

Innovation in Cancer Care for Pets: Post-Surgical Residual Disease Can Now be Treated with Advanced Radiation Therapy



Historically, therapeutic options have been limited for pets with residual disease following surgery

Treatment planning for radiation therapy requires an identifiable target, typically consisting of gross residual disease. As a result, stereotactic radiation (SRS/SRT) has not previously been an option for pets left with microscopic residual disease following a surgical attempt to remove their tumor, since there was no identifiable target to treat. This is a common situation that forces pet parents to choose between conventional radiation therapy (CFRT) or no further treatment. Many decline CFRT due to the number of anesthetic events, potential toxicity, or other quality of life factors.

Create an artificial target volume with PetXmark™ liquid fiducial marker

PetXmark™ is a liquid fiducial marker that can be applied intraoperatively by injecting directly into a surgical cavity or postoperatively through injection along a surgical incision. The marker will be visible on subsequent imaging including CT, MRI, ultrasound and under infrared light. This creates an artificial target that can be used for SRS/SRT treatment planning, allowing an entire treatment course to be delivered in a single dose. By contrast, CFRT typically comes with a recommendation of 15-20 treatment sessions - and anesthetic events - for incompletely or marginally resected tumors.

PetXmark™ application is recommended intraoperatively when there is concern around achieving clean margins during a tumor resection, especially with mast cell tumors, soft tissue sarcomas, and any other tumor exhibiting an invasive growth pattern where complete resection is difficult or impossible due to anatomic constraints. Application is recommended postoperatively when managing surgical scars in areas with complex anatomy - such as head & neck tumors, anal sac tumors, and soft tissue cancers within soft tissue organs.

Proven safe & effective

We can now easily create an artificial target volume to safely and effectively treat patients with marginally resected tumors. Safety & efficacy established through prospective clinical trial that found:

- 176 injected, 161 treated over 18 months
- Restricted mean for **overall survival time** was **1409.8 days** (range, 1231-1587 days)
- Restricted mean for **disease-free interval** was **1246 days** (range, 1051 to 1442 days)
- Fewer acute radiation side effects than patients treated with CFRT
- Delayed radiation side effects occurred in less than 2% of patients
- The median was not reached for either the overall or disease-free survival times



How to use PetXmark™ liquid fiducial marker



1. Open package containing provided microinjection syringe. **For intraoperative use**, set the syringe to your desired volume level (10, 25 or 40μL) and apply to any areas with concern over margins or residual disease. **For postoperative use**, set the microinjection syringe so that one click is equal to 10μL and proceed to Step 2 below. In either setting, you can choose different volumes in the same procedure to mark areas of special interest.

NOTE: If you have any questions about how to use the microinjection syringe, please contact us through PetCurePortal.com. If you do not have the provided microinjection syringe, a standard 1ml syringe may also be used.

2. Attach an 18-20 gauge needle to the luer lock end

3. Pull down on the orange lever by the plunger on the syringe to unlock the plunger

4. Break open glass ampule containing liquid fiducial and draw up liquid (there is about 1mL of liquid and you should not need more than that)

5. Push the orange lever back down to lock the plunger

6. Change out the needle to a 22-25 gauge

7. Identify the locations of where you would like to place the marker

- a. We recommend spacing out injections at least 1cm
- b. Should be used to mark the tumor resection cavity as would be used with a traditional hemoclip
- c. We recommend injecting into the soft tissue and not on the surface

8. Prime the needle by pushing down on the syringe gently until you see liquid at the tip

9. Insert the needle into the tissue, push the syringe gently until you hear or feel one click

10. Wait about 5-10 seconds and then remove the needle slowly

11. Repeat injections as needed

If you have a pet patient with residual cancer following surgery, contact PetCure Oncology today to find out if they may be a candidate for advanced radiation therapy.

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