Radiation Therapy for Sarcoma "Ask Me Anything"

RT Answers Facebook Live: July 20, 7:30 pm ET/6:30 pm CT

Matthew Spraker, MD
Washington University School of Medicine

Meng Welliver, MD
Ohio State University Cancer Center

Stephanie Perkins, MD
Washington University School of Medicine

Thomas DeLaney, MD
Massachusetts General Hospital
SARCOMA
Types

- Angiosarcoma
  Malignant neoplasm in the vessel walls

- Osteosarcoma
  Tumor in a bone

- Ewing's sarcoma
  Bone

- Chondrosarcoma
  Cartilage

- Gastrointestinal stromal tumor
  Mesenchymal neoplasms of the gastrointestinal tract

- Liposarcoma
  Fat cells

- Fibrosarcoma
  Fibrous connective tissue

- Hemangioendothelioma
  Vascular neoplasms
Question #1

What is the primary cause of sarcomas?

What causes the genome to change leading to sarcomas?"
Question #2

What is the average risk of causing a radiation-induced sarcoma?

*Have risks decreased over the years due to new technology and techniques?*
Question #3

What factors do you consider when deciding whether to treat soft tissue sarcoma tumors with radiation or not (either before or after surgery)?
Question #4

How does radiation therapy kill cells, and how is it used to treat sarcomas before and after surgery?
Question #5

What are the risks to the patient if they were to **not** have radiation therapy?
Patients with low- and high-grade sarcomas

Fig 1. Local recurrence-free survival for all patients with soft tissue tumors of the extremity randomized to receive or not receive adjuvant postoperative external-beam XRT. Patients who develop metastatic disease are censored for LR.

Patients with high grade sarcomas who were treated with chemotherapy

Fig 2. Local recurrence-free survival in patients with high-grade, locally resectable extremity soft tissue sarcomas randomized to treatment with surgery and adjuvant chemotherapy versus surgery, adjuvant chemotherapy, and postoperative XRT. LR occurred only in the absence of XRT.

Yang et al., JCO, 1998
Question #6

Do you prefer to administer radiotherapy before or after surgery?
PLACE HOLDER FOR IMRT THIGH TUMOR SLIDE
Question #7

What would you do if a tumor grows progressively bigger while on radiation treatment?
Question #8

Are there any alternatives to radiation therapy that might be safer?

What about proton therapy?
Protons

IMRT
Question #9

For chondrosarcomas, what about radiation therapy after surgery for tumors that are low grade and that had negative margins?

Is this true for most low-grade sarcomas as well?
Question #10

How might brachytherapy catheters be used during surgery for a retroperitoneal sarcoma that is touching the spinal bones or large blood vessels?
Question #11

How is definitive radiation used for sarcomas in pediatric patients or young adults that are unresectable, such as a Ewing’s sarcoma of the pelvis?
Question #12

Can chemotherapy and radiation be combined for treatment of sarcomas?

Can it be used when a surgery is planned or when a surgery is not planned, or both?
Question #13

What about radiation therapy for the sarcoma tumors in the lungs, such as SBRT? How many nodules can it attack? Is there a size limit?”
Question #14

“With school starting back up, what are your thoughts on kids going back to in-person learning who've recently completed treatment for Ewing's sarcoma, and received whole lung radiation?”

• “Is it okay for them to wear a mask all day?”
Question #15

Are there any special considerations for adults who have had lung radiation for sarcoma?

What about radiation elsewhere in the body?
Question #16

PLACE HOLDER FOR WHATS NEW?
Sarcoma

Soft tissue sarcoma and radiation therapy
Soft tissue sarcomas are a group of cancers that come from the fat, muscles, blood vessels or nerves of your body. Sarcomas form when normal cells in these tissues change and become cancerous. Sarcomas that start in the bone are different from soft tissue sarcomas and are not reviewed here. Unlike some other cancers, the cause of most sarcomas is unknown. Exposure to cigarette smoke, alcohol and diet have not been associated with any sarcomas.

Many sarcomas are first noticed by patients as a “lump” or “bump” (called a tumor). While most tumors are not cancers, it is important to have them looked at early by a doctor. If a tumor or an area of concern is large, quickly growing or painful, it may be a sarcoma.

According to the National Cancer Institute, there will be 13,130 new cases of sarcoma in 2020. Sarcomas are very rare, making up less than 1% of new cancers. Adults and children can develop a sarcoma, but it is most common in adults.

Sarcomas can form anywhere in the body. The most common locations for sarcomas to form are in the arms or legs, but they can also form in the abdomen, chest or head and neck. Some more rare types of sarcoma can even form in the skin.

There are over 100 different types of soft tissue sarcoma. However, a few types make up most cases: