MRI Guided Focal Laser Ablation of Prostate Cancer: What to expect

Prior to the procedure, you will have an intravenous catheter (IV) inserted in your arm so that we can provide you with IV antibiotics, pain medications and fluids (to maintain hydration). After providing IV versed (similar to valium) and placing lidocaine jelly to help decrease sensation, you will have a urinary catheter placed so that we can monitor your urine output during the procedure and provide cooled urethral saline protection (CUSP) as necessary. This catheter is usually removed within 1 hour after the procedure.

You will be positioned prone (on your stomach) on the MRI table for the procedure. IV conscious sedation medications are administered. A small rectal probe (the diameter of an index finger in width) covered in numbing lidocaine jelly will be inserted in the rectum.

During the procedure, Dr. Karamanian can accurately use real-time 3T MRI to visualize the tumor, guide placement of the laser fiber, and ablate (destroy) cancer cells while protecting healthy tissue with “safety markers” that are positioned at the urethra and neurovascular bundle. This helps monitor sensitive structures to decrease risk of damage to urinary and sexual function.

1. Pre-procedure MRI confirms the target.

2. The thin, 1.85mm cooling cannula and FDA cleared laser fiber is then placed into the tumor through the inner channel of the rectal probe under MRI guidance. The laser is activated to begin heating of the tumor. Using MR images and software from Visualase/Medtronic, Dr. Karamanian will monitor the tissue being ablated and adjust the power output of the laser.

3. The laser fiber is usually then repositioned to provide 2-3 overlapping ablations (to obtain wider margins) depending on the size and location of the tumor. The entire procedure is usually finished within about 2 hours.

4. Results are confirmed with contrast enhanced MR images.

   **Example Images:**

   - **Preablation**
   - **Ablation**
   - **6 months later**

   - Cancer in the left peripheral zone
   - Focal tissue destruction
   - Cancer no longer seen

   Neurovascular bundle (curved arrow)