

RADIOFREQUENCY ABLATION

What is RFA?

Radiofrequency ablation, also known as RFA, is a minimally invasive treatment for cancer and other tumors. It is an image-guided technique that uses heat to destroy cancer cells. The procedure is performed by an Interventional radiologist, who is a physician that specializes in this type of treatment.

In RFA, the physician uses CT, MRI, or US to see the tumor, and then places a needle electrode through the skin, into the tumor. High-frequency electrical current are passed through the electrode, creating heat that destroys the abnormal cells.

What are common uses of RFA?

Radiofrequency ablation is often used to treat many types of cancer, in several different organs, including in the liver, lung, kidney, and bone.

In general, RFA is most effective in treating tumors that are less than three centimeters in diameter. There are some exceptions to this rule that may lead your physician to recommend the treatment anyway. RFA can be used with chemotherapy, radiation therapy, tumor embolization, or alone as an alternative to surgery.

RFA is often recommended for patients who:

- Are not good candidates for surgery because their tumor is difficult to reach
- Have other medical conditions that make surgery too risky
- Will not have enough healthy organ tissue remaining to function if the tumor was surgically removed
- Have tumors that have not responded to other treatments or regrow after being surgically removed
- Have several tumors that cannot all be removed surgically

How does RFA work?

When radiofrequency ablation is used, electrical currents in the range of radiofrequency waves are passed between the needle electrode and a grounding pad placed on the patient's skin. These currents create heat around the electrode, which heats and destroys the cancer cells near the electrode. At the same time, heat from radiofrequency energy closes small blood vessels and decreases the risk of bleeding. The dead tumor cells are gradually replaced by scar tissue that shrinks over time.

What happens on the day of the procedure?

You will be admitted through the outpatient department. A nurse there will start an IV, send a blood sample for lab work, and fill out your health information in your chart.

The Interventional Radiologist who will do your procedure will come talk with you before the procedure.

When it is time for the procedure, you will be taken to the Radiology department. You will receive moderate sedation or general anesthesia, as decided during your consult with Interventional Radiology Consultants.

The procedure will take about 60 minutes. You will be in the procedure room for 1 ½ to 2 hours. When you wake up you will have a band aid over the procedure site. The access site is so small, no sutures are necessary.

After the procedure you will go to a bed in the hospital to recover.

Most patients will spend the night after the procedure to treat any side effects and make sure there are no complications.

What are the benefits and risks of the procedure?

Benefits:

- RFA can be an effective treatment for cancer when surgery is not a good option.
- The success rate for completely eliminating small liver tumors with RFA is high.
- Treatment-related complications are infrequent and discomfort is minimal.
- Radiofrequency ablation can be used safely multiple times if tumors return after this or other treatments.
- No surgical incision is needed- the access for the RFA needle is very small.
- Recovery from RFA is quicker than surgery and medications and other treatments can be resumed almost immediately.

Risks:

- Any time the skin is penetrated there is a risk of infection or bleeding.
- RFA can injure nerves that cannot be seen during the procedure. This may cause temporary or long-lasting pain, numbness, or tingling along the nerve pathway.
- There can be bleeding in the organ that is being treated that could require surgery or other procedures to control.
- There is a risk of injury to other organs near the tumor site.
- There is risk of infection (abscess) development at the site of the ablation.
- Severe pain is rare with RFA. Mild to moderate pain may occur and is usually easily treated with pain medication.

What are the limitations to RFA?

Following RFA, microscopic-sized tumor tissue can remain that cannot be visualized during treatment. You will receive follow up care and imaging to watch for residual or recurrent cancer that may need additional treatment.