GOALS AND OBJECTIVES FOR THORACIC PATHOLOGY ROTATION

LEVEL: PGY2, PGY3, PGY5

- A number of these rotations are introductory in nature, as they are major subspecialties, and are followed by two more blocks in PGY-3, during which knowledge is extended and fortified.

- As described above, the staff pathologist is expected to provide an appropriate volume of cases for review based on the PGY-2 resident’s level of training in these areas with the understanding that greater responsibility and workload will be taken on in PGY-3.

- Additionally, while PGY-2 residents are expected to be present at all interdisciplinary rounds in these major subspecialties, they are not expected to present cases while a more senior resident is on service.

- Furthermore, staff pathologists are required to be present at all interdisciplinary rounds during which a resident is presenting, particularly for PGY2.

- During the PGY-3 year, while completing the 2-block rotations in the major areas of subspecialty, the resident is expected to prepare for and present cases at all interdisciplinary rounds, and, with staff pathologist supervision and guidance, answer questions and take part in discussion during said rounds.

- Furthermore, the PGY-3 resident is expected to complete any end-of-rotation presentations required for the major subspecialty rotations during this year.

- The PGY-5 year is one of senior leadership and the resident should be able to assume responsibility for organizing the service and supervising junior residents and students. The resident should have mastery of the information contained in standard texts and be prompt in using the literature to solve specific problems. The resident will be responsible for presentations at conferences and for teaching junior residents and students on a routine basis. The PGY 5 should begin to have an understanding of the role of the practitioner in an integrated health care delivery system and to be aware of the issues in health care management facing patients and physicians.
In general the objectives for each competency are those mandated by the Royal College for General Pathology and Anatomical Pathology. However, the following are specific objectives for this rotation:

**MEDICAL EXPERT**

- Be familiar with of the anatomy and histology of the upper and lower respiratory system and mediastinum including thymus.
- Be familiar with TNM classification of lung cancer.
- Be familiar with common non-neoplastic pulmonary disorders especially interstitial pneumonitis.
- Demonstrate skill in the gross dissection of common resection specimens from the lung and mediastinum.
- Demonstrate proficiency in the interpretation of transbronchial biopsies.
- Acquire proficiency in the interpretation of lung and mediastinal resection specimens including neoplastic and non-neoplastic cases.
- Acquire proficiency in the interpretation of lung and mediastinal frozen sections.

**COMMUNICATOR/COLLABORATOR**

- Demonstrate the ability to function at a junior staff pathologist level in keeping with PGY level of training at thoracic oncology rounds including preparing, presenting and discussing the cases.
- Demonstrate the ability to teach other residents and medical students at interdisciplinary rounds, frozen sections or teaching sessions.

**HEALTH ADVOCATE/PROFESSIONAL**

- Gain an appreciation for the unique socioeconomic status of many patients with pulmonary malignancies, and the physical and emotional difficulties posed by their therapy and rehabilitation.
- Understand the implications of a malignant diagnosis on the subsequent therapy provided to a patient, particularly as it relates to lung cancer.
Know when to appropriately consult an expert in pulmonary and mediastinal pathology.

**SCHOLAR**

- Review the pertinent literature relating to lung cancer.
- Consider conducting a research project or case report related to pulmonary disorders based on material available as required.

**DESCRIPTION OF THE PROGRAM**

**Academic Coordinator: Dr. Marcio M. Gomes, MD, PhD**

The University of Ottawa thoracic pathology education program involves three mandatory clinical rotation blocks and a longitudinal didactic program. The clinical rotations are distributed as follows: The first introduces the fundamentals of pulmonary pathology. This is a combined theoretical and practical rotation where instruction predominates. The practical portion involves primarily surgical resection specimens. The second and third blocks are practical, where the diagnosis of biopsies and therefore the clinical-pathological correlation is at the heart of the learning process. Knowledge acquired during the first block is vital to understanding the neoplastic and inflammatory diseases that are part of the thoracic pathology range of differential diagnoses. The resident’s professional development is encouraged and expected through gradually increasing responsibilities. Additional elective rotations might be arranged to further the interest of the resident in thoracic pathology.

The clinical rotations are complemented by the longitudinal teaching of thoracic pathology, which includes:

- **Thoracic Pathology Meetings (TPM):** interdisciplinary didactic sessions to discuss various topics in thoracic pathology, in which inflammatory and oncologic sessions alternate. The two-year program covers 26 different topics. The main goal of these meetings is to longitudinally teach pathological aspects of thoracic diseases within clinical context.

- **Thoracic Rounds (so called “Pizza Rounds”):** 6 yearly interdisciplinary sessions discussing interesting Ottawa Hospital cases of thoracic diseases.

- **Academic day didactic presentations:** in depth coverage of pathological aspects of thoracic diseases

- **Unknown rounds:** practical demonstration and discussion of pathological aspects of thoracic diseases
THORACIC PATHOLOGY CLINICAL ROTATION - FIRST BLOCK

DESCRIPTION OF ROTATION

Duration of Rotation: 1 block

Year of Residency (suggested): Third

Site: The Ottawa Hospital, General Campus

The purpose of the first block is to develop fundamental knowledge of pulmonary pathology. Residents must know and integrate anatomy, physiology, microbiology, histology and general pathophysiology so that their understanding of pulmonary diseases is broad and open to intellectual questioning. This understanding of mechanisms will prevail over the diagnostic context; however basic sciences will still be studied as applied sciences. The major chapters of pneumology will be reviewed: obstructive diseases, restrictive diseases, infectious diseases, diseases of vascular origin and neoplasms.

ROTATION OBJECTIVES

At the end of this rotation, in addition to the CanMEDS competencies described in the detailed general objectives in the anatomical pathology program, the competent resident will:

1. Demonstrate mastery of the knowledge learned in previous rotations in the anatomical pathology program.

2. Know thoracic anatomy and apply this knowledge when evaluating surgical specimens.

3. Write clear, concise and readable gross reports for health care workers.

4. Understand and describe the different types of thoracic specimens and how to fix them and handle them grossly.

5. Be familiar with the histoanatomy of the lung, pleura and thymus, and apply this knowledge when interpreting histological slides from surgical specimens.

6. Describe microscopic findings logically and clearly, using traditional anatomical pathology terminology.

7. Use the appropriate special techniques to study pulmonary parenchyma and establish specific diagnoses.
8. Be familiar with non-pathological incidental findings in lung biopsies, as well as anatomical and histological variations.

9. Be familiar with the stereotypical reactions of the lung and pleura to acute and chronic inflammatory tissue damage and vascular phenomena.

10. Describe the nosological classification of pulmonary diseases and master the physiopathology of diseases of vascular origin, obstructive diseases, restrictive diseases, infectious diseases and neoplastic diseases.

11. Identify the different types of tissue reaction and the microorganisms responsible for infectious pneumonias in immunocompetent and immuno-suppressed patients, as well as their auxiliary detection techniques.

12. Be familiar with the staging and prognostic factors of lung cancer and take them into consideration when conducting gross and microscopic examinations.

13. Recognize the most common histological types of primary pulmonary neoplasms and master their diagnostic criteria in resection specimens.

14. Integrate anatomy, physiology, microbiology, histology and physiopathological phenomena when interpreting diseases.

INSTRUCTIONAL TOOLS AND RESPONSIBILITIES

The clinical work is the most important teaching tool of the rotation. The workload assigned to each resident will be defined by the staff pathologist, who will take into account the level of training, the amount of non-clinical work, and the individual competence of the resident in different areas/roles. The resident is expected to keep track of his clinical work and to keep a logbook of the cases he or she was involved with. A pro-active and mature attitude is expected from the resident when performing the clinical work and preparing clinical and didactic rounds. The level of independence will depend on the competency demonstrated throughout the rotations. A collaborative task will be assigned to the resident at the beginning of the rotation and the conclusion of which will be taken into consideration in the final evaluation.

1. Department of Pathology clinical activities
   a. Gross examination
   b. Microscopic examination
   c. Ancillary techniques
   d. Clinical-pathological correlation
   e. Report writing

2. Study periods - review of the literature
3. Weekly multidisciplinary cancer conferences (preparation, discussion and debriefing)

4. Thoracic Pathology Meetings (preparation and discussion of the subject)

5. Thoracic Rounds (“pizza rounds”): preparation

6. Guided study

   a. Morphofunctional aspects of the lung
   b. Stereotypical reactions of the lung to tissue damage
   c. Vascular diseases involving the lung
   d. Infectious pulmonary diseases
   e. Obstructive diseases
   f. Restrictive diseases
   g. Pulmonary neoplasms
   h. Pleural diseases

7. Review of collection slides (if expectations met and clinical workload allows)

   a. Histoanatomy of the pulmonary parenchyma and its variations
   b. Degenerative pulmonary changes and unexpected findings with no pathological significance
   c. Stereotypical reactions of the lung to tissue damage
   d. Pulmonary diseases that are vascular in origin
   e. Infectious pneumopathies
   f. Smoking-related diseases
   g. Common pulmonary tumours

BIBLIOGRAPHIC REFERENCES

1. Stephen S. Sternberg - Histology for Pathologists
2. Robbins - Pathologic Basis of Disease
4. Leslie & Wick – Practical Pulmonary Pathology
THORACIC PATHOLOGY ROTATION - SECOND BLOCK

DESCRIPTION OF ROTATION

Duration of Rotation: 1 block

Year of Residency (suggested): Third

Site: The Ottawa Hospital, General Campus

In the second rotation, residents work on their diagnostic skills in terms of thoracic pathology. The focus is on neoplastic diseases and their differential diagnoses. The clinical and radiological context is used as a starting point for pathological reasoning and teaching is based on everyday clinical situations: Peripheral pulmonary nodules, central pulmonary masses, endobronchial lesions, anterior mediastinal masses, pleural thickening, etc. By the end of the rotation the resident is expected to confidently work-up lung, mediastinal and pleural biopsies, and to assess the prognostic factors and staging on surgical specimens.

ROTATION OBJECTIVES

At the end of this rotation, in addition to the CanMEDS competencies described in the detailed general objectives in the anatomical pathology program, the competent resident will:

1. Demonstrate mastery of the knowledge learned in previous rotations in the anatomical pathology program.
2. Master the staging and prognostic factors of lung cancer and take them into consideration when conducting gross and microscopic examinations.
3. Recognize the most common histological types of primary pulmonary neoplasms and master their diagnostic criteria in biopsy specimens.
4. Recognize the most common histological types of primary pleural neoplasms and master their diagnostic criteria.
5. Recognize the most common histological types of primary mediastinal neoplasms and master their diagnostic criteria.
6. Recognize the most common metastatic neoplasias of the lung and pleura and master their diagnostic criteria.
7. Be familiar with the differential diagnoses for peripheral pulmonary nodules and use the appropriate additional techniques to evaluate transthoracic biopsies and reach the correct diagnosis (including vasculitises and granulomatous infections).

8. Be familiar with differential diagnoses for endobronchial lesions of the lung and use the appropriate additional techniques to evaluate bronchial biopsies and reach the correct diagnosis.

9. Recognize the histological features of pulmonary metastases in the lymph nodes and evaluate them during staging of lung cancer.

10. Be familiar with the differential diagnoses for pleural effusions and use the appropriate additional techniques to evaluate transthoracic, pleuroscopic and thoracoscopic biopsies and reach the correct diagnosis.

11. Make correlations between the clinical-radiological information and the differential diagnoses suggested by this information.

12. Integrate the clinical, radiological, laboratory and anatomical pathology information to reach the specific diagnosis.

13. Describe gross and microscopic morphological changes logically and comprehensively, and prepare a written report that is clear, readable and useful to the attending physicians and allied health professionals.

INSTRUCTIONAL TOOLS AND RESPONSIBILITIES

The clinical work is the most important teaching tool of the rotation. The workload assigned to each resident will be defined by the staff pathologist, who will take into account the level of training, the amount of non-clinical work, and the individual competence of the resident in different areas/roles. The resident is expected to keep track of his clinical work and to keep a logbook of the cases he or she was involved with. A pro-active and mature attitude is expected from the resident when performing the clinical work and preparing clinical and didactic rounds. The level of independence will depend on the competency demonstrated throughout the rotations. A collaborative task will be assigned to the resident at the beginning of the rotation and the conclusion of which will be taken into consideration in the final evaluation.

1. **Department of Pathology clinical activities**
   a. Gross examination
   b. Microscopic examination
   c. Ancillary techniques
   d. Clinical-pathological correlation
   e. Report writing
2. Study periods and review of the literature

3. Weekly multidisciplinary cancer conferences (preparation, discussion and debriefing)

4. Thoracic Pathology Meetings (preparation and discussion of the subject)

5. Thoracic Rounds (“pizza rounds”): preparation and possibly presentation

6. Review of collection slides (if expectations met and clinical workload allows)
   a. Peripheral pulmonary nodule - transthoracic biopsy
   b. Central lesions - bronchial biopsy
   c. Pleural thickening - thoracoscopic biopsy
   d. Tumours of the anterior mediastinum
   e. Differential diagnosis for pulmonary adenocarcinomas
   f. Differential diagnosis for small cell carcinomas

BIBLIOGRAPHIC REFERENCES

1. AFIP Atlas of Tumor Pathology:
   a. Tumors of the lower respiratory tract
   b. Tumors of the serosal membranes
   c. Tumors of the mediastinum.


3. Leslie & Wick – Practical Pulmonary Pathology
THORACIC PATHOLOGY ROTATION - **THIRD BLOCK**

**DESCRIPTION OF ROTATION**

Duration of Rotation: 1 block

Year of Residency: Fourth to fifth

Site: The Ottawa Hospital, General Campus

The third block refers back to and reinforces previous knowledge, and the resident is expected to demonstrate a certain level of independence in tumoural pathology. This block also expands on knowledge of pulmonary inflammatory diseases. The clinical-radiological context is once again at the heart of the learning process: acute respiratory failure, diffuse interstitial infiltrate, cystic diseases, alveolar consolidation, micronodular infiltrate, etc. Given the broadening of the subject, the expectation is for more of a general overview by residents so that they know the necessary and possible answers to clinical questions, and the limits of the general pathologist.

**ROTATION OBJECTIVES**

At the end of this rotation, in addition to the CanMEDS competencies described in the detailed general objectives in the anatomical pathology program, the competent resident will:

1. Demonstrate mastery of the knowledge learned in previous rotations in the anatomical pathology program.

2. Describe the pathological classification of pulmonary interstitial pneumopathies and the various associated clinical contexts.

3. Be familiar with the epidemiological and clinical-radiological contexts of pneumoconioses, recognize their histological appearances and be aware of the associated medical-legal implications.

4. Identify the pulmonary repercussions of collagen vascular diseases at the pleuropulmonary level and recognize the associated morphological changes.

5. Identify the different types of morphological presentation of sarcoidosis and master the differential diagnoses.

6. Integrate the clinical-radiological context of chronic idiopathic interstitial pneumonias with pathology and recognize their different histological patterns.
7. Be familiar with the differential diagnoses for cystic lung diseases in the adult and their histological diagnostic criteria.

8. Describe the infectious interstitial pneumonias, recognize their histological appearances and perform the appropriate additional tests to assess them.

9. Identify the range of most common interstitial lung diseases and recognize their diagnostic criteria, including hypersensitivity pneumonia, the eosinophilic syndromes and alveolar proteinosis.

10. Be familiar with the airway diseases, their clinical contexts and their morphological diagnostic criteria.

11. Integrate the clinico-radiological findings to the histological appearance of airways diseases. Describe gross and microscopic morphological changes logically and comprehensively, and prepare a written report that is clear, readable and useful to the attending physicians and allied health professionals.

**INSTRUCTIONAL TOOLS AND RESPONSIBILITIES**

The clinical work is the most important teaching tool of the rotation. The workload assigned to each resident will be defined by the staff pathologist, who will take into account the level of training, the amount of non-clinical work, and the individual competence of the resident in different areas/roles. The resident is expected to keep track of his clinical work and to keep a logbook of the cases he or she was involved with. A pro-active and mature attitude is expected from the resident when performing the clinical work and preparing clinical and didactic rounds. The level of independence will depend on the competency demonstrated throughout the rotations. A collaborative task will be assigned to the resident at the beginning of the rotation and the conclusion of which will be taken into consideration in the final evaluation.

1. **Department of Pathology clinical activities**
   a. Gross examination
   b. Microscopic examination
   c. Ancillary techniques
   d. Clinico-radio-pathological correlation
   e. Report writing

2. **Study periods and review of the literature**

3. **Weekly multidisciplinary cancer conferences (preparation, discussion and debriefing)**

4. **Thoracic Pathology Meetings (preparation and discussion of the subject)**
5. Thoracic Rounds (“pizza rounds”): preparation and presentation

6. Guided Study and Review of collection slides (if expectations met and clinical workload allows)
   a. Interstitial infiltrate - transbronchial biopsy
   b. Chronic interstitial infiltrate - wedge biopsy
   c. Acute interstitial infiltrate - wedge biopsy
   d. Diffuse micronodular infiltrate
   e. Diffuse alveolar hemorrhage
   f. Alveolar consolidation - transbronchial biopsy
   g. Cystic diseases of the lung
   h. Airway diseases

BIBLIOGRAPHIC REFERENCES

1. Travis, W – AFIP Non-Neoplastic Lung Diseases
2. Anna-Luise A. Katzenstein, A – Surgical Pathology of Non-Neoplastic Lung Diseases
3. Leslie & Wick – Practical Pulmonary Pathology

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