

## **ORTHOPAEDIC PATHOLOGY: Rotation Director: John D. Reith, M.D.**

**1. Description of the rotation** - Residents will participate in all aspects of the musculoskeletal pathology service, including intraoperative consultations and frozen sections; dissection of surgical specimens; preliminary microscopic evaluation; ordering of all ancillary histochemical, immunohistochemical, ultrastructural, and molecular or cytogenetic studies; formulation of final reports; and all orthopaedic multidisciplinary conferences. For a more detailed description, please see the Learning Objectives for the rotation.

**2. Goals of the rotation** - After the rotation, residents should understand the basic principles of grossing musculoskeletal tumors in order to provide sufficient information for staging and margin status; understand the principles of grossing arthroplasty specimens and extremities for peripheral vascular disease; be able to recognize common bone and soft tissue tumors; understand the importance of radiographic correlation in musculoskeletal pathology. For a more detailed description, please see the Learning Objectives for the rotation.

**3. Duration of the rotation** - 4 weeks, for residents in PGY 2 or higher.

**4. Duties and responsibilities of resident** - Residents will participate in all intraoperative consultations and frozen sections; gross all orthopaedic specimens under the supervision of the faculty; triage biopsy and resection slides and order appropriate special stains prior to sign out; and attend all orthopaedic multidisciplinary conferences.

**5. Teaching staff** - John Reith, M.D., Suzanne Spanier, M.D., Jackie Knapik, M.D., Robin Foss, P.A.

**6. Resident supervision and evaluation** - The attending pathologist on service will assist/supervise (depending on training level) the resident with gross dissection of all large bone or soft tissue resection specimens. Residents will have the opportunity to preview biopsies prior to signout in order to formulate a differential diagnosis; senior level residents may order appropriate immuno- or histochemical stains prior to signout. As most residents will have little experience with orthopaedic pathology prior to the rotation, he or she will be evaluated based on the core competencies with heavy emphasis on the demonstration of understanding general principles of musculoskeletal pathology and improvement throughout the rotation. Expectations will vary depending on postgraduate year.

## **CORE CURRICULUM AND LEARNING OBJECTIVES FOR ORTHOPAEDIC PATHOLOGY ROTATION, SHANDS AT THE UNIVERSITY OF FLORIDA**

July, 2003

### **BACKGROUND**

During the four-week rotation on the orthopaedic pathology service, residents will learn basic handling and diagnosis of a variety of neoplastic and non-neoplastic conditions of both bone and soft tissue with Drs. Reith, Spanier, and Knapik. During this time, residents are expected to participate in gross and microscopic examination of musculoskeletal tumors (core competencies **PATIENT CARE, MEDICAL KNOWLEDGE, PRACTICE-BASED LEARNING AND IMPROVMENT**), intraoperative consultations (core competencies **PATIENT CARE, MEDICAL KNOWLEDGE, PRACTICE-BASED LEARNING AND IMPROVMENT, INTERPERSONAL AND COMMUNICATION SKILLS**), and all conferences pertaining to the musculoskeletal oncology service (core competencies **PRACTICE-BASED LEARNING AND IMPROVMENT, INTERPERSONAL AND COMMUNICATION SKILLS, PROFESSIONALISM**). In addition to the usual grossing duties and signout sessions, a typical work week also includes the following:

Monday:

Orthopaedic signout conference, 10:00 - 11:00 a.m.: All clinical, radiographic, gross, and microscopic data from musculoskeletal tumors resected during the prior month are presented. The conference serves as both a working conference (final diagnosis, surgical stage, and margin status are established) and an educational conference. This conference is an excellent educational conference for residents and allows for the opportunity to interact directly with orthopaedic surgery attendings and residents, and attendance is mandatory.

New case/outside consultation conference, 11:00 a.m. - 12:00 p.m.: Outside radiology/pathology studies are presented, and treatment options and recommendations are formulated for the consulting physician.

Sarcoma conference, 12:00 - 1:00 p.m.: Current patients on the musculoskeletal oncology service are presented and a multidisciplinary team devises treatment plans.

All of these conferences are extremely educational and attendance is required during the rotation. Residents are welcome to attend these conferences even when not on service as their schedules allow.

Tuesday: The surgeons conduct orthopaedic oncology clinic, and frozen sections are frequently evaluated on new patients with soft tissue or bone lesions which are amenable to needle biopsy. During pre-operative conference (approximately 4:00 - 5:00 p.m.), patients to be operated on the following day are reviewed and potential frozen sections or operating room consultations are discussed.

Wednesday: Orthopaedic oncology operating room day; residents are expected to dress in scrubs and participate in intraoperative gross evaluations of resections specimens, followed by gross examination and dissection of specimens in the gross room.

Thursday: Orthopaedic oncology clinic; pre-operative conference.

Friday: Orthopaedic oncology operating room day.

Signout time will vary from day to day depending on the above activities.

## **SPECIFIC LEARNING OBJECTIVES**

After completing a four-week rotation on the Orthopaedic Pathology service, residents should be able to:

1. Perform careful dissection of bone and soft tissue tumor resection specimens, with particular emphasis on appropriate sectioning to determine margin status, surgical stage, and chemo-or radiotherapy response. Particular emphasis will be placed on the gross assessment of osteosarcoma and Ewing's sarcoma following chemotherapy, and soft tissue sarcomas following radiotherapy.
2. Understand the basic classification schemes for benign and malignant bone and soft tissue tumors, and be familiar with the basic histologic patterns necessary to formulate an appropriate differential diagnosis.
3. Understand the appropriate use of ancillary histochemical, immunohistochemical, ultrastructural, and molecular techniques in the evaluation of bone and soft tissue tumors.
4. Understand the clinical staging system for sarcomas and the definitions of surgical margins, and how these impact local recurrence rates and patient survival.

5. Understand the importance of clinical and radiographic correlation and basic principles of musculoskeletal imaging.
6. Evaluate periprosthetic membranes for the possibility of infection.
7. Understand the general pathology of arthritis and avascular necrosis.

Time allowing, specific individual topics (for example, the distinction between enchondroma and low-grade chondrosarcoma) will be covered on a daily basis. Residents will have access to a variety of teaching materials, including files in the Enneking/Anspach Research Center in the Department of Orthopaedic Surgery, and the personal files of Drs. Reith and Spanier. In addition, a variety of journal articles and textbooks are available for review. Recommended reading material during the rotation includes:

AFIP Fascicle, Tumors of the Bones and Joints, 3rd Series, Fascicle 8, 1993.  
McCarthy and Frassica, Pathology of Bone and Joint Disorders, 1998 (available in Dr. Reith's office).  
Dorfman and Czerniak, Bone Tumors, 1998.  
Enzinger and Weiss, Soft Tissue Tumors, 2001 (4th edition).  
Miettinen, Diagnostic Soft Tissue Pathology, 2003