

External Beam Radiotherapy For Soft Tissue sarcoma of the Extremity and Desmoids Information Sheet

General indications for the proposed procedure/treatment:

In the extremities (shoulder-arm-forearm-hand; hip-thigh-lower leg-foot) the most common tumors are soft tissue sarcomas. These are malignant tumors that develop in the muscles, tendons, and ligaments of the tissues. Less often benign tumors, such as Desmoids, may also occur in these areas. The goal of the radiotherapy may be to try to cure the tumor or to help relieve symptoms being caused by the tumor. Radiotherapy may be used by itself or in combination with surgery and/or chemotherapy.

Description of the proposed procedure/treatment:

Radiotherapy is done by aiming a beam of energy at an area of the body. In order to aim precisely, a treatment planning visit is required. This visit often involves a special CAT scan done especially for the purpose of planning the radiation treatment and using special positioning and immobilization devices. Reference marks are also placed. The reference marks may be on the skin. When on the skin, many of these marks are temporary, but a few, usually between 3 and 5, are permanent in the form of small “dot like” tattoos of about this size:

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Actual treatment usually starts some number of days after the treatment planning session. The course of treatment usually takes from two to six weeks, but occasionally can be shorter or longer than this.

With each treatment the patient comes to the radiotherapy department at a scheduled time and is treated. Being treated usually involves changing out of street clothes, getting positioned in the treatment room where the treatment machine (linear accelerator) is located, the taking of pictures on some days or each day to confirm that the position is correct, and the delivery of the treatment.

Although the patient is aware of where he/she is and the presence of medical equipment, when the actual pictures are taken there is no pain or sensation noted. In addition, there is no sensation associated with having radiation pass through the body. This is similar to the experience of having a chest x-ray or a CAT scan done.

Material risks and benefits of the procedure:

The benefit of radiotherapy is that it helps treat the tumor. The result of the treatment depends on the goal of the treatment. If the goal is to cure, then the radiotherapy can help bring the patient closer to this goal. If the goal is to relieve symptoms, then the radiation is likely to help provide relief. Just as with other medical

situations, the goals of radiotherapy are not always achieved and the benefit achieved is not always permanent.

The risks of radiotherapy to an extremity can be divided into two types: **acute** effects which, if they occur, start during the course of radiotherapy; and **late** effects which, should they occur, happen months to years after the radiotherapy has been completed.

Acute effects when irradiating part of an extremity include irritation of the skin with redness and/or discomfort as can be seen with sunburn. As with sunburn, this can range from very mild to severe. Severe reactions may be quite painful. Skin reactions are often associated with increased darkening of the skin (hyperpigmentation). Although the irritation usually resolves promptly following treatment, the darkening may persist for months to a few years. Irradiation of the sole of the foot is more likely to be painful than irradiation of other areas and may temporarily interfere with walking. Other acute effects include tenderness, achiness, and swelling. Usually these are mild. During treatment the tumor may or may not change in size or shape.

Late effects when irradiating an extremity include scarring with hardness or firmness within the area treated along with stiffness and decreased range of movement or flexibility. This can be especially notable around or near joints. In patients who are also treated with surgery, the effects of surgery and the effects of radiotherapy may be hard to separate and may overlap. There may also be some swelling at or below the area treated. When late effects are severe, which is unusual, but possible, they may also be painful.

Radiotherapy to bone can cause the bone to weaken over time and increase the chance of a fracture occurring in that bone. This can be especially important if the bone bears weight during usual activities. A fracture is more likely in an irradiated bone if the surgeon has also had to remove the outer covering of the bone (“the periosteum”). The physician tries to avoid irradiating bones, especially weight bearing bones, but if the tumor was close to a bone, then irradiation to that bone, or part of the bone may not be avoidable.

When the hand and foot require radiotherapy there is an increased chance of serious late effects including loss of function and long term discomfort. During all treatments the goal is to minimize the risks of treatment, but these risks cannot be completely eliminated.

Procedure alternatives, if any:

Generally, in a curative intent situation, radiotherapy is being used as part of a regimen that also includes surgery and/or chemotherapy. In this type of situation not using radiotherapy is the alternative.

In situations aimed at reducing symptoms, it may be possible to obtain relief with other methods such as drugs, surgery, or other procedures.

Probable consequences of refusing the recommended procedure:

In curative intent situations omitting radiotherapy is likely to decrease the chance of cure. In some cases omitting the radiotherapy may require the use of more extensive surgery and/or stronger chemotherapy than originally planned.

In situations aimed at controlling symptoms, if radiotherapy has been recommended as the best choice, other choices are usually less effective and/or involve more risk

Person(s) providing the procedure/treatment:

Radiation Doctors
Radiation Therapists
Radiation Nurses
Radiation Dosimetrists and Physicists

All decisions regarding whether, when, and how to treat with irradiation are made by a Radiation Attending Physician who is a member of the medical staff of Rush University Medical Center. In addition, the Radiation Attending designs, implements, and supervises all aspects of treatment. Often a resident physician participates under the supervision of the Radiation Attending. Resident physicians are licensed physicians in our approved residency program. Their level of participation varies with their level of training and ability.

The Radiation physicians are assisted by Radiation Therapists, Radiation Nurses, Radiation Dosimetrists and Radiation Physicists.

Radiation Therapists are licensed and certified technicians who are trained to assist the patient at the time of treatment and to administer the daily radiation treatments according to the instructions of the Radiation Physicians. Radiation Nurses are licensed nurses with special training and certification in Oncology Nursing. Dosimetrists are master level technicians with special training and certification in designing radiation treatments. Radiation Physicists are Ph.D. level physicists who have taken special training in Medical Physics. Medical Physics is the discipline that supports the use of radiation for treating patients.

In the Radiation Oncology Department all of the senior physicians and staff are fully trained and either Board Certified or in the process of becoming Board Certified. In many cases, certification requires some years of experience after training as well as passing difficult certification exams.