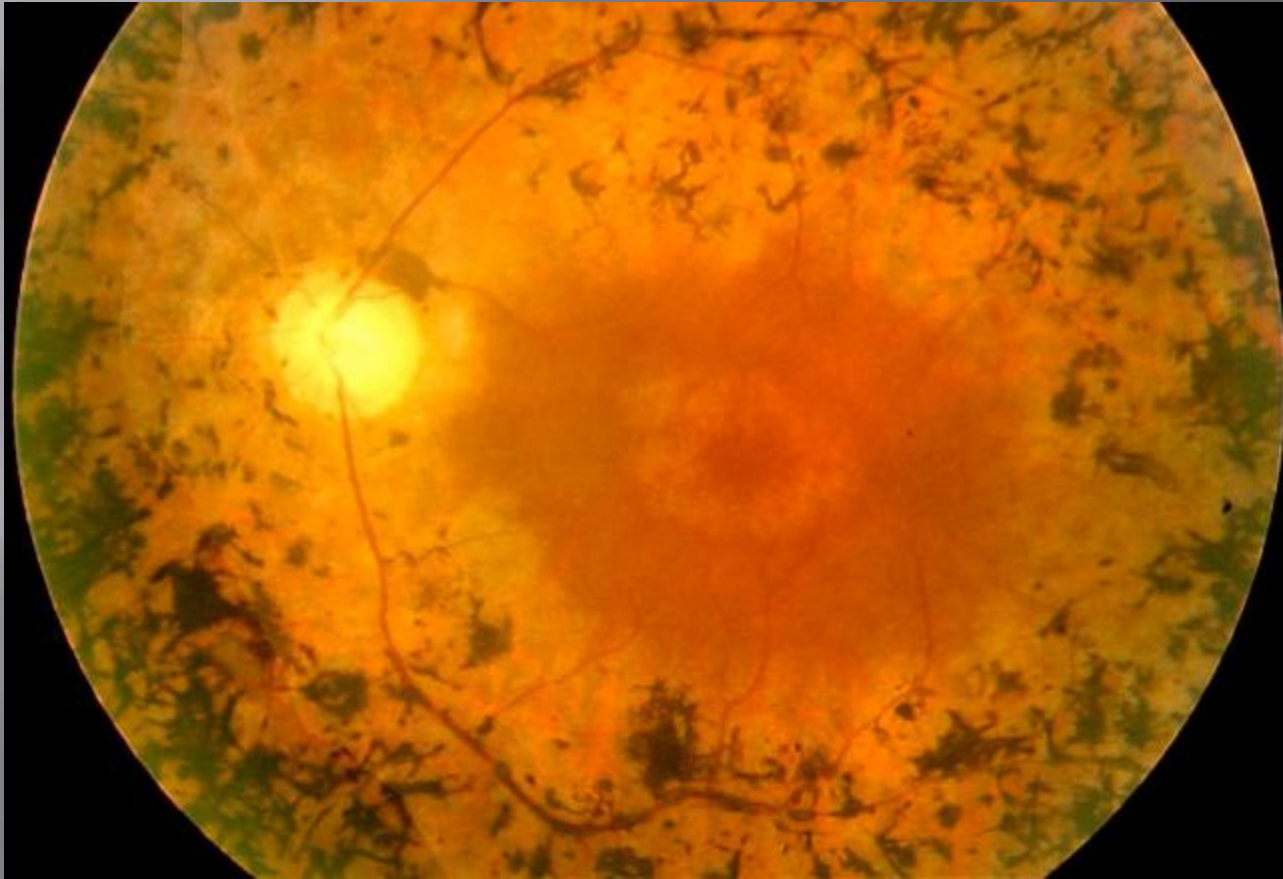


Retinitis pigmentosa (con...)

❖ Signs:

- 1) Peripheral clumps of retinal pigmentation (bone-spicule pigmentation).
- 2) Attenuation of retinal arterioles.
- 3) Disc pallor.
- 4) Patient may have **cataracts** at early stage and may develop **macular edema**.

Retinitis pigmentosa (con...)



Retinitis pigmentosa (con...)

❖ Investigations:

- Careful family history to determine the mode of inheritance.
- Diagnosis usually made clinically.
- Electrophysiological tests useful in diagnosis, particularly in early disease.

Retinitis pigmentosa (con...)

❖ Treatment:

- Nothing can be done to prevent the progression of the disease.
- Associated problems (cataracts and macular edema) can be treated.
- Macular edema treated by Acetazolamide.

Retinitis pigmentosa (con...)

❖ Prognosis:

- Prognosis dependent on the mode of inheritance.
- Dominant form is of **later** onset and **milder** degree.
- Autosomal recessive and x-linked recessive present in **infancy and childhood** and produce the most **severe** visual symptoms.

Retinopathy of prematurity (ROP)

- ❖ Failure of normal retinal vascularization followed by a phase of aggressive new vessel formation extending into vitreous and causing traction detachment.
- ❖ Two weeks **prior** to term (complete vascular of nasal retina).
- ❖ Two weeks **after** term (complete vascular of temporal retina).

ROP (con...)

Failure of normal retinal vascularization



Less O₂ leading to retinal ischemia



Increase in VEGF leading to angiogenesis



Blood vessels with leaky fibrous membrane



Tractional retinal detachment and complete blindness

ROP (con...)

❖ Risk factors:

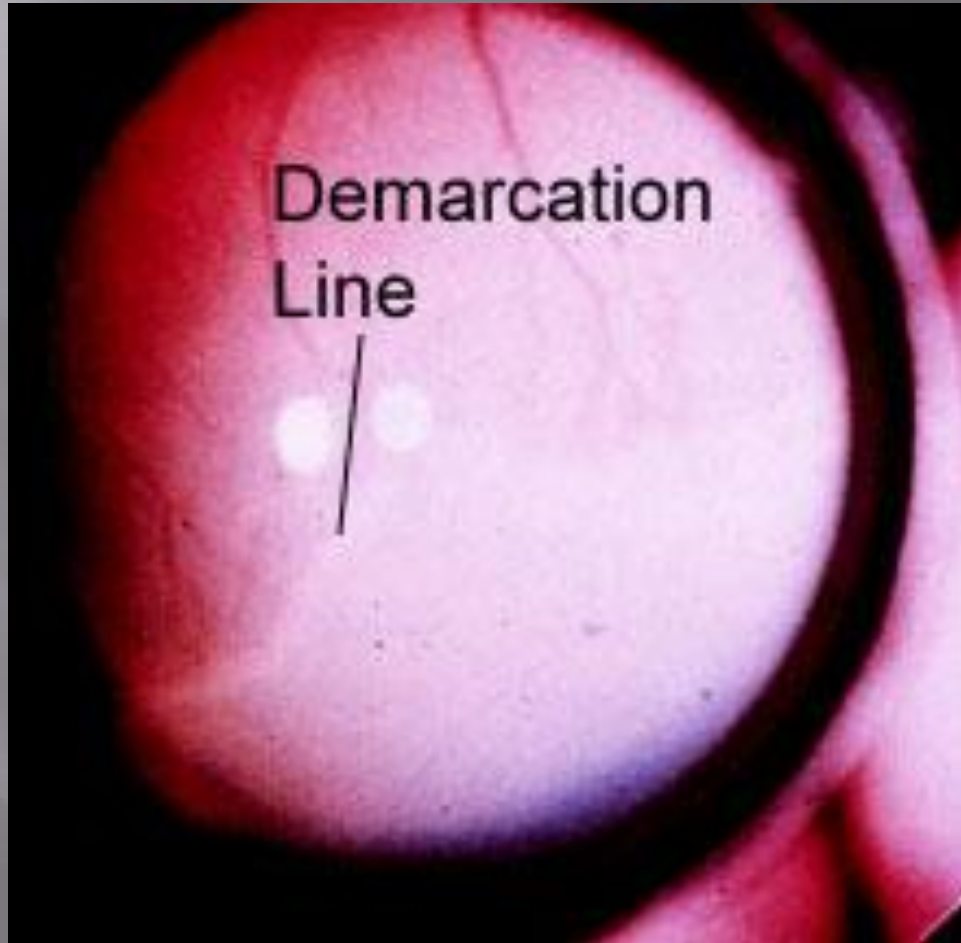
- Gestational age < 32 w.
- Birth weight < 1500 g.
 - ✓ Incidence in infants weighing less than 1500 g is 34-60%.
- Exposure to supplemental oxygen.
- Apnea.
- Sepsis.
- Duration of ventilation.
- Blood transfusion.
- Retinal light exposure.

ROP (con...)

❖ Stages:

- 1) Demarcation line between vascular and avascular retina.
- 2) Formation of ridges.
- 3) Extraretinal fibrovascular proliferation extending into vitreous.
- 4) Partial retinal detachment.
- 5) Total retinal detachment.

ROP (con...)

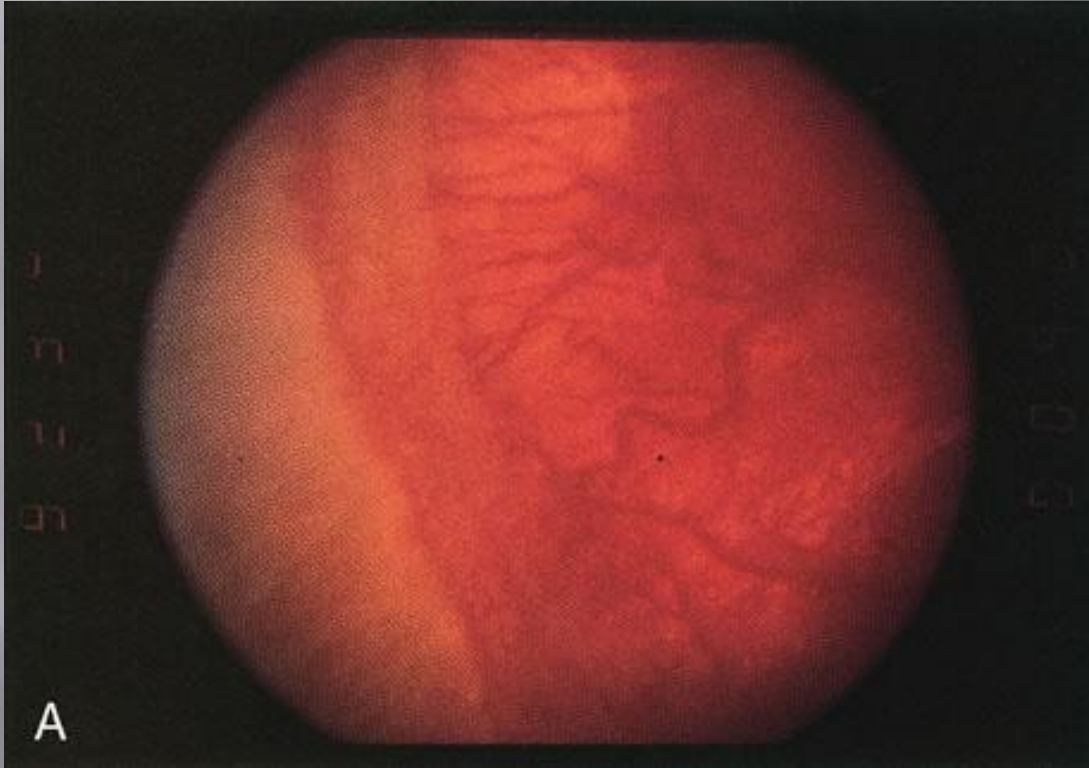


ROP (con...)



Ridges

ROP (con...)



Extraretinal fibrovascular proliferation

ROP (con...)



Partial retinal detachment

ROP (con...)



Complete retinal detachment

ROP (con...)

❖ Treatment:

- Risk infants are screened on a regular basis.
- Severe complication can be reduced by applying cryotherapy or laser to avascular retina (killed ischemic retina to inhibit VEGF release).
- Anti-VEGF (less complication than laser).

Choroidal melanoma

- ❖ Incidence: 6/1,000,000.
- ❖ More common in white adults.
- ❖ It can be seen in ciliary body and iris but greatest number are found in choroid (80%).

❖

Choroidal melanoma (con...)

Symptoms:

- Usually detected as coincidental finding during ocular examination.
- Advanced cases may present with visual defect or loss of acuity.
- In the anterior part of choroid, the enlarging tumor may cause shallowing of anterior chamber resulting in secondary angle closure glaucoma.

Choroidal melanoma (con..)

❖ Signs:

- **Raised pigmented lesion** visible at the back of the eye. Optic nerve may be involved.
- May be associated with area of **retinal detachment**.

Choroidal melanoma (con..)



Choroidal melanoma (con..)

❖ Investigations:

- For systemic spread is less usual than in malignant melanoma of the skin.
- Ultrasound is useful in determining the **size** of tumor and detecting the **growth** of tumors over time.
- Ultrasound to detect liver mets.

Choroidal melanoma (con..)

❖ Treatment:

- Depends on size and location of tumor.
- Large tumor usually require **enucleation**.



- Small tumor treated by local excision or radiation.