



MACULAR **TRANSLOCATION** SURGERY

DUKE UNIVERSITY EYE CENTER





INTRODUCTION

Macular Translocation Surgery

Duke surgeons have joined forces to refine a new treatment for Age-Related Macular Degeneration (AMD) called Macular Translocation Surgery. Based on the pioneering research by former Duke Eye Center chairman Robert Machemer, MD, and developed through further research by Cynthia Toth, MD, the goal of this surgery, for patients who are losing the last of their central vision to AMD, is to lift the macula away from underlying blood vessels and move it to a new, healthier location to restore central vision. The procedure has already helped many AMD patients who had little hope of seeing again to be able to resume many daily activities.

The Duke Center for Macular Diseases

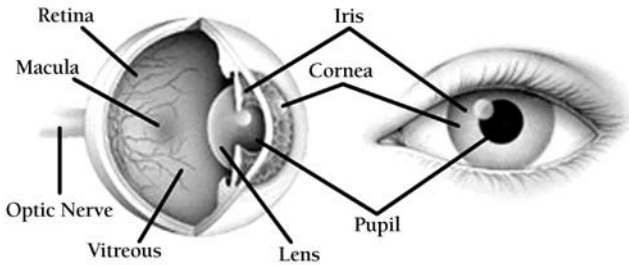
The Duke University Eye Center has established The Duke Center for Macular Diseases to develop and to provide new forms of education, research, and patient care for those facing this sight-threatening disease. The center takes a multidisciplinary team approach to its goal to improve care and quality of life for AMD patients and their families. The center strives to enhance existing AMD programs and services such as vision rehabilitation, clinical care, macular translocation surgery, and AMD research.

What is the retina?

The retina is the delicate layer of nerve tissue that lines the inside of the eye. It is light sensitive and turns light into nerve signals that are sent to the brain.

What is the macula?

The macula is located at the center of the retina and is essential for central vision. The macula is the only part of the retina that provides detailed vision and is used to read small print.



What is Age-Related Macular Degeneration?

AMD is the most common cause of central vision loss in persons over age 55.

There are two types of AMD: Dry and Wet

Dry AMD: With aging, deposits called drusen collect under the retina. As drusen accumulate, vision may deteriorate.

Wet AMD: Abnormal blood vessels grow beneath the retina. These abnormal blood vessels leak fluid or blood and lift the retina away from the eye wall. This is the most common cause of severe vision loss in AMD.



Normal Vision



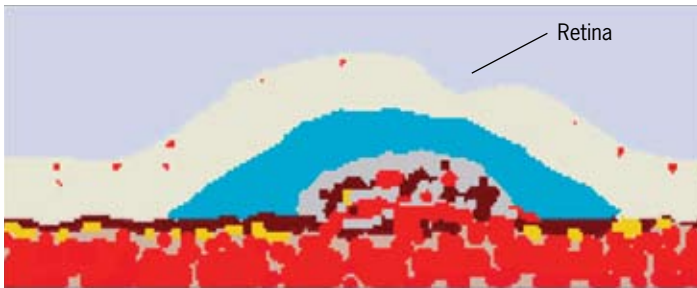
Vision with Wet AMD

WHY TRANSLOCATE THE MACULA?

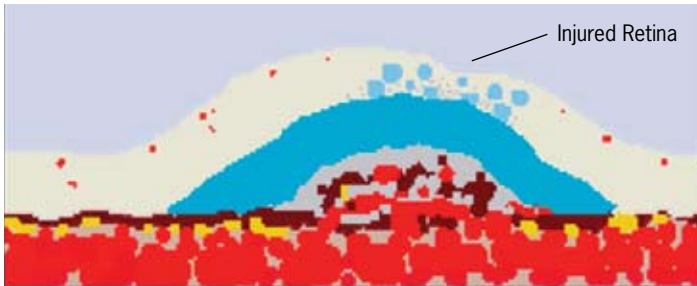
Macular degeneration causes vision loss and scarring of the macula as seen below. This damage is eventually permanent but only affects one central area of the retina.

Macular translocation surgery moves the macula away from the abnormal blood vessels onto a new location of healthier tissue. This procedure may help maintain or recover central vision.

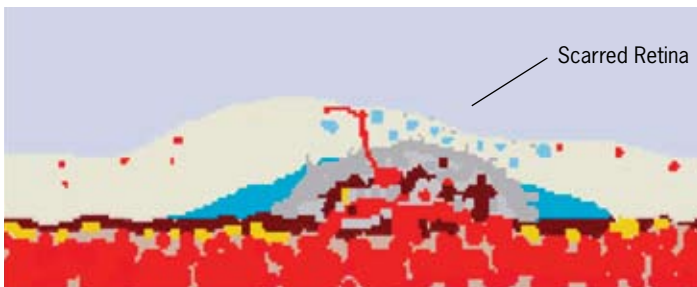
Early Disease



Progressive Disease



Chronic Scar





A patient may benefit from Macular Translocation Surgery if he or she has central vision loss in one eye AND the second eye has:

- Recent vision loss: six months maximum and the wet form of macular degeneration
- Recent vision loss: six months maximum and dry macular degeneration
- Visual acuity worse than 20/60

Who will not benefit from Macular Translocation Surgery:

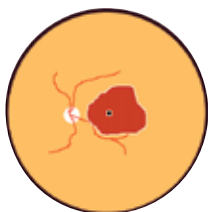
- Patients with an old scarred macula will not regain vision
- Patients with other eye diseases, such as diabetic retinopathy or trauma
- Patients with extremely poor vision (worse than 20/400) or long-term vision loss

What the patient should know:

- Many patients with recent vision loss from macular degeneration have recovered useful reading vision following macular translocation surgery; however, this is not a guaranteed outcome. So far there have been only a small number of surgeries performed worldwide.
- As with any surgery, macular translocation surgery may have complications such as retinal detachment or vision loss. Your doctor will discuss the possible complications.

WHAT HAPPENS DURING MACULAR TRANSLOCATION SURGERY?

Before Surgery



After Translocation Surgery



After Muscle Surgery



First Surgery (Macular Translocation Surgery)

- You will be comfortably sedated and able to hear your doctor talking, but you will not feel the surgery.
- If you have a cataract, it will be removed at the beginning of surgery. A lens implant will be placed at the end of surgery or at a future date, if possible.
- The vitreous gel, a jelly-like substance in the eye, will be removed.
- Fluid will be placed under the retina to lift it away from the abnormal blood vessels (creating a retinal detachment).
- The edges of the retina will be cut and the macula moved to a new location. The abnormal blood vessels will be either laser treated or removed.
- The edges of the retina will be laser treated and silicone oil will be inserted to hold the retina in place.
- Surgery lasts about two hours.
- You will need to help the retina reattach in its new location by turning from side to side (positioning) in a special way. Instructions will be explained and given to you in writing.

Second Surgery (Eye Muscle Surgery)

- The second surgery will be performed eight weeks after the macular translocation.
- A surgeon who is specialized in performing eye muscle surgery will operate on the eye muscles to correct the tilted vision.
- The eye muscle surgery takes about one hour.

Third Surgery (Oil Removal Surgery)

- Three to four weeks after the muscle surgery, you will have a third surgery.
- During this surgery, the retinal surgeon will remove the silicone oil from the eye.
- This is a 30-minute procedure which is done in the operating room.
- No positioning is required after this surgery.



WHAT CAN I EXPECT AFTER MACULAR TRANSLOCATION SURGERY?

Macular translocation surgery has maintained or improved reading vision in a majority of patients.

Many patients are able to read magazines and newsprint following surgery, although some require reading glasses or low-vision aids, such as hand-held magnifiers.

Few patients are able to drive a car following surgery.

Vision is temporarily tilted and some people notice double vision. This happens because the macula's new location has caused a change in central vision. A second surgery performed on the muscles of the eye will usually correct this, although there is a chance that some tilt and double vision may persist. This can be managed, generally with glasses.

The tilt is demonstrated in these pictures taken by a patient before muscle surgery.



Left Eye: Macular Translocation
(Tilt before muscle surgery)



Right Eye: Normal

FREQUENTLY ASKED QUESTIONS

Q: Will I wear an eye patch?

A: Yes, for the first night after the surgery.

Q: Will I have to be in a certain position after surgery?

A: Yes, you will have 10 days of special positioning during the daytime as the retina reattaches.

Q: Will I need eye drops after surgery?

A: Yes, you will use eye drops for a few weeks following your surgery.

Q: How long will I stay in the hospital following surgery?

A: All of the surgeries (macular translocation, muscle, and oil removal) are outpatient procedures. Patients do not usually need to stay in the hospital overnight following surgery. We will remove the eye patch and examine your eye the morning after surgery.

Q: Will I have to return to the Duke Eye Center for follow-up appointments?

A: Yes, your surgeon will need to monitor your eye as it heals. Many of your appointments will require special testing that will give your doctor valuable information regarding your vision. Most patients return for four visits during the first six months following surgery.

Q: How many macular translocation surgeries have been successful and what results are deemed successful?

A: More than 400 surgeries have been performed at Duke University Eye Center. In a study done on macular translocation patients at Duke, more than half of the patients had recovered useful reading vision one year after surgery; however, as with any surgery, macular translocation may have complications. Due to complications from macular translocation or because of the damage to the macula from macular degeneration, a patient may lose vision or have bad vision after surgery; therefore, there is a risk that the patient may not benefit from macular translocation surgery.

Q: If I have received Photodynamic Therapy (PDT), or an injection of drugs to stop the blood vessels, am I still a candidate for Macular Translocation Surgery?

A: Yes, you can still be a candidate. Some patients, who still have poor vision after one or two PDT treatments, or after several injections, have recovered central vision after macular translocation surgery.



ARE THERE OTHER TREATMENT OPTIONS?

Other treatment options for the wet form of AMD include Anti-angiogenesis Therapy with injections of anti-VEGF drugs or Photodynamic Therapy (PDT). Your doctor will determine whether these treatments are appropriate for your eye. Patients who do well with these therapies continue on the treatment and would likely not require surgery. If vision continues to become worse, despite these treatments, then macular translocation surgery may be an option.

Anti-angiogenesis Therapy (such as Macugen or Avastin): There are several medications that may stop the growth of new blood vessels or diminish their injury to the retina. These are typically injected in and/or around the eye.

Photodynamic Therapy: Dye is used to make abnormal blood vessels sensitive to light. The dye is injected intravenously and activated by a low-power laser, sometimes called “cold” laser.

Conventional Laser Therapy: A high-power laser, sometimes called a “hot” laser, burns the abnormal blood vessels and overlying retina. This treatment may be used when the abnormal vessels are outside the center of the macula.

MEET THE TEAM

Macular Translocation Surgery is a part of the diagnosis and treatment of AMD offered by the Duke Center for Macular Diseases.



First row left to right: Laura Enyedi, MD, Cynthia Toth, MD, and Sharon Freedman, MD.
Back row: Neeru Sarin, MBBS, Sandra Holgado, CO, and Namita Kashyap, CO

FOR MACULAR TRANSLOCATION SURGERY TO BE OF BENEFIT THE PATIENT NEEDS TO HAVE:

1

Age-Related Macular Degeneration in BOTH eyes

2

Vision loss in BOTH eyes (unable to read with either eye)

3

Vision loss in the second eye for less than six months (individuals with vision loss for more than six months are unlikely to recover vision after macular translocation surgery)

CONTACT INFORMATION

Patients

To schedule an appointment at The Duke Center for Macular Diseases, please call:

1-888-ASK-DUKE (1-888-275-3853)

Physicians

To refer your patients to The Duke Center for Macular Diseases, please call:

1-800-MED-DUKE (1-800-633-3853)

For more information, please visit our website at:

www.dukeeye.org/specialties/amd



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