

## **BRANCH RETINAL VEIN OCCLUSION (BRVO) AND LASER TREATMENT**

### **INTRODUCTION:**

Branch Retinal Vein Occlusion (BRVO) involves the obstruction of a major venous blood vessel which prevents adequate drainage of blood from the eye. As a result, blood and fluid collect on the retina particularly at the reading center, thus leading to central visual loss. Prolonged blockage of the venous blood vessel may be associated with insufficient blood flow to certain areas resulting in the occurrence of abnormal vascular growths. These vascular growths can bleed into the vitreous cavity causing marked visual loss. BRVO may be a totally independent condition. However, the following conditions have been found to have an association with BRVO hypertension (high blood pressure), circulatory abnormalities, and certain patients with diabetes.

### **TREATMENT:**

- A. **Focal Laser**-After macular edema (collection of fluid at the reading center) develops due to BRVO, it may spontaneously absorb when collaterals (alternate drainage vessels) develop. The Branch Retinal Vein Occlusion Study (BRVOS) definitively established the benefit of laser treatment for those eyes with visual acuity of 20/40 or worse, associated with BRVO. Treated eyes had an average visual acuity of 20/40 while untreated eyes had an average visual acuity of 20/70. 65% of the treated eyes gained 2 or more lines from baseline vs only 37% of the untreated eyes in 2 consecutive visits.

Focal laser is performed in a grid-like pattern around the reading center. The laser light is focused on the retina by way of a temporary contact lens.

- I. What treatment can do: Focal laser can increase the chance of improvement or stabilization of vision. If visual improvement occurs, it takes place gradually.
- II. What treatment cannot do: Focal laser does not guarantee improvement or stabilization of vision in every case. Some eyes will continue to deteriorate in spite of treatment.

### III. Risks and Complications

#### a. Common:

1. Gray spots around the center in a grid pattern (usually temporary).
2. Temporary glare and sensitivity to light
3. Minor irritation

#### b. Uncommon:

1. Hemorrhage
2. Retinal hole(s) formation
3. Inflammatory reaction
4. Visual deterioration (rare)

#### c. Other potential risks/complications not listed may be discussed with you by the doctor.

IV. Alternatives: Observation only. No other surgical or medical therapy is available.

V. Post-Operative Course: Usually no restriction or medication is necessary. A follow-up appointment is given. If retrobulbar injection is used, the eye is patched with ointment for at least 6-12 hours.

**B. Scattered Laser Treatment:** When abnormal vascular growth develops, severe bleeding can lead to marked visual loss. Scattered laser (SL) treatment has been found to be beneficial. A large number of laser lesions are delivered through a temporary contact lens on multiple areas of the retina. The treatment potentially arrests the progress of the vascular growth, thus indirectly leads to visual improvement or stabilization. The treatment is usually much less extensive than panretinal photocoagulation in diabetic retinopathy.

I. What treatment can do: Focal Laser can increase the chance of improvement or stabilization of vision. If visual improvement occurs, it takes place gradually.

II. What treatment cannot do: Focal Laser does NOT directly improve the status of the reading center, nor does it guarantee improvement or stabilization of vision in every case. In spite of treatment, some eyes will continue to deteriorate.

### **III. Risks and Complications—Common**

1. Glare and sensitivity to light.
2. Minor irritation.
3. Temporary inflammatory reaction.

### **Risks and Complications—Uncommon**

1. Decreased peripheral visual field.
2. Decreased ability to adapt to the dark.
3. Decreased central vision.
4. Retinal hole(s) formation.
5. Hemorrhage.
6. Retinal detachment (rare); Separation of the retina from its normal position.
7. Increased cataract (clouding of the lens).
8. Acute glaucoma (acute rise in intraocular pressure).

Other potential complications and risks not listed here may be discussed by the doctor.

- IV. Alternatives: Peripheral cryotherapy is performed on a less frequent basis than scattered laser treatment.
- V. Post-treatment course: Usually minimal restriction is necessary. Special steroid eye drops are prescribed temporarily. If blood is present, specific body positioning may be necessary. If retrobulbar injection has been used for anesthesia, patching with eye ointment for 6-12 hours is necessary.

**PROCEDURE NOTE**

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

**SURGEON:** DR. ERIC MANN

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

**INDICATIONS:** \_\_\_\_\_

**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.

## 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

## **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 Branch Retinal Vein Occlusion 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

**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**

## 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 macular edema from vein occlusion** \_\_\_\_\_ 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 PC 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:

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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 \_\_\_\_\_

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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.

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Signature of Physician