

Pediatric Pathology Fellowship

Learning Objectives by Rotation

Autopsy (3 months)*

1. Know how to modify standard postmortem procedures to best demonstrate congenital malformations.
2. Understand what tissues should be obtained to document cytogenetic and metabolic diseases.
3. Know the approach to dissection of the heart for documenting the nature of cardiac malformations.
4. Identify the pathologic changes associated with stillbirth and its common causes including those disorders that result in hydrops fetalis (immune and non-immune).
5. Learn the proper method for removal of the fetal/infant brain and its preparation for dissection including the appropriate sections to obtain for demonstrating hypoxic/ischemic changes and intracerebral hemorrhage.
6. Know the grading of fetal maceration.
7. Know the pathologic sequelae of the various forms of intrauterine and perinatal infection including agents of the TORCH group and group B streptococcus infection.
8. Understand the morphologic changes of the respiratory distress syndrome and its complications.
9. Know the morphologic features of the common chromosomal malformation syndromes including trisomies 21, 13 and 18 and monosomy X.
10. Incorporate the various databases such as OMIM to assist in the differential diagnosis of malformation syndromes into your evaluation.
11. Know the pathology, clinical correlates and differential diagnosis of Sudden Infant Death Syndrome (Forensic pathology rotation).
12. Learn to use the dissecting microscope to assist in evaluating aborted fetuses.
13. Understand the correlation of fetal demise with changes in the placenta.
14. Learn about the resources available to document the deviation from the norm of various parameters of organ growth.

Surgical Pathology (4 months)*

1. Know the morphologic features of and any special dissection techniques necessary for evaluating the more common pediatric tumors (e.g. Wilms' tumor, neuroblastoma, hepatoblastoma, and benign and malignant soft tissue tumors).
2. Know the morphology and clinical correlates of pediatric brain tumors (e.g. medulloblastoma, ependymoma, pilocytic astrocytoma, and ganglioglioma).
3. Become familiar with the pathologic features and clinical correlates of the various non-neoplastic lesions seen in pediatric patients including:
 - a. malformations of the branchial arches and clefts
 - b. pulmonary cysts and related lesions
 - c. congenital and inflammatory lesions of the bowel
 - d. endoscopic biopsies
 - e. pediatric bone tumors
 - f. renal and liver biopsies
 1. nephrotic and nephritic syndromes
 2. cholestatic disorders
 3. metabolic disease
 - g. transplant pathology (heart, liver, kidney, bone marrow, GVH)
 - h. renal malformations and their sequelae
 - h) bone marrow aspirates and biopsies
 - i. hypertensive pulmonary vascular disease (CHD)

- j. Hirschsprung disease and its variants
- 4. Become familiar with the many less common lesions that occur in infancy and childhood through review of the glass slide study set.
- 5. Review the hematopathology slide study set for similar purposes.
- 6. Know the common lesions found in the placenta and their clinical correlates.
 - . inflammation and infarcts of various forms
 - a. changes secondary to hypertension and antiphospholipid antibody syndrome
 - b. villitis of unknown etiology (VUE)
 - c. maternal floor infarction
 - d. lesions of the umbilical cord including inflammation
 - e. tumors and malformations
 - f. meconium in the amniotic fluid
 - g. amnion nodosum
- 7. Be familiar with the use and interpretation of immunohistochemistry and in-situ hybridization for the diagnosis of pediatric tumors and infectious disease.

Clinical Pathology (2 months)*

1. Know the clinico-pathologic correlates of the infectious agents likely to be encountered in a pediatric laboratory and the extent of technical workup necessary for their evaluation.
2. Know the clinico-pathologic correlates of the more common metabolic disorders that are peculiar to the pediatric patient such as:
 - a. glycogen storage disease
 - b. defects of fatty acid metabolism
 - c. defects of amino acid metabolism
3. Become familiar with the resources available to evaluate the pediatric patient with a suspected metabolic disease and the specimens necessary for this evaluation.
4. Know the morphologic, flow cytometric and cytogenetic correlates of pediatric leukemias.
5. Learn how to interpret hemoglobin electrophoreses and understand the clinico-pathologic correlates of the more common abnormalities likely to be encountered in pediatric patients.
6. Know which pediatric reference ranges may differ from those of adults and the resources available to obtain this information.
7. Know the current techniques use for karyotype analysis and be familiar with newer diagnostic techniques such as fluorescent in-situ hybridization (FISH) and oligonucleotide probes.
8. Know the karyotypic correlates of various pediatric tumors and malformation syndromes.
9. Understand the utilization of transfusion services for the pediatric patient and the methods of problem detection and resolution in a pediatric hospital.

Scholarly Activities (3 months)*

All fellows are expected to be involved with one or more clinical or basic research projects with the intent to present the results of this effort at a national meeting (funded by the department) and publication in a peer-reviewed journal. The extent to which the fellow becomes involved with research activities will depend largely upon whether the fellow undertakes a 1 or a 2-year program. In the latter instance, up to 12 months of training may be devoted to basic or clinical research. Many opportunities are available for collaboration with members of the Pathology or Pediatric faculty at UT Southwestern relating to various aspects of neonatal and pediatric disease and abundant laboratory facilities exist at the medical school to accomplish this purpose. There are also some research facilities within the clinical laboratories at Children's Medical Center that relate to metabolic disease, should the fellow wish to undertake a project in this area. It is anticipated that the 1-year fellow will have considerably less time to devote to research activities and still complete the required clinical rotations, but this still should be achievable through collaboration with a faculty member. At the beginning of the fellowship, the fellow will be provided

with suggestions for research projects that could be accomplished within the time available. The department will fund the expenses of the fellow to attend one national meeting of the Society for Pediatric Pathology per year. It is hoped that the fellow will present a paper or poster at this meeting, but funding will not be affected if there is no presentation. The time allotted to scholarly activities may be broken up and not taken as a single block. It may occur in conjunction with one or more of the other responsibilities of the fellow (see description of rotations above).

* Please note that the time allocated to these various rotations may not be totally devoted to the specific duties of that rotation. For instance, the fellow might be also engaged in scholarly activities during the period in which he/she is overseeing the perinatal autopsy service. Or the fellow may have an opportunity to review portions of the slide study set during lulls in activity within the clinical pathology laboratory etc. The fellow is expected to attend pediatric intake rounds (equivalent to CP clinical rounds) and various anatomic pathology conferences including surgical pathology peer review regardless of the current rotation.