

Interventional Radiology at Virginia Mason

Working Together for Better Outcomes

GOLD BEAD MARKER PLACEMENT (gold fiducial markers)

What it is:

To place several (usually three) tiny gold beads into the body to help direct more precise radiation therapy to a target lesion, such as a lung nodule or other abnormal mass.

Indications:

This is for small lesions that are difficult to see by x-ray, or for those lesions next to critical organs or other normal tissues that should not be exposed to radiation, such as a normal spinal cord. Another indication is to minimize injury to surrounding tissue for patients at risk, such as radiation of a small lung lesion in patients with diseased lungs.

How it works:

The tiny gold beads are very visible on x-ray including CT (CAT) scans. The radiation technologist can use the three beads visualized on the CT scan and calculate (triangulate) exactly where the target lesion is, for precise direction of the radiation beam. This helps prevent radiation injury to normal tissues next to the target lesion. In addition, the radiation technologist can locate the beads easily and quickly with x-ray, which saves time for both the patient and the technologist.

What it involves:

The patient is first admitted to the Interventional Radiology (IR) area. Sedation is used for the procedure, so a nurse will prepare the patient and start an IV. Because of the sedation, patients need to arrange for a ride home (Virginia Mason does not allow discharged sedated patients to go home in a cab or on a bus). The procedure is performed with CT guidance. After the procedure, the patient is monitored by nurses in the IR recovery area. Recovery is usually less than an hour, lasting until the sedation medications wear off.

Most commonly, the procedure is for small lung lesions. In that case, the gold beads are placed into a bone of the spinal column (not the spinal cord). The patient is placed face down on the exam table and made comfortable. Sedation medications are then given. Ilocano is used to anesthetize the skin, which may cause a light temporary burning sensation. A heavy gauge needle is placed into part of the spine near the lesion, and a gold bead is deposited into the bone. The patient may feel pressure, and likely a 'tapping' sensation, as the needle is placed, but the procedure is not typically painful.

Three gold beads are placed in this way. After the gold beads are placed, the patient is sent to recovery area. The procedure generally takes about 45 minutes to an hour, excluding preparation and recovery time.

If the gold beads are placed for a mass other than lung, the beads are deposited directly into the mass. Patient position, needle placement, procedure time, and risks are more variable than with gold beads placed into the spine.

Risks:

All procedures which involve needles placed through the skin involve some degree of risk. These risks include bleeding, infection, injury to other tissues or organs, and sedation risks. For gold beads placed into the spine with CT guidance, these risks are low. The risks of bleeding, infection and other organ injury related to gold beads placed into other masses depend on the location of the mass and which organs or tissues are involved.

How to prepare:

Patients should discontinue their anticoagulation or blood thinning medicines. If you are on coumadin, this is discontinued for three days BEFORE the procedure date. If you are taking aspirin, even baby aspirin, you need to discontinue this seven days before the procedure. Ibuprofen (Advil, Motrin) needs to be discontinued 24 hours before. For questions about other medications, call 206-625-7373, X 57283 and ask one of the IR nurses for help.

Patients scheduled in the morning should not have any solid foods after midnight before the procedure, and no liquids for at least two hours prior to the procedure. Patients may take critical medications with sips of water. If the procedure is scheduled in the afternoon, they should have no solid food after 7 am the day of the procedure, and no liquids after 11 am.