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Introduction to Anatomic Pathology Professional Enrichment Course

Spring 2021

Course Dates: January 8, 15, 22 & February 5*
Fridays, 3:00-5:00 PM

*Due to the virtual nature of the course, dates may be changed to accommodate students. Please contact Dr. Singhi for more information.

Maximum Students: 6

Class Year: MS1

Course Director: Aatur D. Singhi, MD, PhD

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Description:

Anatomic pathology can be described as the use of tissue examination under a microscope to make diagnoses. It is what most pathologists do most of each workday. This professional enrichment course will show the students how diagnoses are rendered. It should provide an appreciation of the challenges of the specialty and highlight the rewards of a potential career in pathology. Students will emerge from the elective rotation with a basic knowledge of 6-8 diseases, many organ-specific, not covered in the first year curriculum. Likely diseases include leu- kemia, gastroesophageal reflux disease, Helicobacter pylori gastritis, pancreatic cancer, gastrointestinal stromal tumors, mucoepidermoid carcinoma of the salivary glands, and oral squamous cell carcinoma. Some sessions will include radiographs and the gross pathology before the slides to assist in developing a broader perspective on specific diseases.

During the course sessions, students will be actively engaged in making observations and interpreting information. Comparable to the way in which residents and clinical year students learn through discussing cases, students, faculty and the course director will discuss cases in real time. Though the process of questioning, students will be encouraged to apply what they know and push ahead to develop deeper insights about the diseases, and hone their critical thinking skills (using the Socratic method). Students taking this elective must be ready for being asked challenging questions in front of the group.

Course Objectives:

- To prepare medical students to be astute users of biopsy results.
- To help medical students learn how and why it takes as long as it does to get a good diagnosis from a biopsy or cytology specimen.
- To give students an appreciation that every anatomic pathology diagnosis comes with a degree of uncertainty and fallibility, and with a differential diagnosis.
- To provide students with a basic knowledge of key features of at least 8 common and important diseases.
- To teach students some specific features of diseases they encounter in the form of tissue in a microscopic biopsy or cytology.

Requirements:

- Active participation in the four course sessions
- Use of a pathology textbook
- Ability to use [Aperio ImageScope Pathology Viewing Software \(free\)](#)

COURSE OUTLINE

Session 1: January 8, 2021 3:00-5:00pm

Pancreaticobiliary Pathology and Head and Neck Pathology

Instructors: Aatur Singhi, MD PhD and Raja Seethala, MD

Location: Virtual Meeting

Objectives

Students will gain an understanding of

1. How frozen section specimens are processed and diagnoses made
2. The important role of frozen section diagnosis of margins of resection
3. The challenges of diagnosing pancreatic cancer
4. The utility of precision medicine in the early diagnosis of pancreatic cancer

Format

Dr. Seethala will discuss the processing of frozen section specimens and their important role in the diagnosis of margins of resection. In addition, Dr. Seethala will review various head and neck pathologic entities that students may encounter within their clinical rotations. Surgical ramifications will also be discussed. Students will download digital images of pancreaticobiliary pathology slides representing different types of tumors and inflammatory lesions and review them with Dr. Singhi. Dr. Singhi will also discuss precision medicine efforts in the early diagnosis of pancreatic cancer that have been adopted by the University of Pittsburgh Medical Center.

Session 2: January 15, 2021 3:00-5:00pm

Genitourinary Pathology, Sarcoma Pathology, and Cytology

Instructors: Gabriela Quiroga-Garza, MD, Anette Duensing, MD, Samer Khader, MD

Location: Virtual Meeting

Objectives

Students will gain an understanding of

1. The challenge of making a diagnosis of prostate cancer on needle biopsy
2. The ability to make a diagnosis on fine needle aspiration cytology
3. The difficulty of a correct sarcoma diagnosis, yet its importance for successful therapy

Format

In this session, students will examine microscope slides at a multi-headed microscope with Dr. Quiroga-Garza. Students will learn how a fine needle aspiration of a tissue specimen is taken, stained and reviewed with Dr. Khader. They will see cytology slides of fine needle aspirations of patients with interesting diseases. In addition, students will learn about several (molecular) diagnostic methods and gain basic knowledge of sarcoma pathology with Dr. Duensing. They will learn why a correct diagnosis is important for successful therapy and will be introduced to the concept of targeted therapies. Students will finish the afternoon with a hands-on understanding of how fine needle aspirations are done and interpreted along with a new understanding of at least three diseases.

Session 3: January 22, 2021 3:00-5:00pm

Gastrointestinal Pathology and Hematopathology

Instructors: Jon Davison, MD and Miroslav Djokic, MD

Location: Virtual Meeting

Objectives

Students will gain an understanding of

1. The common diseases involving the gastrointestinal tract including gastroesophageal reflux, Barrett's esophagus, colon cancer and other entities
2. The emerging ancillary studies performed in gastrointestinal pathology that may affect patient management
3. The appearance of cells in a normal blood smear and smear with leukemia
4. The appearance of normal bone marrow and of bone marrow with leukemia

Format

The session will include a thorough review of common diagnostic entities encountered in clinical practice involving the gastrointestinal tract with Dr. Davison. If a suitably educational surgical specimen comes to the laboratory, the students will also be able to review representative gross specimens. Dr. Davison will also briefly review commonly ordered ancillary studies used to evaluate gastrointestinal disease including cancers. Students will finish the afternoon by reviewing peripheral blood smears and bone marrow biopsies of a leukemia with Dr. Djokic and will compare these findings to corresponding normal

specimens. Students will gain knowledge of how to interpret a blood smear and bone marrow biopsy and with a new rudimentary understanding of at least three additional diseases.

Session 4: February 5, 2021 3:00-5:00pm
Molecular & Genomic Pathology

Instructor: Abigail Wald, PhD

Location: Virtual Meeting

Objectives

Students will gain an understanding of

1. Clinical-based molecular testing at the University of Pittsburgh
2. Pan-cancer next-generation sequencing of a variety of neoplasms
3. Disease-specific diagnostic molecular assays developed specifically at the University of Pittsburgh and offered throughout the United States

Format

The session will include a thorough review of clinical-based molecular testing and, in particular, tests offered at the University of Pittsburgh. Dr. Wald will provide a broad overview of precision medicine testing that support a variety of clinical specialties that medical students will encounter in everyday clinical practice. In addition, Dr. Wald will discuss diagnostic tests and algorithms uniquely designed at the University of Pittsburgh and offered to patients not only at the University of Pittsburgh, but patients across the United States.