Alberta Health Services

Laboratory Bulletin

Date: June 23, 2010
To: All Surgeons and Radiologists – Central Zone (former DTHR)
From: Dr. A. D. Thompson
Re: Biopsy Protocol of Possible Sarcomas

PLEASE POST OR DISTRIBUTE AS WIDELY AS APPROPRIATE

The Multidisciplinary Sarcoma Group at the Cross Cancer Institute composed the attached biopsy protocol for suspected sarcomas in adults. Please review and apply to your practices as appropriate.

In general, needle core biopsies and small incisional or excisional biopsies can be submitted entirely in formalin, when collected at the Red Deer site.

Please contact me should you have any questions.

Sincerely,

Dr. A. D. Thompson

"This bulletin has been reviewed and approved by Dr. James Wesenberg"

Biopsy of Possible Sarcomas in Adults
Recommendations of the MultiDisciplinary Sarcoma Group, Cross Cancer Institute

Introduction:

Sarcomas are often large, deep-seated masses that may occur in locations that are poorly accessible to biopsy. This document outlines recommendations by the Multidisciplinary Sarcoma Group comprised of individuals from departments of surgery, radiation oncology, pathology, radiology and medical oncology. It is our goal to ensure that potential sarcomas are biopsied and submitted in the proper manner (without compromising management) in order to provide adequate material for diagnosis and/or molecular testing. Prior to any biopsy being performed, we recommend consultation with a surgical oncologist to ensure future management is not compromised.

Specimens:

Biopsy specimens may be of the following types:

1. **Excisional biopsies –** recommended only for small superficial lesions. Incisions should **not** be oriented in the transverse plane, as this results in more extensive surgery if margins are found to be inadequate.
2. **Incisional biopsies –** for superficial, easily accessible lesions. Allows for triage of material for molecular testing, proteomic studies, electron microscopy, etc. and improves sampling, but may lead to tumor spillage and may not adequately sample entire tumor.
3. **Core needle biopsies –** best performed with diagnostic imaging assistance and usually procured by radiologists, who can identify and avoid biopsy of non-diagnostic, necrotic areas of tumor. Creates minimal tissue damage and allows for flexibility in future surgical planning. Unfortunately, this method of biopsy sometimes leaves many sarcomas unclassified and may underestimate grade.

Submission of Specimens for Pathologic Examination:

1. **Incisional/excisional biopsies**: can be submitted as usual surgical specimens in formalin. If your institution allows, tissue can also be submitted fresh or in fetal calf serum for research/proteomic studies.

2. **Core needle biopsies:** Ideally **five (5)** cores of tumor should be submitted. At least one core can be submitted fresh for research/proteomic studies.

Important Pearls:

- the needle(s) used should enter the same skin puncture site and are then passed in different directions though the mass, ensuring diverse sampling of different regions of tumor.

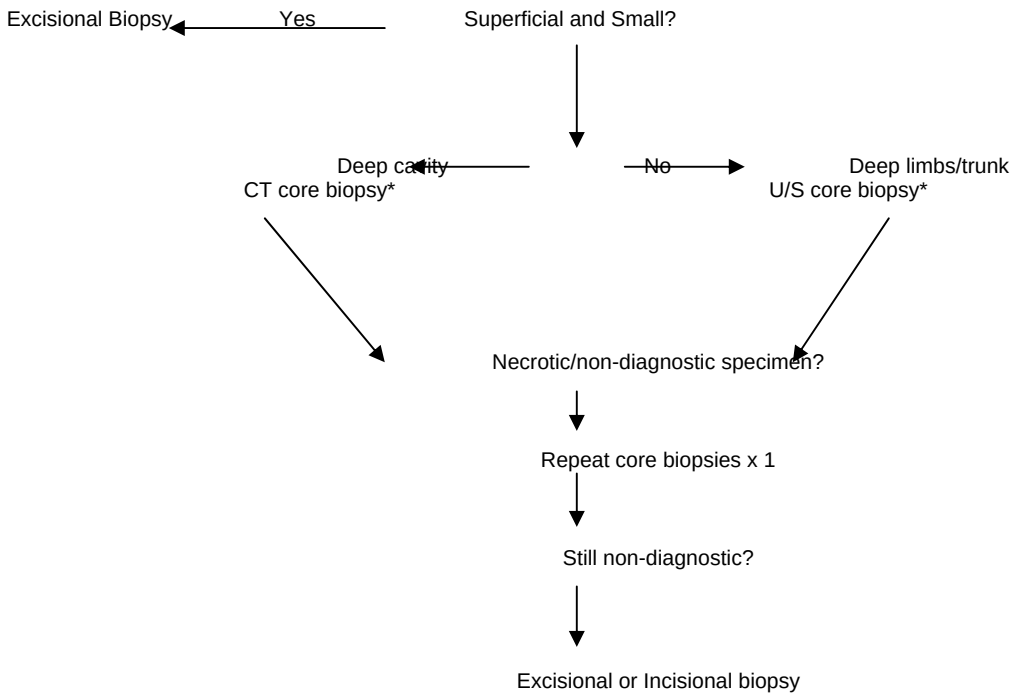
- the anatomic approach for the biopsy should be chosen in anticipation of future attempted limb-sparing surgery. Traversing uninvolved compartments should be avoided. Planning the biopsy should be done in conjunction with the sarcoma surgeon when the optimal approach is unclear.

- The size of needle used should be the largest gauge deemed safe for the patient/clinical situation (14-18 g). The needle cannot be reinserted into the patient after touching formalin or fetal calf serum. We find that the specimens can be placed in saline briefly, and at the Cross Cancer Institute the specimen is transported to the laboratory in saline immediately after it is collected where it is thereafter divided between the appropriate preservatives in a timely fashion.

3. **Fine needle aspiration biopsy (FNAB):** Although a valuable biopsy method to document ***recurrent*** or ***metastatic*** musculoskeletal tumors, it currently does not have as high an accuracy rate when compared with core needle biopsy for initial diagnosis of an unknown tumor. Therefore, we recommend incisional or core needle biopsies over fine needle aspiration cytology in the initial workup of an **unknown** musculoskeletal mass.

We highly recommend physicians seeing patients suspected of having sarcomas or having patients recently diagnosed with sarcomas to refer their patients to the MultiDisciplinary team at the Cross Cancer Institute. Referral to the Sarcoma Clinic will enable timely and coordinated evaluation of patients and ensure that best treatment is offered.

Recommended Algorithm



*consider carefully needle tract as will need to be excised with mass

Multidisciplinary Sarcoma Group Members:

Dr. Quincy Chu, Medical Oncology
Dr. Chris deGara, Surgical Oncology (General Surgery)
Dr. George Dundas, Radiation Oncology
Dr. Michelle Janoski, Radiology
Dr. Rob Macewan, Radiology
Dr. Karen Mulder, Medical Oncology
Dr. Carolyn O'Hara, Pathology and Laboratory Medicine
Dr. Paulose Paul, Surgical Oncology (Orthopedic Surgery)
Dr. Dan Schiller, Surgical Oncology (General Surgery)
Dr. Diane Severin, Radiation Oncology