

UAMS / CAVHS Adult Neurology Neuropathology Curriculum Rev. 09/04/2007

Summary Description of Rotation

The adult neurology neuropathology rotation is an extremely important rotation for 1-2 months during the adult neurology residency. A sound knowledge base in Neuropathology is **essential** for understanding Clinical Neurology. In general, it involves the PGY2-3 residents. The Attending Neuropathologists are:

Dr. Murat Gokden: 688-6766 (pager)

Dr. Muhammad Husain: 688-9363 (pager).

The goal of the one month Neuropathology rotation is to expose the resident to a broad range of neuropathology, and to educate the other Neurology residents in Neuropathology. This is accomplished through individual study, attendance at weekly brain cutting, attendance at weekly Neurosurgery neuropathology conference, and through weekly preparation and presentation of weekly contemporary Neurology neuropathology conferences.

Educational Goals Summary

1. To provide an experience that will allow the resident to achieve basic competencies in the assessment of the neuropathology of acute and chronic neurological diseases of the central and peripheral nervous system.
2. To provide an experience that will allow the resident to achieve basic competencies in the assessment of the neuropathology regarding acute and chronic neuropathology occurring as a complication of other disease states.
3. To provide training and supervision that allows development of professionalism necessary to become an effective physician, including honesty, communication, proper interaction with patient, peers and ancillary staff, and proper referral of patients to provide appropriate provisions of care and education.

Assessment Summary

Resident performance will be assessed in the six core competencies:

1. Patient Care (PC)
2. Medical Knowledge (MK)
3. Interpersonal and Communication Skills (ICS)
4. Practice Based Learning and Improvement (PBLI)

5. Professionalism (P)
6. Systems Based Practice (SBP)

At the end of the rotation, the resident should receive and/or complete the following assessments:

1. Verbal feedback from Attending Physician;
2. Written assessment of performance in the six core competencies;
3. Resident assessment of Attending Physician.

Summary of Expectations & Goals, and Procedural Skill Acquisition

First Month

Observe the postmortem removal of brains and participate in performing gross brain cutting..

Be able to distinguish and describe the gross appearances of:

- 1) acute infarction,
- 2) old infarction;
- 3) intra- and extraparenchymal brain hemorrhages;
- 4) metastatic tumor;
- 5) primary tumor.

Be able to distinguish and describe the microscopic appearances of:

- 1) acute chronic cerebral ischemic changes;
- 2) metastatic brain & spinal cord tumors;
- 3) primary brain & spinal cord tumors.

Conferences: During the first month, the resident will:

- 1) prepare and present clinical and review material for the Wednesday neurology-neuropath conference;
- 2) observe presentations at the Wednesday gross neuropath conference;
- 3) observe presentations at the Thursday neurosurgery-neuropath conferences.

Second month

Master the cutting, examination, and histological sampling of fixed autopsy brains.

Be able to distinguish and describe the microscopic appearance of:

- 1) dementing illnesses (Alzheimer's, Lewy body disease, multi-infarct dementia, CJD, AIDS encephalopathy, Frontotemporal dementia, Huntington's disease);
- 2) brain infections (viral encephalitis, brain abscess, meningitis, PML);
- 3) other common neurological disease (Parkinson's disease, MS, motor neuron disease).

Be able to distinguish and describe the microscopic appearance of brain tumors: astrocytomas, glioblastomas, meningioma, pituitary adenoma, schwannoma, craniopharyngioma, ependymoma, hemangioblastoma, lymphoma, medulloblastoma, neurofibroma, oligodendroglioma.

Be able to distinguish and describe major categories of muscle pathology: dystrophies (Duchenne's vs adult onset MD), inflammatory myopathies (polymyositis, dermatomyositis, inclusion body myositis), neurogenic atrophy, disuse atrophy, acute vs chronic changes in the muscle.

Be able to distinguish and describe the basic categories of peripheral nerve pathology: axonal degeneration vs. demyelination, and acute vs. chronic changes.

Conferences: During the 2nd month the resident will i) prepare and present pathologic findings, as well as clinical and review material, for the Wednesday conference, ii) cut and sample selected brains (as available) at the Wednesday gross neuropathology conference, and iii) present selected cases at the Thursday neurosurgery-neuropathology conference.

OTHER RESPONSIBILITIES

- Attend all neurology conferences
- Attend your resident continuity clinic
- Be in **charge** of the Wednesday neuropathology conference
 - This conference is **NEVER** to be cancelled
 - If you cannot find a case, you are to give a talk on a neuropathology topic to be chosen by Dr. Schmidley
 - Speak with Dr. Schmidley by the Thursday before the conference concerning what will be the case of topic

DAILY SCHEDULE

1. Check with UAMS and VA pathology department secretaries, pathology resident on autopsy rotation, and morgue attendants (Mr. Royce Bridges and Mr. Mike Davis) twice daily for impending autopsies. Review autopsy pt. charts for neurological or psychiatric diseases or manifestations. Consult with neuropathology faculty regarding special handling of these brains. The resident should also be available at UAMS & VA autopsies when the brain is removed.
2. Check daily at UAMS for neurosurgical cases. Slides will be reviewed first with faculty.

WEEKLY SCHEDULE

- Mondays:** Assemble slides and reports for Wednesday neurology neuropathology conference, if this has not yet been done. Prepare slides with faculty.
Review microscopic slides from recent autopsies alone.
- Tuesdays:** Review slides from recent autopsies with faculty.
- Wednesdays:** Review neurosurgical slides with faculty, and prepare slides for Thursday neurosurgery neuropathology conference.
9:00 UAMS & VA brain cutting conference, UAMS morgue.
4:00 Neurology-neuropathology conference, Dennis Lucy Library, 8th floor, Stephens Bldg.
- Thursdays:** Review teaching materials alone
8:30 Attend VA Movement Disorders Clinic or Resident Continuity Clinic.
4:00 Neurosurgery-neuropath conference, Neurosurgery Library, 10th floor, Stephens Bldg.
- Fridays:** Continue self study. Review selected teaching materials with faculty, as necessary.

Reading material - See Reading List Distributed Separately.

Rotation Orientation

The orientation occurs on Day 1 of the rotation by the Attending Physician and the supervising resident on the service. This written handout is provided then.

Supervision

Primary supervision for the rotation will be by the Attending Neuropathologists, Drs. Gokden and Husain.

Mix of Diseases

Residents will meet the goals and objectives of the rotation through the study of the neuropathology and the pathophysiology of the following broad categories of neurological diseases:

- A. Cerebrovascular disease
- B. Demyelinative disease
- C. Disorders of higher cognitive function and communication (the dementias and aphasia)
- D. Movement disorders
- E. Neoplasms of the central nervous system
- F. Disorders of muscle and the neuromuscular junction
- G. Disorders of peripheral nerve
- H. Epilepsy
- I. Central nervous system infections
- J. Nutritional diseases of the nervous system

Conferences:

The neuropathology rotation is associated with numerous clinical conferences directed at patient management the treatment of neurological emergencies, and general didactic reviews. Attendance is required. These conferences include:

1. Basic Neuroscience Conference (Monday 12:00- 1:00 pm- JWS Bldg., 8th floor – Lucy Library)
2. Program Director's Core Competency and Ethics Conference, 1 Monday per month, 11:00 AM - JWS Bldg., 8th floor – Lucy Library)
3. QA (M&M) Conference 1st Wed per month, 7:30 AM - JWS Bldg., 8th floor – Lucy Library)
4. Neuropathology Conference (Wednesdays 4 pm - JWS Bldg., 8th floor – Lucy Library)
5. Neuroradiology Conference (Wednesdays 5 pm - JWS Bldg., 8th floor – Lucy Library)
6. Neurology Grand Rounds (Fridays 8:15-9:30 pm- JWS Bldg., 12th floor)
7. Movement Disorders Conference, 1 Monday per month as scheduled, 5:00 PM - JWS Bldg., 8th floor – Lucy Library)
8. Epilepsy Journal Club, 1 Monday per month as scheduled, 5:00 PM - JWS Bldg., 8th floor – Lucy Library)
9. Stroke Journal Club, 1 Wednesday per month as scheduled, noon - JWS Bldg., 8th floor – Lucy Library)

Tips Regarding Neuropathology Conferences:

1. After choosing the case with neuropathology staff, please discuss it with Dr Schmidley a few days before the presentation to get approval for the case.

2. Try to choose a case that has a good history, physical exam (preferably done by us) and radiological images (if present).
3. If the case has images on Sectra, make sure to retrieve the images before the conference (if you have time, review the images with neuroradiology staff esp. for complicated cases).
4. Try not to choose a case with repeated neurosurgical procedures for the same pathology.
5. If you are taking Vacation during your neuropathology month or day of presentation, notify the Chief Resident who will cover for you.
6. In an effort to maintain an archive of neuropathology cases, please email the Program Director and Chief Resident the following information after your presentation: patient's name, medical record number (UAMS) or last 4 SS# (VA), surgical pathology or autopsy case number, pathology, date of the pathology and date of your presentation. We will keep this information in a file and at the end of the academic year pass it to the next chief resident.

Reading List – Distributed separately.

SPECIALTY: Neurology

ROTATION EXPERIENCE: Adult Neurology Neuropathology Service

PATIENT CARE

Neuropathology Rotation (PGY2-3) Patient Care		
Objectives	Teaching Methods	Assessment Strategy
Gather essential and accurate clinical information about patients who undergo neuropathological examination of tissue.	EMR training Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review
Demonstrate technical skills in brain cutting.	Direct supervision by faculty neuropathologists Review of teaching slides Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review
Demonstrate technical skills in the interpretation of gross and microscopic tissue specimens from patients with a broad spectrum of neuropathology.	Direct supervision by faculty neuropathologists Review of teaching slides Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review

MEDICAL KNOWLEDGE

Neuropathology Rotation (PGY 2-3) Medical Knowledge		
Objectives	Teaching Methods	Assessment Strategy
Demonstrate knowledge of relevant neuroanatomy , pathophysiology and neuropathology of CNS disorders, including neoplasms, cerebrovascular disease, degenerative disorders, demyelinative disorders, infectious diseases, and developmental disorders.	Direct supervision by faculty neuropathologists Review of teaching slides Independent study Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review
Demonstrate knowledge of pathophysiology and neuropathology of PNS disorders, including motor neuron diseases, peripheral neuropathies, myopathies, and muscular dystrophies.	Direct supervision by faculty neuropathologists Review of teaching slides Independent study Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review
Demonstrate an understanding of the essential and fundamental relationship between neuropathology and clinical neurology.	Direct supervision by faculty neuropathologists Review of teaching slides Independent study Performance feedback Conferences	Faculty rotation rating & evaluation RITE Program Director semi-yearly review

INTERPERSONAL AND COMMUNICATION

Neuropathology Rotation (PGY 2-3) Interpersonal and Communication		
Objectives	Teaching Methods	Assessment Strategy
Describe the appearance of neuropathological specimens in a logical, descriptive and coherent manner.	Direct supervision by faculty neuropathologists Review of teaching slides Independent study Performance feedback Conferences	Feedback at conferences Faculty rotation rating & evaluation Program Director semi-yearly review
Demonstrate the ability to prepare and present comprehensive and scientifically-based conferences on a variety of neuropathological entities at conferences.	Direct supervision by faculty neuropathologists Independent study Performance feedback Conferences	Feedback at conferences Faculty rotation rating & evaluation Program Director semi-yearly review
Interact in a mature and responsible manner with colleagues and faculty.	Direct supervision by faculty neuropathologists Performance feedback Conferences	Feedback at conferences Faculty rotation rating & evaluation Program Director semi-yearly review

PRACTICE BASED LEARNING AND IMPROVEMENT

Neuropathology Rotation (PGY2-3) Practice Based Learning and Improvement		
Objectives	Teaching Methods	Assessment Strategy
Critical review and personal record of difficult and interesting cases, and develop a life-long practice of applying knowledge from cases encountered.	Direct supervision by faculty neuropathologists Independent study Performance feedback Conferences	Self assessment Faculty rotation rating & evaluation Case log (encouraged) Program Director semi-yearly review
Research clinical and neuropathological questions regarding patient's neurological problems using information technology to access on-line medical information to support their own education and to improve patient care and education.	Electronic medical record Medline/OVID searches-patient centered Conference presentations	Self assessment Faculty rotation rating & evaluation Program Director semi-yearly review
Evaluate the clinical literature applying knowledge of epidemiology, biostatistics, and research study design.	Direct supervision by faculty neuropathologists Independent study Medline/OVID searches-patient centered	Self assessment Faculty rotation rating & evaluation Program Director semi-yearly review
Facilitate the learning of medical students and fellow residents.	Role Modeling Oral presentations	Self assessment Faculty rotation rating & evaluation

PROFESSIONALISM

Neuropathology Rotation (PGY 2-3) Professionalism		
Objectives	Teaching Methods	Assessment Strategy
Interact responsibly with colleagues, co-workers, and faculty taking into consideration culture and gender issues.	Role Modeling Oral presentations	Self assessment Faculty rotation rating & evaluation
Demonstrate appropriate use of the EMR in regards to patient respect and confidentiality.	EMR training Online HIPAA training	Self assessment Faculty rotation rating & evaluation
Demonstrate responsibility for conducting the weekly Neurology neuropathology conference.	Direct supervision by faculty neuropathologists Independent study Performance feedback	Faculty rotation rating & evaluation

SYSTEM BASED PRACTICE

Neuropathology Rotation (PGY2-3) System Based Practice		
Objectives	Teaching Methods	Assessment Strategy
Develop an understanding of the logistics involved in proper handling and preparation of neuropathological specimens.	Direct supervision by faculty neuropathologists Independent study Performance feedback	Self assessment Faculty rotation rating & evaluation
Develop expertise in the location of neuropathological cases in the system.	Direct supervision by faculty neuropathologists Interaction with Neurology and Neurosurgery faculty Performance feedback	Self assessment Faculty rotation rating & evaluation Nursing staff evaluation
Develop expertise in conference scheduling and coordination in healthcare systems.	Direct supervision by faculty neuropathologists Independent study Performance feedback	Self assessment Faculty rotation rating & evaluation Nursing staff evaluation