

DIABETIC RETINOPATHY  
PANRETINAL PHOTOCOAGULATION (PRP)  
ERIC S. MANN, M.D., Ph. D.

The Diabetic Retinopathy Study (DRS) established panretinal photocoagulation (PRP) laser treatment as the treatment standard for proliferative retinopathy with high risk characteristics to prevent severe visual loss. High risk characteristics are the ocular findings in diabetic eyes with the greatest potential with PRP laser treatment.

PRP laser treatment lessens the chance of severe visual loss and provides a much higher chance of visual preservation. PRP arrests the progression of PDR by causing new vessels to regress. PRP is not performed to improve guarantee stabilization of PDR. In spite of PRP, progression of PDR may proceed with neovascularization, bleeding and/or preretinal fibrosis with retinal detachment and visual loss.

The following are **common** side effects of laser treatment:

1. glare and light sensitivity
2. ocular irritation
3. decreased peripheral vision with narrowed visual field
4. inflammation
5. decreased central vision from worsening macular edema
6. decreased accommodation
7. decreased dark adaptation

The following are **uncommon** complication of laser treatment:

1. choroidal neovascularization
2. retinal breaks or detachments
3. hemorrhage
4. acute intraocular pressure rise(glaucoma)
5. corneal abrasion
6. cataract

Other less common complications may be discussed as well. These uncommon complications may result in loss of vision, loss of globe or need for further laser treatment or intraocular surgery.

Panretinal cryo is an alternative therapy to PRP laser treatment for PDR. Post-treatment activity restrictions may include sleeping with the head of the bed elevated and eyedrops may be recommended to minimize intraocular inflammation. If retrobulbar anesthesia is used the eye will be patched for 12 to 24 hours.

# DIABETIC RETINOPATHY

Eric S. Mann M.D., Ph.D.

Diabetic retinopathy occurs in 25% of the diabetic population and is the leading cause of blindness in the United States between the ages of 20 and 64.

Visual loss in diabetic retinopathy occurs from leakage of fluid from retinal vessels (non-proliferative diabetic (NPDR), and abnormal growth of new vessels (proliferative diabetic retinopathy (PDR) which bleed or form scar tissue on the surface of the retina. In addition, poor blood supply to the macula (reading center) or optic nerve can result in the loss of vision.

**Moderate visual loss** may occur as a consequence of macula edema (thickening of the retina within the reading center secondary to diabetic-induced retinal vascular leakage of fluid).

**Severe visual loss** may occur as a consequence of bleeding of abnormal new vessels on the optic disc or elsewhere on the surface of the retina into the vitreous gel (vitreous hemorrhage). In addition, new blood vessels may form scar tissue on the surface of the retina (preretinal fibrosis) which may lead to a tractional retinal detachment of the reading center (macula).

Laser photocoagulation, cryotherapy, and/or intraocular surgery (vitrectomy) may be recommended to attempt to arrest the progression of diabetic retinopathy and prevent both moderate and severe visual loss.

## **PERIBULBAR & RETROBULBAR ANESTHESIA**

Absence of pain (anesthesia) and immobilization of the eye (akinesia) are often necessary to allow effective laser and cryotherapy treatment or intraocular surgery. Both anesthesia and akinesia can be obtained to a variable degree by injection of anesthetic (Lidocaine and/or Marcaine) around and behind the eyeball prior to treatment or surgery.

The following are **common** effects of the anesthetic injection but are usually temporary:

1. Blurring of vision
2. Numbness and swelling around the eye
3. Ptosis (drooping of the eyelid)
4. Diplopia (double vision)

The following are **uncommon** complications of the anesthetic injection:

1. Retrobulbar or periorbital hemorrhage (bleeding behind or around the eyeball)
2. Globe perforation (puncture of the eyeball by the needle used for anesthetic injection)
3. Optic nerve injury or vascular damage (central retinal artery or vein occlusion)
4. Allergic reaction to the anesthetic
5. Seizure
6. Cardiorespiratory arrest (death)
7. Bilateral akinesia

These uncommon complications may result in permanent loss of vision, need for further surgery or treatment, or loss of the globe. Other less common complications may be discussed as well.

Post treatment care may include applying ointment to the eye and wearing a patch for 24 hours.

# INFORMED CONSENT

I, \_\_\_\_\_ have been given the brochure(s) on Diabetic Retinopathy, Panretinal photocoagulation and Peribulbar & Retrobulbar Anesthesia.

I have had the opportunity to read, understand and ask questions regarding this procedure(s). Dr. Mann has explained this procedure to me in depth. I have been informed in regard to the potential benefits, complications, risks and alternatives of the procedure. Sufficient time was allowed for me to ask questions and these questions were answered to my satisfaction.

\_\_\_\_\_  
Patient signature

\_\_\_\_\_  
date

\_\_\_\_\_  
Witness signature

\_\_\_\_\_  
time

# PROCEDURE NOTE

PATIENT: \_\_\_\_\_ SS# \_\_\_\_\_ DATE: \_\_\_\_\_  
SURGEON: DR. ERIC MANN

PROCEDURE: PRP \_\_\_\_\_

INDICATIONS: (67228) PROLIFERATIVE DIABETIC RETINOPATHY \_\_\_\_\_

VA: OD \_\_\_\_\_ OS \_\_\_\_\_

VITALS

Pre-op                      Post-op

BP	_____	_____
P	_____	_____
R	_____	_____

**INFORMED CONSENT:**

All the risks, benefits, alternatives and intent of laser treatment with anesthesia were presented to the patient in an extensive discussion and in written form(s) attached. The patient understood that laser treatment is performed not to improve vision, but to hopefully stabilize vision and prevent further visual loss. The patient stated that he/she had a good understanding of his/her clinical situation, including the specific ocular and anesthetic risks (loss of vision, need for further surgery, and rarely, loss of globe) and consented to laser treatment.

**TREATMENT:**

Under topical anesthesia

Under retrobulbar anesthesia: with the patient supine and fixating straight ahead, 3 cc of 2% lidocaine were injected into the retrobulbar space, using a #25 gauge needle and a 10 cc syringe. Adequate anesthesia and akinesia were obtained. Following treatment, the eye was patched for 24 hours.

Using the argon green laser, grade 2 intensity burns were applied one spot width apart, remaining one disc diameter from the disc and two disc diameters from the foveola to the retinal periphery. Laser parameters and pattern (avoiding retina vessels) are below. Laser treatment was performed without complication. Post-operative photographs were requested. The patient tolerated the procedure well and left the laser suite in good condition.

**PARAMETERS:** 0.1-0.2sec, 500 micron(equivalent), \_\_\_\_\_mW & total spots \_\_\_\_\_.

**POST-OPERATIVE CARE & MANAGEMENT: Pred Forte q.i.d. & Hyoscine b.i.d. for four days were prescribed.**

The patient was instructed to return in follow-up \_\_\_\_\_ or immediately upon any decreased vision, pain, side effects of the medication or symptoms of RD or RB (which were reviewed). Specific post-operative instructions included HOB elevated and restricted activities with no physical exertion. The need for diabetic control and the results of the DCCT were reviewed.

\_\_\_\_\_  
Physician Signature

**INSTRUCTIONS FOLLOWING LASER/CRYOTHERAPY  
TREATMENT**

1. You may resume all of your normal activities immediately except for heavy lifting, exercise or physical exertion which you may resume in 3 to 4 weeks.
2. You may have discomfort or a headache following laser/cryotherapy treatment. Please take Tylenol but **NO** aspirin, Ibuprofen (Advil), indomethacin (Indocin) or other NSAIDS for pain unless your medical doctor recommends you take an aspirin a day for your heart or to “thin” your blood.
3. Due to intense brightness of the laser beam, there is a light-induced “dazzling” or “flashbulb” effect, and consequently your vision may be slightly decreased after the laser treatment. It may require a few hours to recover from this glare effect.
4. Please take pain pills as instructed and call immediately if you have persistent pain or sudden, new onset decreased vision at office phone number listed below or 866-856-7882 (after hours).
5. If you received retrobulbar anesthesia, keep the treated eye patched for 24 hours.
6. If you received eye drop prescriptions, please follow directions on the bottle.

**317 Salem Place Ste. 150  
Fairview Hgts., IL 62208  
Phone: (618) 632-8100  
Fax: (618) 632-8101**

**533 Couch Ave., Ste 255  
Kirkwood, MO 63122  
Phone: (314) 835-9400  
Fax: (314) 835-9401**

[www.drericmann.yourmd.com](http://www.drericmann.yourmd.com)

## RECEIPT OF POST-OP INSTRUCTIONS

I \_\_\_\_\_ have been given postoperative instruction information. I have had the opportunity to read, understand and ask questions regarding my planned surgical procedure(s). Dr. Mann has explained this procedure to me in depth. I have been informed in regard to the potential benefits, complications, risk and alternatives of the procedure. Sufficient time was allowed for me to ask questions and these questions were answered to my satisfaction.

\_\_\_\_\_  
Patient signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness signature

\_\_\_\_\_  
Date

## CONSENT SPECIAL/INFORMED TO SURGERY OR OTHER PROCEDURE

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Medical record number \_\_\_\_\_

1. I hereby authorize Dr. Mann and / or such assistants, associates, or other health care providers that may be selected by him, to perform the following procedure (s)  
**Panretinal Photocoagulation for Treatment of Proliferative Diabetic Retinopathy** \_\_\_\_\_ eye
  
2. Dr. Mann has discussed with me the procedure(s) listed above and the items of information that are briefly summarized below:
  - a. The nature and purpose of the proposed procedure(s): Panretinal photocoagulation arrests the progression of proliferative diabetic retinopathy by causing new vessels to regress.
  - b. The risks and possible consequences of the proposed procedure(s), including the risk that treatment may not accomplish the desired objective(s) and including, but not limited to: Glare and light sensitivity, ocular irritation, decreased peripheral vision with narrowed visual field, decreased accommodation, decreased dark adaptation, choroidal neovascularization, retinal breaks or detachment, hemorrhage, inflammation, acute intraocular pressure rise, corneal abrasion or laser burns, cataract, loss of vision, or need for further surgery.
  - c. All reasonable alternative treatment, including risks, probable effectiveness of each and consequences if this proposed treatment is not received: alternative treatment: panretinal cryotherapy
  
3. I am aware that, in addition to the risk specifically described in Item 2 above, there are other risks, such as severe loss of blood, infection, cardiopulmonary arrest, respiratory difficulties, injury to proximate/adjacent blood vessels, nerves, organs or structures, unanticipated allergic reaction to substances, pressure/position related injuries and other risks related to the performance of any surgical procedure.
  
4. I acknowledge that no guarantees have been made to me as to the results of the procedure(s) and am also aware that complications and risks may occur despite precautions.
  
5. I consent to the performance of unforeseen operation(s) and procedure(s) in addition to or different from those now contemplated and describe herein that the named doctor and his associates or assistants may deem necessary or advisable during the course of the presently authorized procedure(s).
  
6. I consent to the administration of such anesthetics as may be considered appropriate by the physician responsible for anesthesia administration or such assistants or associates as may be selected by him. I understand that this procedure is to be performed using **retrobulbar/topical** anesthesia. I understand that all types of anesthesia involve some risk. I further understand that if a regional, spinal or epidural anesthesia is planned, it may be necessary to also administer a general anesthetic. I understand that the risk of a general, spinal, epidural or regional anesthesia include, but are not limited to, mouth and/or throat pain or injury, cardiopulmonary arrest, cardiac arrhythmias, heart attack, respiratory difficulties, stroke, brain damage, headache, backache and other sensory, nerve, focal and systemic injuries.

7. I also consent to the administration of blood or blood components, drugs, medicines and other substances considered advisable by the physician(s) responsible for this procedure and the use of x-rays or other diagnostic testing, procedures and devices, which the above-named physician or his associates, consultants or assistants may consider useful.
8. I hereby authorize The Retina Group Ltd, Dr. Eric Mann or staff to preserve for scientific or teaching purposes or to otherwise dispose of any tissues, parts, organs, or implants removed during this procedure.
9. For teaching or educational purposes, I consent to the admittance of students, staff or other observers to the operating and procedure rooms, and to the taking of any videos or photographs deemed appropriate or necessary by the physician in the course of the procedure(s). I also consent to the taking of photographs or videos for the purpose of documenting the condition or procedure in the medical record. I understand that if data, photographs, videos or other information are used for teaching/educational purposes or for scientific publication, that my (the patient's) identity will remain confidential unless otherwise authorized by the undersigned.
10. I certify that I have read or have had the above information read to me and that I understand the above consent to operation or diagnostic procedure, that the explanations referred to were made to my satisfaction and I hereby give my informed and voluntary consent to the proposed procedure(s) or operation(s).

Signature of patient:

---

If the patient is unable to give informed consent because of physical or mental incapacity or mental incapacity or is a minor (under 18 and unemancipated), complete the following:  
 Patient is unable to give consent because \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

:

---

Witness to signature

I certify that I have explained to the above individual the nature, purpose, risk and potential benefits of the above procedure and have answered any questions that have been raised.

---

Signature of Physician