



RETINOPEXY



Eye Learn
All about the Eye

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Write down the advantages and disadvantages of various methods of retinopexy like laser and cryopexy. Write down how you are going to do. D2010

- Retinal breaks without RD can be treated with laser (via a slit lamp or BIO) or cryotherapy.

Laser retinopexy

- **Method**

1. Using slit lamp delivery under topical anesthesia (occasionally regional or even general anesthesia is required)
2. Typical settings are duration of 0.1 second, a spot size of 200–300 μm with a three-mirror contact lens or 100–200 μm with a wide-field lens, and a starting power of 200 mW; the power should be adjusted as appropriate to obtain moderate blanching.
3. With head mounted BIO delivery, the spot size is estimated and adjusted by adjusting the condensing lens (usually 20 D) position.
4. The lesion is surrounded with two to three rows of confluent burns.
5. With both forms of laser, care should be taken to identify appropriate landmarks frequently to avoid inadvertent macular damage.

- **Precautions**

1. Careful preoperative explanation of the laser procedure to the patient and comfortable positioning of the patient will facilitate cooperation, steady fixation, and improve safety.
2. Individuals should be given preoperative information regarding potential risks of laser photocoagulation.
3. Inadvertent photocoagulation of the fovea, cornea, iris, or lens can be minimized with use of careful technique and appropriate laser settings. Awareness and avoidance of the fovea during laser treatment is paramount.
4. The risk of choroidal effusion after extensive panretinal photocoagulation can be minimized if treatments are spread over multiple sessions.
5. Selection of proper wavelength, power, exposure time, and spot size is important.
6. Proper titration of laser power and exposure time may be necessary to achieve the desired tissue effect.
7. Waiting for proper pupillary dilation can help limit iris damage.

- **Advantages**

- In most cases laser is the optimal technique as it is more precise, causing less collateral retinal damage, with a likely lower risk of epiretinal membrane formation.
- Adequate treatment of the base of a very peripheral lesion may only be possible with BIO due to the requirement for indentation to visualize the area, unless the practitioner is skilled at slit lamp indentation.
- The recovery speed of visual acuity was faster in the patients in the laserpexy group

- **Complications**

General complications:	Posterior segment complications
<ol style="list-style-type: none"> 1. Pain 2. Seizures. 	<ol style="list-style-type: none"> 1. Choroidal detachment and exudative RD. 2. Choroidal, subretinal and vitreous hemorrhage. 3. Iatrogenic choroidal neovascularization. 4. Thermal induced retinal vascular damage. 5. Subsequent epiretinal membrane. 6. Ischemic papillitis. 7. Photocoagulation scar enlargement. 8. Subretinal fibrosis. 9. Accidental foveal burns 10. Macular edema 11. Choroidal effusions 12. Visual field defects 13. Night vision problems
<p style="margin: 0;">Anterior segment complications:</p> <p style="margin: 0; padding-left: 20px;">Anterior segment laser burns</p> <ol style="list-style-type: none"> 1. Elevated IOP. 2. Corneal damage. 3. Iris burns. 4. Crystalline lens burns. 5. IOL and PC damage. 6. Internal ophthalmoplegia. 	



Cryoretinopexy

• Method

1. Subconjunctival or regional anesthesia is commonly required.
2. For lesions behind the equator, a small conjunctival incision may be necessary for access.
3. A lid speculum is used.
4. The cryotherapy probe tip must be exposed beyond its rubber sleeve.
5. The instrument should initially be purged (e.g. 10 seconds at -25°C , repeating after a minute). The treatment temperature is set (typically -85°C); it is useful to check the effectiveness of the instrument by activating it in sterile water for 10 seconds, when a 5 mm ice ball should form.
6. Under BIO visualization, the lesion is indented and the foot pedal depressed until visible whitening of the retina is seen.
7. It is critical not to remove the tip from the treated area until thawing is allowed (2–3 seconds).
8. Care should be taken to maintain orientation of the probe whilst the tip is not visible and not to mistake indentation by the shaft of the probe for that of the tip.
9. The lesion is surrounded by a single row of applications, in most cases achieved by one or two applications to a tear.
10. The eye is usually padded afterwards; analgesia is commonly necessary.

• Precautions

1. After treatment the patient should avoid strenuous physical exertion for about a week until an adequate adhesion has formed; review should usually take place after 1–2 weeks
2. Bare retinal pigment epithelium should be avoided as it might lead to proliferative vitreoretinopathy.
3. Refreezing should be avoided.
4. Once tissue has started adhering to the tip, the probe should not be moved, because of the risk of tearing or breaking the tissue.
5. As cryo leads to choroidal congestion and oedema drainage of subretinal fluid should be avoided through these areas.

• Complications of cryotherapy

1. Higher postoperative inflammatory response induced by cryopexy than laserpexy.
2. Using gadolinium and magnetic resonance imaging techniques, that there is a significantly greater breakdown of the blood-retinal barrier with cryopexy than with intraoperative diode laser retinopexy
3. Anterior segment complications were more frequent in patients treated with cryopexy than in those treated with laser retinopexy.
4. Most complications from ocular cryotherapy are related to surgeon inexperience & Prolonged contact of a cryoprobe or cryospray with surface tissue, leading to an over-freeze.
5. Transitory uveitis
6. Temporary chemosis
7. Subconjunctival hemorrhage
8. Corneal endothelial damage
9. Paralysis of extra ocular muscles from cryotherapy over muscle insertion sites
10. Sector iris atrophy

• Advantages

1. Cryotherapy may be preferred for multiple contiguous tears or extensive lesions, and in eyes with hazy media or small pupils.
2. Adequate treatment of the base of a very peripheral lesion may only be possible with cryo due to the requirement for indentation to visualize the area, unless the practitioner is skilled at slit lamp indentation.
3. Low cost