

**DIABETIC RETINOPATHY  
FOCAL/GRID LASER TREATMENT  
ERIC MANN, M.D. PH. D.**

The Early Treatment Diabetic Retinopathy Study (ETDRS) established focal/grid laser treatment as effective in lessening the degree of visual loss from diabetic macula edema. Focal laser treatment of leaking microaneurysms (dilated capillaries) and grid laser treatment of diffuse capillary leakage is recommended in cases of clinically significant macula edema.

Laser treatment benefit is not immediate and may require up to four months to demonstrate its effectiveness. Laser treatment is performed to minimize diabetic-induced retinal vascular leakage and stabilize vision. Laser treatment for diabetic macula edema is not performed with a guarantee of visual improvement and sometimes, regardless of treatment, vision continues to deteriorate.

The following are **common** side effects of laser treatment and are usually temporary:

1. Glare and light sensitivity
2. Ocular irritation
3. Black spots around the center of vision

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

1. Choroidal neovascularization
2. Retinal breaks or detachment
3. Hemorrhage
4. Inflammation
5. Worsening of blood flow to the macula (ischemic maculopathy)
6. Corneal abrasion
7. Reading center focal ablation

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.

There is no other medical or surgical alternative therapy to laser treatment for diabetic macula edema that has proven benefit over observation. There are no post-treatment activity restrictions or medications necessary unless retrobulbar anesthesia is used in which case the eye is patched with ointment for 12 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.

**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**

**INSTRUCTIONS FOLLOWING LASER/CRYOTHERAPY  
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## 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

# PROCEDURE NOTE

PATIENT: \_\_\_\_\_ SS# \_\_\_\_\_ DATE: \_\_\_\_\_

SURGEON: DR. ERIC MANN

PROCEDURE: Focal/Grid Laser, \_\_\_\_\_

INDICATIONS: Clinically significant macular edema \_\_\_\_\_  
NPDR / PDR \_\_\_\_\_

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

## 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) \_\_\_\_\_. 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.

Under fluorescein guidance with a \_\_\_\_\_ lens and the argon green laser, focal laser treatment of leaking microaneurysms were performed to whiten the aneurysms. Grid laser treatment was performed with grade 1 intensity burns, one spot width apart in areas of diffuse capillary leakage with corresponding retinal thickening. Laser parameters and pattern (sparing 500 microns from fixation) are below. Laser treatment was performed without complication. The patient tolerated the procedure well and left the laser suite in good condition. Post-operative photographs were requested.

PARAMETERS: 0.1sec, 100-microns, \_\_\_\_\_mW, & \_\_\_\_\_total spots.

**POST-OPERATIVE CARE & MANAGEMENT:** The patient was instructed to return in follow-up \_\_\_\_\_ or immediately upon any decreased vision, pain, 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.

# INFORMED CONSENT

I, \_\_\_\_\_ have been given the brochure(s) on Diabetic Retinopathy, Focal Grid laser 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

## 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)  
**Focal/grid laser photocoagulation for treatment of clinically significant macular edema** \_\_\_\_\_ 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): Laser is performed to minimize retinal vascular leakage and stabilize vision.
  - 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, black spots around the center of vision, choroidal neovascularization, retinal breaks or detachment, hemorrhage, inflammation, worsening of blood flow to the macula, corneal abrasion, reading center focal ablation, 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: There is no other medical or surgical alternative treatment other than observation
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 during this procedure, and I consent to the administration of a general anesthetic. I understand 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 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