

Treatment of ROP

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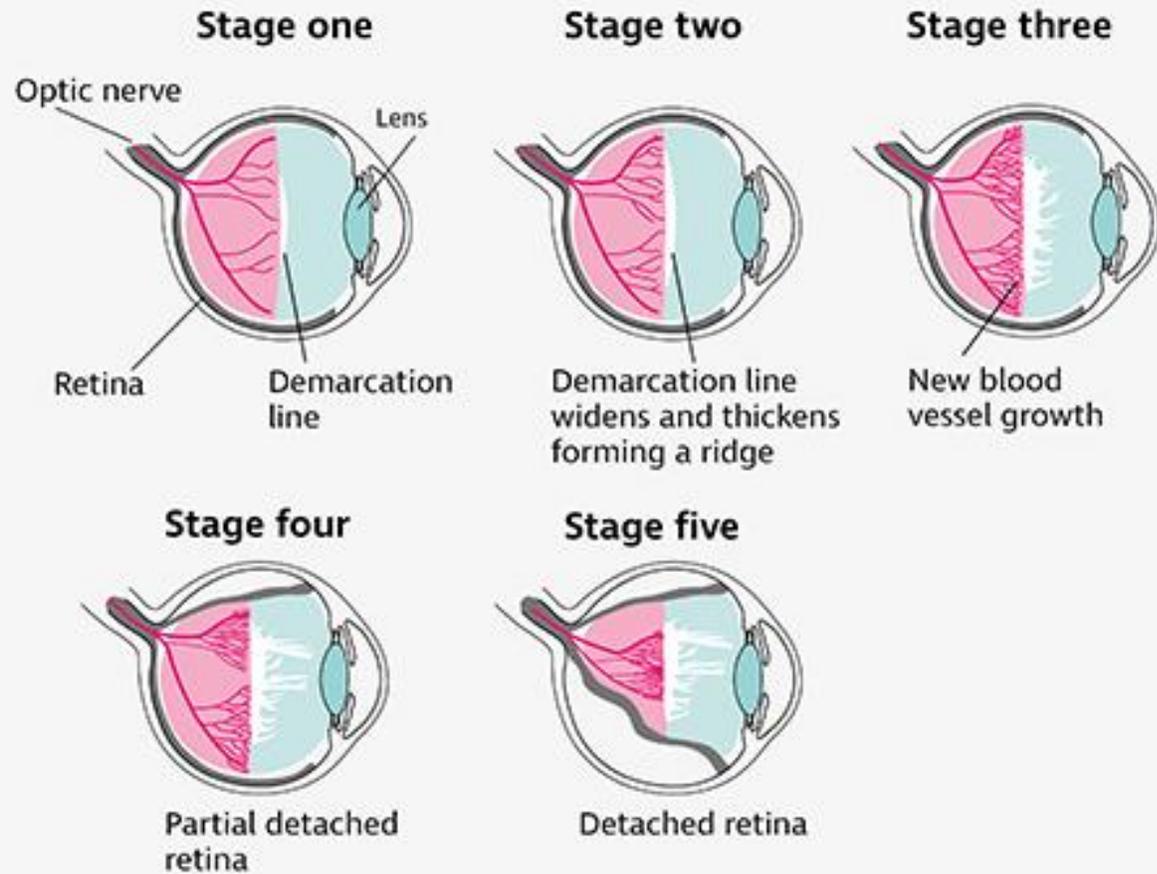
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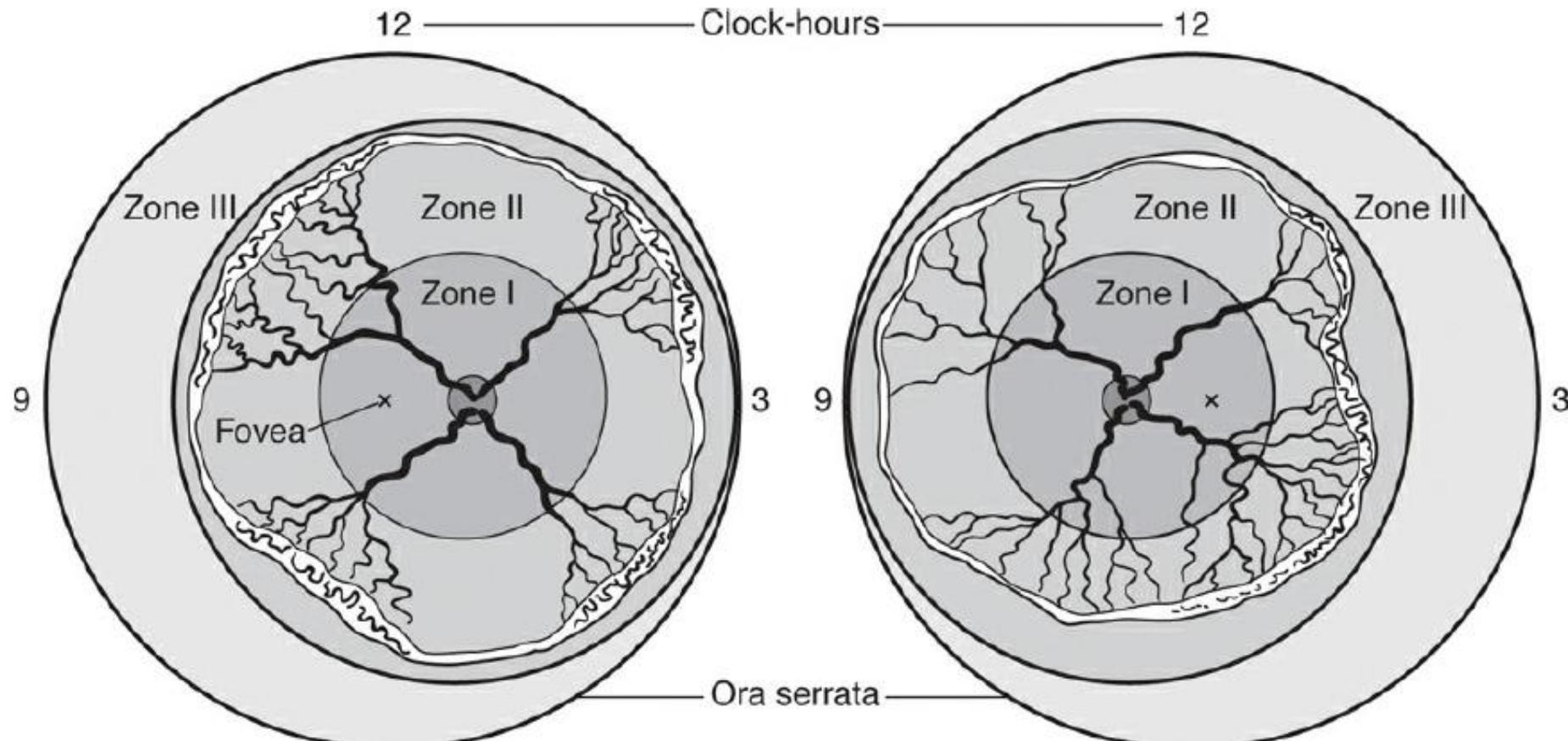
Cryotherapy for ROP study

- Cryotherapy for ROP study: 1988
- Ablation of the avascular anterior retina in ROP eyes with *threshold disease* reduced by approximately half the incidence of unfavorable outcomes (eg, macular dragging, retinal detachment, and retrolental cicatrix formation).
- At 10 years, eyes that received cryotherapy were still much less likely to be blind than untreated control eyes.

Retinopathy of prematurity



Threshold disease: > 5 contiguous clock-hours of extraretinal neovascularization or 8 cumulative clock-hours of extraretinal neovascularization in association with plus disease and location of the retinal vessels within zone I or II



Early Treatment for Retinopathy of Prematurity Study

- The ETROP trial: 2003
- Prethreshold ROP to receive early laser ablation of the avascular retina
- In infants with *high-risk prethreshold* ROP, earlier treatment was associated with a reduction in unfavorable visual acuity outcomes (from 19.5% to 14.5%; $P = .01$) and a reduction in unfavorable structural outcomes (from 15.6% to 9.1%; $P < .001$) at 9 months.

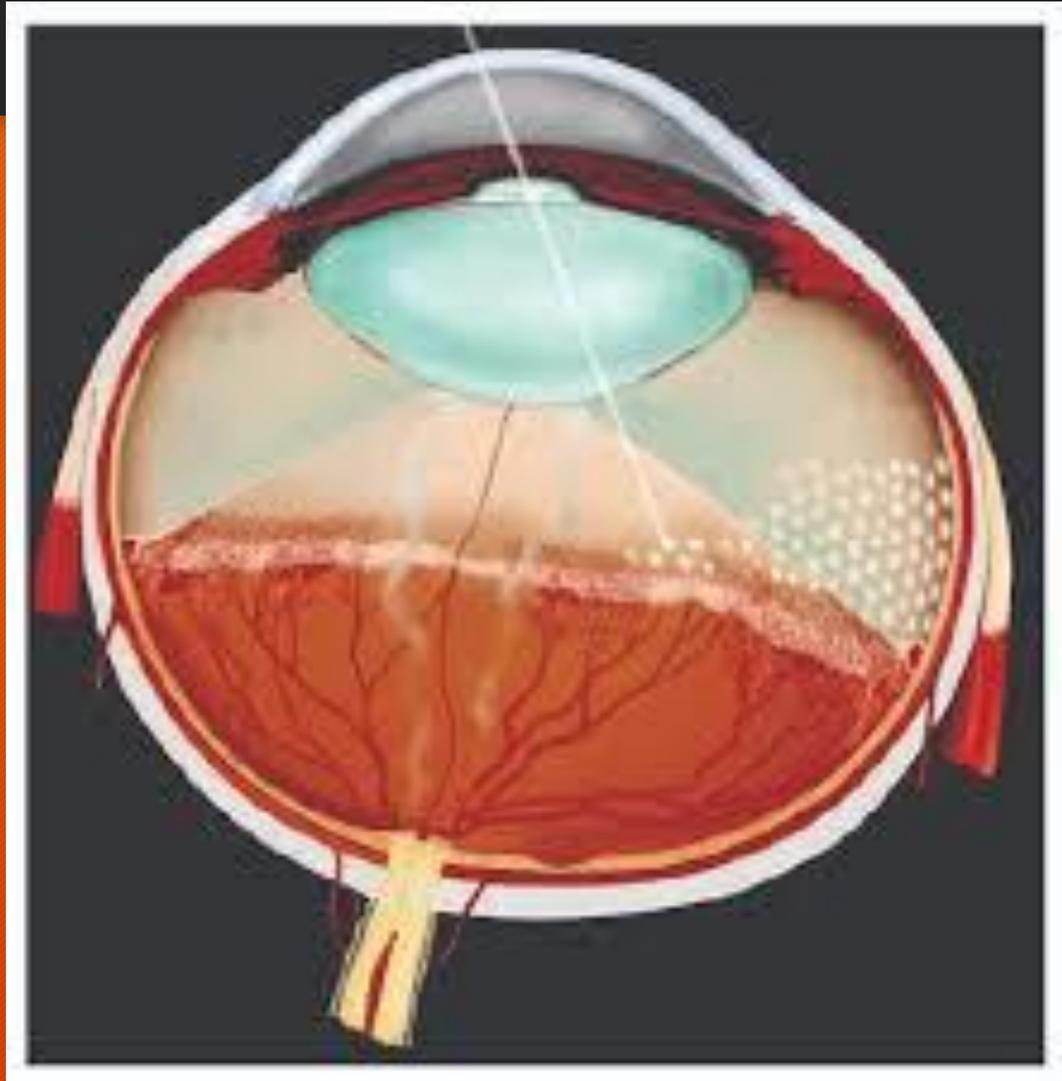
Prethreshold disease

- Zone I and zone II ROP changes that do not meet threshold treatment criteria, except for zone II stage 1 and zone II stage 2 without plus disease.
- Prethreshold disease can be further divided into high risk prethreshold ROP, or *type 1 ROP*, and lower-risk prethreshold ROP, or *type 2 ROP*
- *Type 1:*
 - Zone I: any ROP with Plus disease
 - Zone I: Stage 3 without plus disease
 - Zone II: Stage 2 or 3 with plus disease

Current recommendation

- Any eyes meeting the criteria for *type 1 ROP* should be considered for peripheral retinal *laser* ablative treatment
- Type 2 ROP eyes can be monitored in short intervals
- Treatment should be administered within 72 hours of determining its need
- LA or GA with cardiorespiratory monitoring in OR

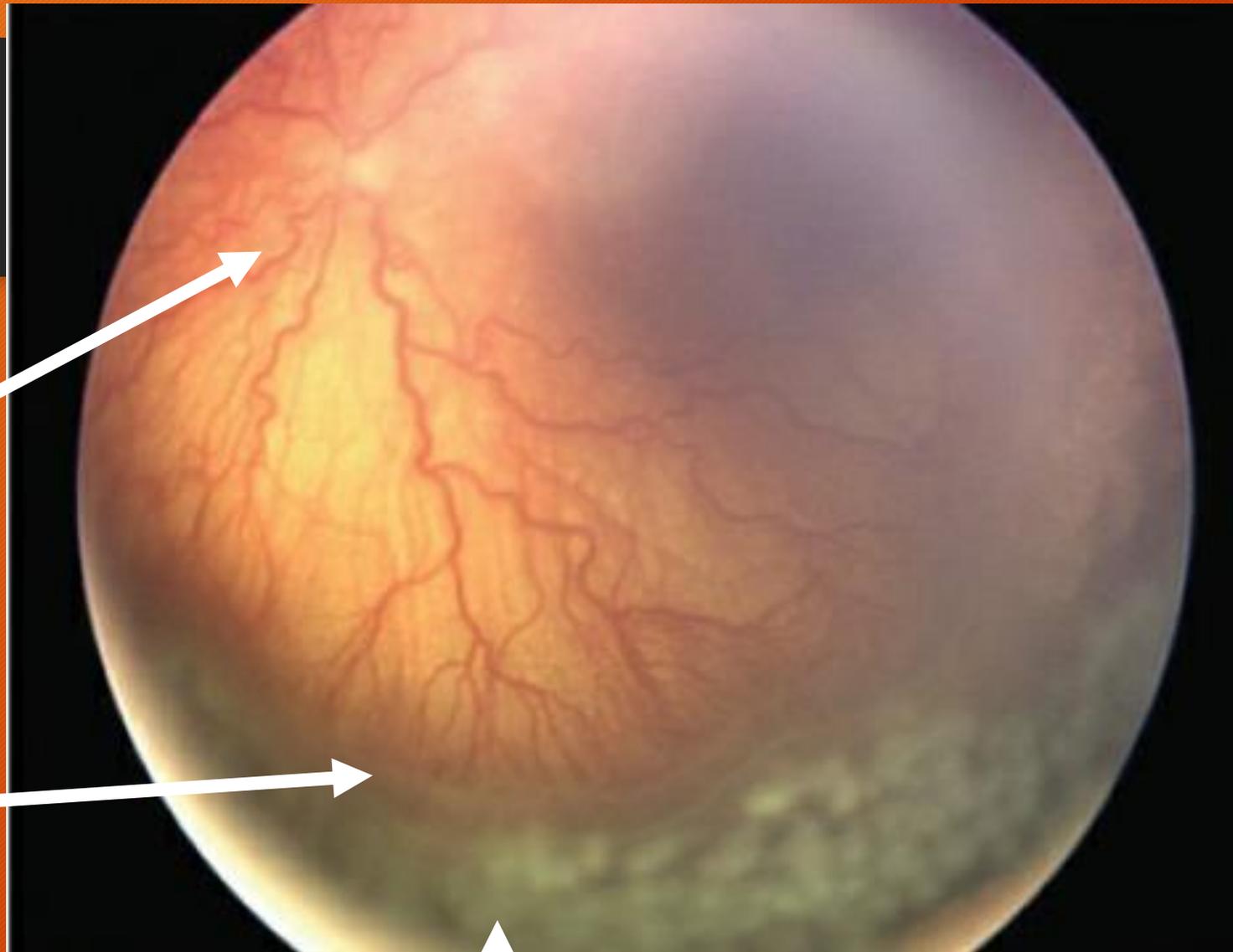




Plus disease

Neovascularization
in zone II

Confluent or near confluent laser



Anti-VEGF Drugs

- The BEAT-ROP (Bevacizumab Eliminates the Angiogenic Threat of Retinopathy of Prematurity) trial: 2011
- Intravitreal bevacizumab monotherapy compared with conventional laser therapy, a statistically significant treatment benefit for
- Bevacizumab was more useful for demonstrated for zone I ROP, whereas zone II disease had similar outcomes with either treatment.
- Some eyes still need additional laser treatment



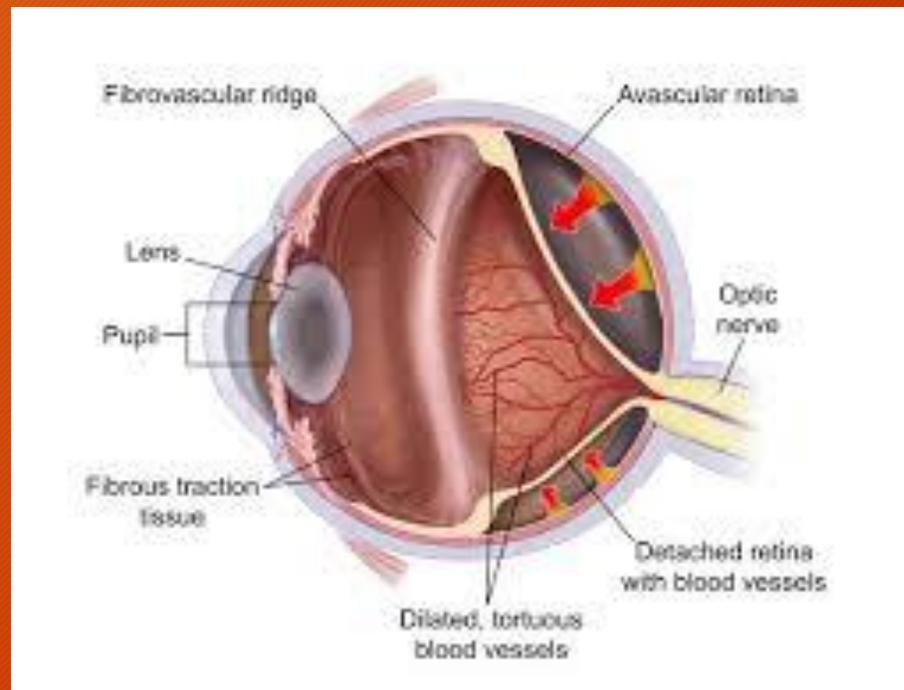
Anti-VEGF Drugs

- The preparation is very similar to that of an adult injection.
- The eye is sterilized with a 5% betadine solution.
- A sterile eyelid speculum for each eye is used to retract the lids.
- 1.5 mm posterior to the limbus



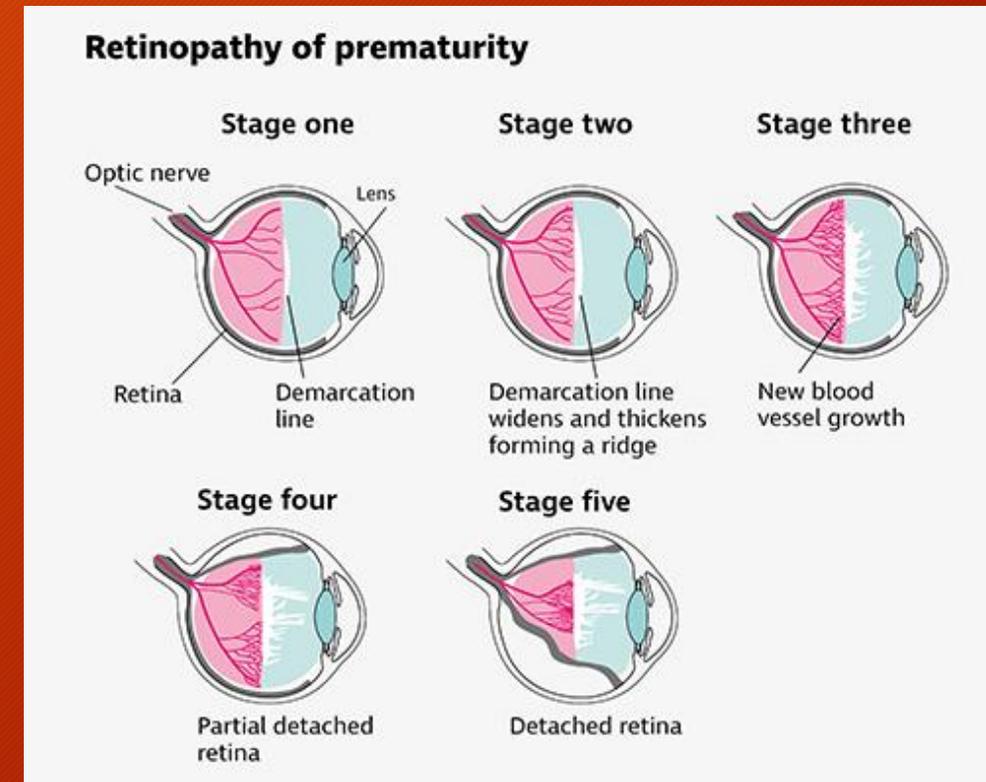
Vitrectomy and Scleral Buckling Surgery

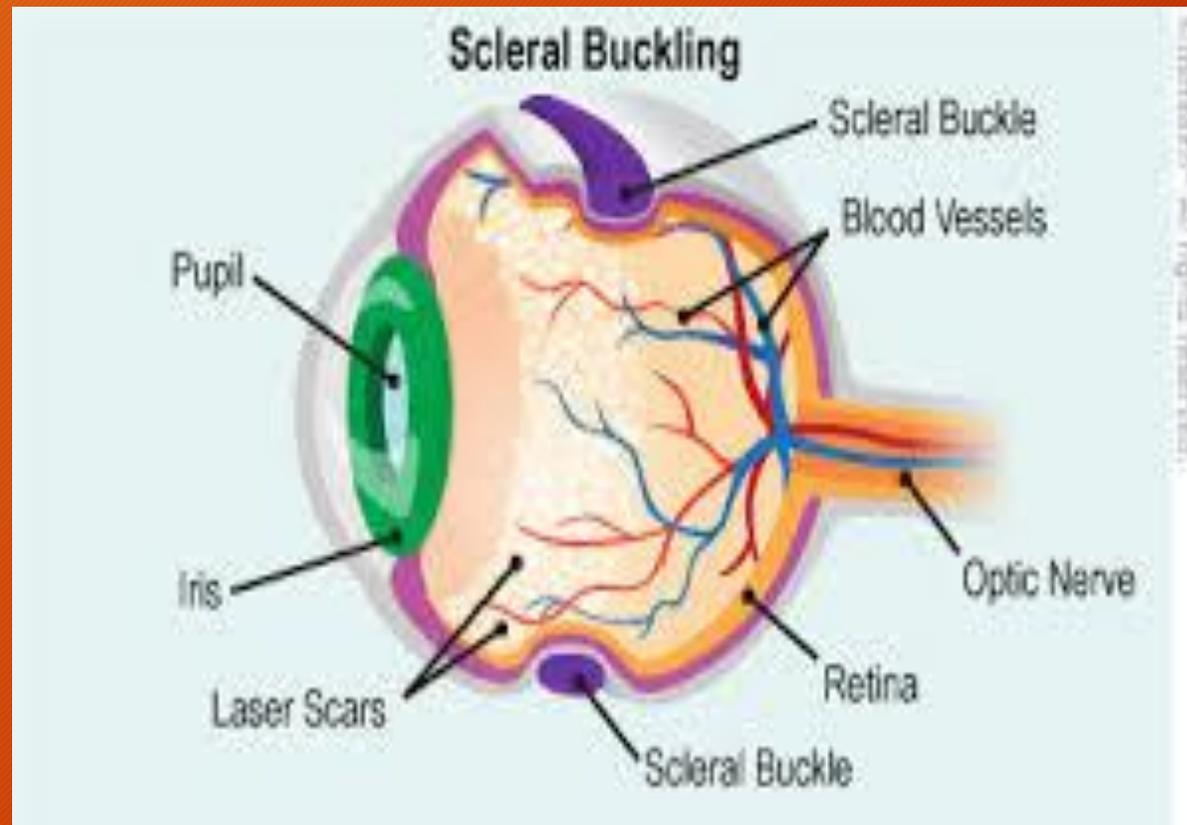
- or stage 4 and 5 ROP to alleviate the vitreoretinal traction causing retinal detachment.

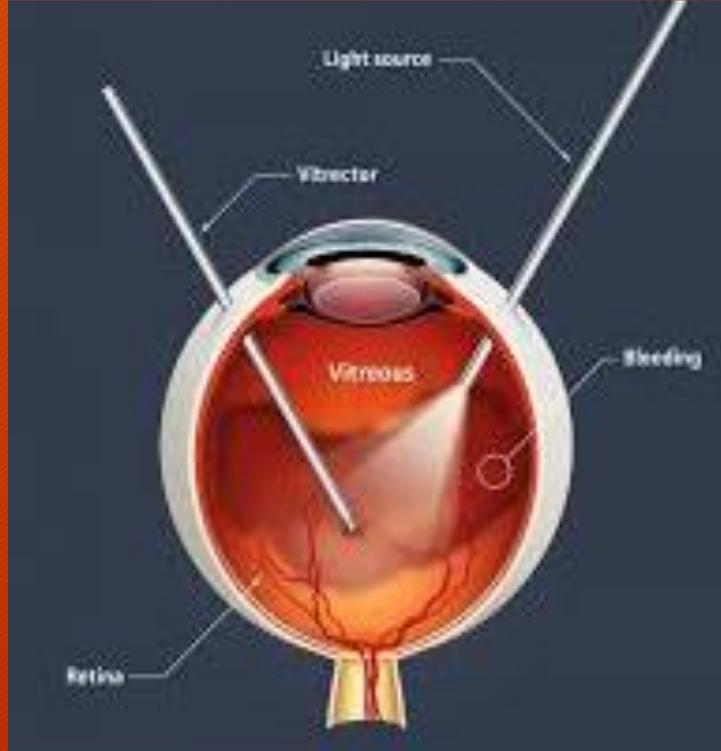
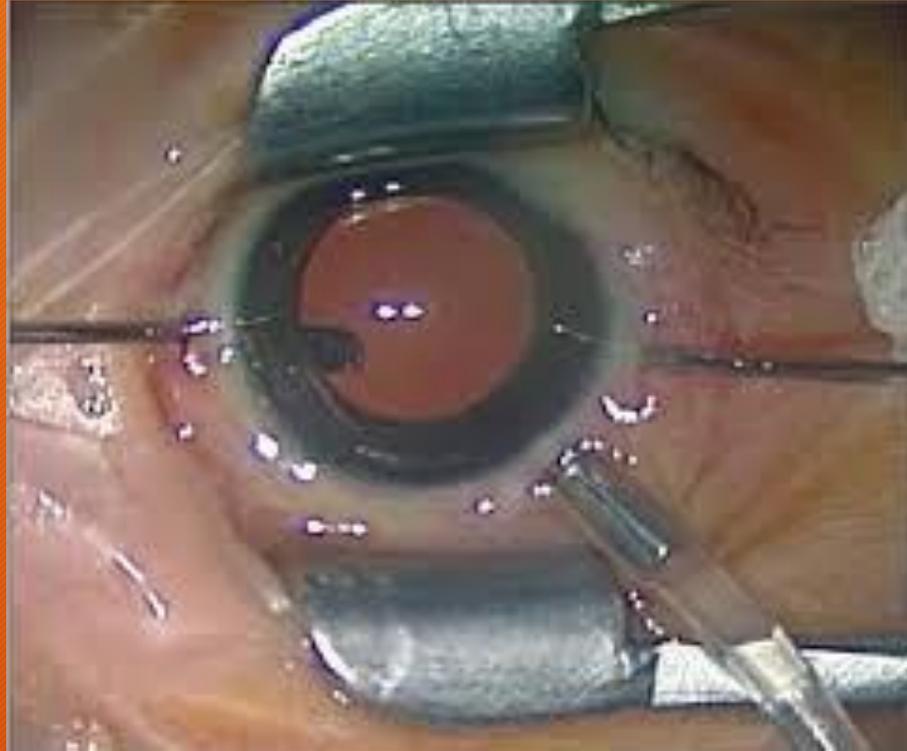


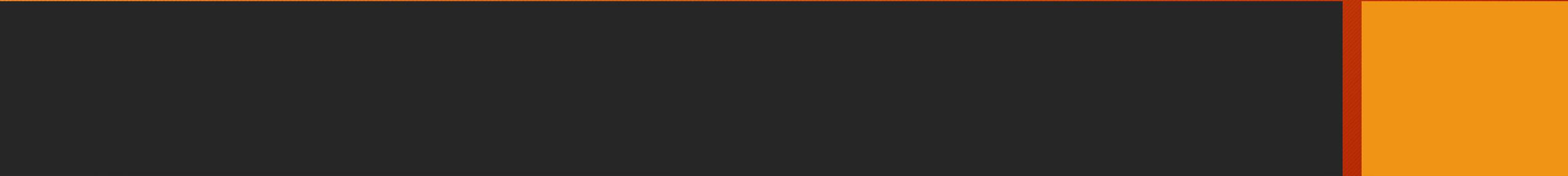
Vitrectomy and Scleral Buckling Surgery

- Eyes undergoing surgical intervention at stage 4A have more favorable outcomes.
- In stage 5 disease, success in approximately 30%
- Among the patients whose retinas were initially reattached, only 10% have ambulatory vision.









Thank you for your attention