

**MRVAMC: ANATOMIC PATHOLOGY ROTATION: Rotation Director: Li Lu, M.D., Ph D.,
Clinical Assistant Professor**

1) Description of the rotation: This rotation provides a broad exposure to surgical pathology and autopsy, with additional opportunities for involvement in cytopathology and electron microscopy. Areas which are particularly well-represented on the VA surgical pathology service include skin, genitourinary, gastrointestinal and pulmonary pathology. The resident serves as a consultant to the clinical services, providing information about case workup and obtaining necessary clinical information about cases. Full service Cytology and Electron Microscopy Laboratories are available at the VAMC, and residents are encouraged to gain experience in these areas as well as in surgical pathology. Immunohistochemistry is employed as required. Ultrastructural examination is performed on some of the tumors. Ultrastructural findings are integrated into the workup of surgical pathology cases. Immunofluorescence is used in renal and dermatologic pathology. Teaching files of interesting cases are maintained in the Electron Microscopy and Cytology Laboratories. Residents should stay as long as necessary to finish all gross examination and cassetting of tissue (#5 Professionalism). For all cases examined grossly and sectioned by a resident, the resident is expected to prepare for and attend sign-out (#1 Pt. Care, #5 Professionalism) with the attending pathologist. In this way residents will examine microscopically (with faculty review) every tissue that they examine.

2) Goals of the rotation: Assumption of increasing responsibility in case evaluation with higher PGY years, in preparation for practice after residency (#1 Pt. Care: graduated responsibility). One goal is to understand #6 Systems-based practice:

Pathologists do not practice in a vacuum. The resident will understand medical practice and delivery systems, learn how to improve and do quality assurance to the system, and choose tests wisely as the ACGME guidelines emphasize.

As appropriate to the individual case under review, the ethical, socioeconomic, medicolegal, and cost-containment issues are reviewed and discussed. Residents are responsible for decision-making for additional special stains and studies, interpretation of special stains. Residents should gain an understanding of when special stains, studies, or electron microscopy are warranted. Since these are expensive tests, criteria must be used to select them. Increased experience with application of immunohistochemical and ultrastructural studies is a goal of the rotation. Residents should gain experience with:

- Basic criteria to order special stains
- Basic criteria to order immunostains for a given case
- Basic criteria to order flow cytometry and cytogenetics in hematology preparations
- Approach for ancillary studies
- Uses
 - Interpretation of ancillary studies

3) Duties and responsibilities of residents: Specific duties by PGY year are listed in the Core Curriculum for this rotation (#1 Pt. Care).

a) Contribution to diagnostic service (#5 Professionalism): The VAMC rotation in anatomic pathology is a key component for the training of pathology residents at the University of Florida/VAMC. Due to the broad spectrum of cases we receive at the VAMC, the rotation is geared toward general surgical pathology. Sign out activities cover a great variety of cases from different body sites and entities. The residents review medical biopsies (1:00 PM) and surgical resection specimens (8:45 AM). In order to reach these goals, residents are expected to be familiar with different diagnoses (#2 Medical Knowledge) by the end of each year, listed in the VA Anatomic Pathology Core Curriculum. CROSS-COVERAGE: Notably, the VA considers residents more as employees than as students. A residency is post-graduate education in the form of an apprenticeship. Thus, on days when another resident and/or the physician assistant is/are absent, residents who would otherwise sign out slides on that day, or who are on an elective anatomic pathology rotation, may instead need to spend part of their day with gross specimen processing. Accommodation of the need to cover colleagues is good preparation for private or academic pathology practice settings (#5 Professionalism).

b) (#3)Practice-Based Learning: Systematic self-evaluation and literature evaluation

Residents are expected to be aware of their own knowledge deficits through annual self-assessment. Residents are responsible for review of published pathology literature in unusual or difficult cases. As well, research design, statistics and critical review of the literature are discussed. By use of journals, Medline, and textbooks, the resident is trained for lifelong learning. In clinical medicine, learning comes from going from the book to the patient, to the book to the patient. In pathology, one goes from the book to the specimen, and so forth. In addition to gross inspection and dissection of surgical specimens, gross dictations, and initial microscopic review of cases, residents should be able to give special consideration of the patient's medical conditions, which are available from the CPRS chart or provided in the Clinical History on the requisition.

c) Interpersonal and Communication Skills: (#4 Communication and #5 Professionalism)

Residents will gain expertise in wording of diagnoses. Composition of diagnoses should be done according to all the relevant information. Incredibly, surgeons misunderstood pathologists' diagnoses 30% of the time, according to a recent study at Yale University (Powsner SM, et al. Arch Pathol Lab Med 2000;124:1040-6.) Also, often several separate diagnostic lines are needed, not just one! Residents are responsible for reporting of cancer diagnosis (other than skin cancers) to clinicians by CPRS (computer) or on the telephone. At the VAMC, the health care team includes faculty, technicians, and transcriptionists both within and outside the department. The quality of these interactions can directly effect patient care.

4) Duration of the rotation: 4 weeks.

5) Teaching Staff: Byron P. Croker, MD PhD, Miguel V. Tellado, MD, William L. Clapp, MD, Li Lu, MD, PhD, Belinda Selli, MD, Cheryl LaMay, MD., and Luis Alvarez, MD.

Special A.P. expertise of staff: Dr. Croker (renal biopsy pathology, immunopathology), Dr. Tellado (ophthalmic pathology, cytopathology), Dr. Clapp (renal biopsy interpretation, electron microscopy, hematopathology), Dr. Iczkowski (genitourinary pathology including basic science), Dr. Lu (pancreatic pathology, cytopathology, pulmonary pathology)

6) Supervision and evaluation of residents: Supervision is provided by VAMC faculty. Faculty rotate on a weekly basis, allowing residents to work with all of the VAMC faculty during a month long rotation. The Physician Assistant also has a role in supervising gross examination activity as needed, depending on skill level. Evaluation is done every 4 weeks, and is based on patient care practice, knowledge base, clinicopathologic correlation, handling of responsibilities, promptness and initiative in case workup, reliability, and interactions with staff.

Document created by Kenneth A. Iczkowski, M.D. and last revised 10/22/03.

MRVAMC: Anatomic Pathology: Core curriculum

The VAMC rotation in anatomical pathology is a key component for the training of pathology residents at the University of Florida/VAMC. Due to the broad spectrum of cases we receive at the VAMC we provide experience in general surgical pathology. Sign out activities cover a great variety of cases from different body sites and entities. The residents review medical biopsies and surgical specimens (resection specimens).

Residents are expected to be able to perform: gross inspection and dissection of surgical specimens, gross dictations, initial microscopic review of cases, composition of diagnoses (Often several separate diagnostic lines are needed, not just one!), decision-making for additional special stains and studies, interpretation of special stains, review of published pathology literature in unusual or difficult cases, and reporting of the diagnosis to clinicians by CPRS (computer) or on the telephone. In order to reach these goals, graduated of responsibility is assigned.

Residents are expected to be familiar with different diagnoses according to the level of training and the following lists represent the diagnoses/entities that they should be familiar at the end of each year.

Gross examination (until 5 PM): Year 1: work with extended PA guidance; Year 2: able to handle most cases independent of PA; Year =>3: supervise/help junior resident

Surgical pathology (general): Years 1 & 2: Follow-up in signout of resident cases held over for decal, deeper levels or special stains, do coding; Year =>3: supervise/help junior resident.

AM signout of "big" cases (8:45AM): Year 1: preview all cases the previous day; write down interpretations, use tumor templates if applicable; Year 2: preview all cases; write components of diagnoses on complicated cases; use tumor templates if applicable; Year =>3: same as year 2 (+) order recuts & special stains before reviewing case with staff.

PM signout of biopsies (1:00 PM): all years: communicate cancer diagnosis to clinicians, get clinical data if pertinent; Year 1: only 1 hr may be available before signout, but preview cases if possible (1 level/biopsy); concurrent review with staff; Year 2: Begin to preview slides & write diagnoses when slides arrive; more thought to differential diagnosis; concurrent review with staff; Year =>3: may divide stack of slide trays with staff and work independently at same time as staff; order recuts & special stains before reviewing case with staff.

Frozen sections: Year 1 & 2: be available; alert staff when specimen arrives if decision to be made in sampling; help technologist with cutting & staining; review slides with staff; write & telephone diagnosis to OR; Year =>3: independent diagnosis of margin status and tumor metastasis to LN with staff=s help as needed; new diagnosis of cancer depending on individual privileges.

Autopsy (on cases with permit by 3:00 PM): all years: write PGAD & give to staff w/i 24 hrs; review slides independently & with staff; compose final report (FAD). Year 1: external exam, organ block dissection; submit tissue sections; extended PA/MD guidance; Year =>2: Less PA/MD guidance; more independent write-up wither literature searches and reading about pathologic findings in cases.

Goals: Residents are expected to be able to recognize and diagnose these entities, according to PGY-year:

Skin: (biopsies and excisions)-Year 1

Normal histology

Definition of terms

Acrochordon

Seborrheic keratoses

Basal cell carcinoma

Squamous cell carcinoma

Squamous cell carcinoma in situ (Bowen's disease)

Pyogenic granuloma

Keratinous cysts of skin

Nevi (Junctional, intradermal, compound)

Solar lentigo

Malignant melanoma

Melanoma in situ

Benign vascular lesions

Dermatofibroma

Scar and keloid

Ulcer and granulation tissue

Warts (common and plantar)

Molluscum contagiosum
Herpes
Dermatophytosis and tinea
Foreign body reaction
Infectious granulomas (tuberculosis and fungus)
Suppurative folliculitis
Psoriasis
Contact dermatitis

Year 2

Basal cell carcinoma (variants)
Squamous cell carcinoma (variants)
Pseudoepitheliomatous hyperplasia
Malignant melanoma (variants)
Spitz nevus
Congenital nevi
Balloon nevus
Dysplastic nevus and atypia
Melanoma in situ
Desmoplastic melanoma
Halo nevus
Atypical fibroxanthoma
Smooth muscle tumors
Kaposi's sarcoma
Malignant vascular tumors (angiosarcomas)
Vascular tumors of borderline malignancy.
Adnexal tumors (classification and basic concepts
 Erythema multiforme
Pustular dermatosis
Pemphigus
Condyloma accuminatum
CMV infection
Hidradenitis suppurativa
Fungal infections
Scabies
Vasculitis (leukocytoclastic)
Sweet's syndrome
Granuloma annulare
Rheumatoid nodules
Annular erythema
Xanthomas
Gout
Amyloidosis
Panniculitis (general aspects, classification)
Lupus

Year 3

Interface superficial perivascular dermatitis {lupus}
Lichenoid superficial perivascular dermatitis {lichen planus}
Spongiotic superficial perivascular dermatitis {allergic contact dermatitis}
Psoriasiform superficial perivascular dermatitis {psoriasis}
Superficial and deep perivascular dermatitis without epidermal changes {polymorphous light eruption}
Vasculitis leukocytoclastic
Septic vasculitis
DIC associated vasculitis

Polyarteritis nodosa
Coumarin associated vasculitis
Pemphigus vulgaris
Arthropod assault
Keratosis pilaris
Ofuji's syndrome/eosinophilic pustular dermatitis
Panniculitis (leukocytoclastic vasculitis, polyarteritis nodosa, rheumatoid nodule, infection)
Adnexal tumors (trichoepithelioma, cylindroma, poroma, pilomatricoma)
Sebaceous carcinoma
Merkel cell carcinoma
Bacillary angiomatosis
Lymphangioma
Desmoplastic melanomas
Acral melanomas
Pigmented spindle nevus

ENT & Oral: (biopsies and excisions) -Year 1

Squamous hyperplasia
Squamous cell carcinoma
Common salivary gland tumors (mixed tumor, Warthin's)
Benign pigmented lesions and melanomas
Granular cell tumor
Pyogenic granuloma
Fibroma
Nasal papillomas
Allergic polyps
Laryngeal nodule
Sialadenitis

Year 2

Fibrous hyperplasias of the gingiva
Squamous carcinomas (variants)
Verrucous carcinomas
Basaloid carcinomas
Necrotizing sialometaplasia
Pseudoepitheliomatous hyperplasia
Granulomatous infection
Basal cell adenoma
Myoepithelioma
Epithelioid hemangioma
Smooth muscle tumors
Mandible giant cell tumors
Epithelial cysts (dentigerous, gingival cyst, keratocysts, periapical cysts, fissural cysts)
Sinonasal carcinomas (classification)
Olfactory neuroblastoma
Lymphomas (classification)
Nasal angiofibromas
Laryngeal papillomatosis
Reactive atypia vs dysplasia vs. Carcinoma
Salivary gland tumors (mucoepidermoid, acinic cell carcinoma, adenoid cystic, adenocarcinoma NOS)
Cystadenoma
Benign lymphoepithelial lesion

Year 3

Peripheral giant cell granuloma

Squamous dysplasia
Spindle cell carcinoma
Odontogenic keratocyst
Fissural cysts
Sjogren's syndrome
Fibrous dysplasia
Myoepithelioma
Polymorphous low grade adenocarcinoma
Sinonasal undifferentiated carcinoma
Olfactory neuroblastoma
Paraganglioma

Lung: (biopsies and excisions)-Year 1

Normal histology
Abscess
Granulomas (general recognition and differential diagnosis)
Acute pneumonias
Silicosis
Artifacts in biopsies
Common types of lung carcinoma

Year 2

Pleuritis
Pleural plaques
 Solitary fibrous tumors
Wegener's disease
Vasculitis
Eosinophilic pneumonias
Interstitial pneumonias
Organizing pneumonias and BOOP
Lipoid pneumonias
Adenosquamous carcinoma
Large cell carcinomas
Hamartomas
Carcinoid (classification typical, vs atypical central vs large cell neuroendocrine carcinoma and small cell carcinoma)
Airway salivary tumors
Lymphomas (general aspects).
Metastatic tumors
Thymomas Vs atypical thymoma vs malignant thymoma
Mediastinal cysts
 Mediastinal germ cell tumors

Year 3

Diffuse interstitial pulmonary fibrosis
Extrinsic allergic alveolitis
Capillaritis
Wegener's and pulmonary angitis
Eosinophilic granuloma
Pulmonary alveolar proteinosis
Carcinosarcomas (sarcomatoid carcinomas)
Sclerosing hemangioma
Immunohistochemistry of mesotheliomas and carcinomas
Variants of mesothelioma (sarcomatous, desmoplastic)

Thyroid:--Year 1

Thyroiditis
Nodular goiter
Follicular neoplasms
Papillary carcinoma
Parathyroid: Normal, adenoma & hyperplasia.

Year 2

Thyroglossal cyst
Hashimoto's thyroiditis
Lymphocytic thyroiditis
Brachial cysts
Papillary tumors (variants)
Hurthle cell tumors
Clear cell tumors
Medullary carcinoma and C cell hyperplasia
Lymphomas
Parathyroid carcinoma

Gastrointestinal (biopsies and excisions)-Year 1

Normal histology
Esophagitis
Barrett's esophagus
Diverticula
Cysts
Biopsy handling (basic principles)
Carcinomas (general aspects and classification system)
Acute and chronic gastritis
Atrophy
Helicobacter pylori
Gastric polyps
Reactive epithelial changes vs. malignant (general aspects)
Gastric dysplasia
Duodenitis
Meckel's diverticulum
Mucosal flattening (general principles).
Brunner's adenoma
Carcinoid
Acute appendicitis
Appendix carcinoid
Interpretation of biopsies (basic principles)
Artifacts in biopsies
Adenomatous polyp
Hyperplastic polyps
Diverticular disease
Carcinoma (common variants and classification system)
Hemorrhoids
Anal fissure and ulcer
Melanoma anal
Definition of terms in liver biopsy
Liver biopsy handling
Viral hepatitis
Steatohepatitis
Alcohol induced hepatitis
Benign bile tumors (general aspects)
Cholelithiasis and cholecystitis
Cholesterosis

Acute and chronic pancreatitis
Pancreatic carcinoma Vs reactive changes (general principles)
Pancreatic cysts
Periampular adenomas

Year 2

Viral infections
Candida esophagitis
Adenocarcinoma
Basaloid carcinoma
Carcinoma with neuroendocrine features
Smooth muscle tumors (esophagus)
Gastric lymphomas
GVHD
Gastric carcinoma variants
Carcinoid
Lymphomas (MALT)
Granular tumors
Gastrointestinal stromal tumors (GIST)
Sprue & diseases associated with malabsorption
Lymphomas vs lymphoid hyperplasia
Gastric metaplasia small bowel
Ulcer
Adenoma
Lymphangioma
Inflammatory bowel disease
Pseudomembranous colitis
Collagenous & microscopic colitis
 Infectious colitis (CMV, tuberculosis, bacterial)
Ischemic colitis and ischemic bowel disease
Amyloid
Pneumatosis intestinalis
Solitary rectal ulcer
Carcinoma variants (mucinous, signet ring, endocrine differentiation)
Vascular ectasia
Stromal tumors gastrointestinal tract
Anal carcinoma and variants
Bile duct adenoma
Cirrhosis
Autoimmune hepatitis
Cholestasis
Extrahepatic biliary obstruction
Hemochromatosis
Hepatocellular ca (variants)

Year 3

Dysplasia esophageal epithelium
Spindle cell carcinoma of esophagus
Verrucous carcinoma
Differential diagnosis of esophageal polypoid lesions
Xanthelasma of stomach.
Differential inflammatory gastric disease
Lymphocytic gastritis
Inflammatory fibroid polyp
Infectious colitis
Diversion colitis
Radiation injury

Retractile mesenteritis and fibrotic mesenteritis

Genitourinary tract: (biopsies and excisions)-Year 1

Kidney: Renal cortical adenoma

Oncocytoma

Renal cell carcinoma (basic principles and classification system)

Bladder and Ureters: Malakoplakia

Cystitis

Normal urothelium

WHO/ISUP 1998 system for grading abnormal biopsies:

Papillary lesions: papilloma, papillary neoplasm of low malignant potential, low-grade urothelial carcinoma, and high-grade urothelial carcinoma

Flat lesions: hyperplasia, reactive atypia, dysplasia, carcinoma in situ

Evaluation of lamina propria invasion, and of presence of muscularis propria (detrusor) and whether it is invaded

BCG effect vs. infection

Artifacts in biopsies

Cystitis cystica and glandularis

Prostate: biopsy:

General principles in needle biopsy interpretation

High-grade prostatic intraepithelial neoplasia

Adenocarcinoma of prostate

Gleason grading system and assessment of percentage of needle core tissue involved by tumor

Minimal diagnostic criteria for malignancy in prostate and atypical lesions falling short of those criteria (ASAP or atypical small acinar proliferation, suspicious)

Nodular hyperplasia, postatrophic hyperplasia, atypical adenomatous hyperplasia, and tumorlike changes

Artifacts in biopsies

Basal cell hyperplasia

Atrophy

Use of basal cell cytokeratin (34bE12) and other immunostains where appropriate

Prostatectomy:

Processing the specimen with apex and base submitted separately and taking serial coronal sections

Assessment of resection margins

Aspects of staging: Tumor extent (size), extraprostatic extension, and seminal vesicle extension

Testis: Testicular germ (seminoma and nonseminomatous) cell tumors (common aspects and classification)

Sex cord-stromal tumor (common aspects and classification)

Hydrocele

Adenomatoid tumor

Testicular torsion

Vasitis nodosa

Spermatocele

Hernia sac evaluation

Year 2

Kidney: Grading renal cell carcinoma (RCC)

Chromophobe cell carcinoma

Papillary carcinoma

Cystic RCC

Sarcomatoid carcinoma

Angiomyolipoma

Pelvic urothelial carcinoma

Pelvic urothelial carcinoma

Lymphoma
Pyelonephritis
Bladder:
Nephrogenic metaplasia
Intestinal metaplasia
Polypoid cystitis
Follicular cystitis
Urothelial carcinoma (variants)
Inverted papilloma
Squamous cell carcinoma
Adenocarcinoma
Spindle cell proliferations (postop. spindle cell nodule, pseudotumor, sarcoma)
Paraganglioma
Prostate:
Ductal (endometrioid) carcinoma
Sclerosing adenosis
Carcinoma of prostate (variants)
Urethral tumors
Effects of radiotherapy and androgen deprivation therapy
Penis and scrotum: Condyloma and squamous proliferative lesions (flat, verrucous)
Balanitis xerotica obliterans
Testis: Testicular germ (non seminomas) cell tumors (common aspects and classification)
Seminoma
Intratubular germ cell neoplasia
Atrophy
Hydrocele/ spermatocele
Adrenal:
Adrenal adenoma
Adrenal carcinoma
Pheochromocytoma

Year 3

Kidney: Oncocytic neoplasms differential diagnosis
Collecting duct carcinoma
Renal carcinoid tumor
Cystic nephroma vs. cystic renal cell carcinoma
Medullary fibroma
Prostate: Immunohistochemical stains and evaluation of metastatic tumor for prostate primary
Benign vs. malignant cribriform lesions in the prostate
Sarcomatoid carcinomas
Prostatic stromal tumors
Testis: Germ cell aplasia
Granulomatous orchitis
Sex cord/stromal tumors (common aspects, classification and differential diagnosis)
Mixed germ cell tumors
Leydig cell tumors
Sertoli cell tumor
Penis: continue study of carcinomas (usual type, verrucous)
Squamous hyperplasia vs. CIS

Lymph nodes & spleen-Year 1

Normal architecture
Lymph node evaluation
Hyperplasia patterns (general principles)
Inflammatory diseases (granulomas and abscesses)

Lymphomas Non Hodgkin (recent classifications, basic diagnosis criteria, common microscopic types)
Hodgkin lymphoma (basic principles)
Metastases
Lymph node inclusions
Normal architecture spleen
Lymphoid splenic tumors (general aspects)

Year 2

Hyperplasia patterns Vs lymphoma
Ancillary studies and triage for lymphomas
Glandular inclusions in nodes
Lymphomas non Hodgkin (overview)
Hodgkin lymphoma (basic principles)
Metastases
Extramedullary leukemias
Reactive hyperplasia spleen (differential diagnosis)
Lymphomas of the spleen (small lymphocytic lymphoma, follicular lymphoma).

Year 3

Cat scratch disease and differential diagnosis
HIV lymphadenopathy
Rosai-Dorfman disease and differential diagnosis
Castleman's disease
Spindle cell pseudotumor
Immunoblastic lymphadenopathy
Bacillary angiomatosis
Approach for B cell lymphomas
Immunohistochemical stain for small B cell lymphomas
Approach for T cell lymphomas
Large B cell lymphomas
Intravascular lymphoma
spleen marginal cell lymphoma

Bone Marrow:

General principles and biopsy handling
Normal Histology
Granulomas
Leukemias and related disorders (general principles)
Lymphomas involving bone marrow (general principles)
Metastases

Bone and Joints:--Year 1

Osteomyelitis
Changes secondary to prosthesis
Fracture
Bone giant cell tumors
Osteoma
Arthritis (general principle)
Infection arthritis
Degenerative joint disease

Year 2

Langerhans histiocytosis
Multiple myeloma

Fibrous dysplasia
Aseptic bone necrosis
Metastases

Soft tissues-Year 1

Tumor approach
Classification soft issue tumors
margins and prognostic factors
Fibrohistiocytic tumors (Classification and general principles. Include benign, intermediate and malignant lesions)
Hemangiomas (common variants)
Lipomas (angioliipoma)
Neuroma
Neurofibroma
Schwannoma
Leyomioma
Granular tumors
Peripheral vascular disease and changes related to amputation

Year 2

Alveolar sarcomas
Epithelioid sarcomas
Myxomas
Pseudoneoplastic lesions of soft tissues
Synovial sarcoma
Leyomyosarcoma
Lymphangioma
Angiosarcoma
Liposarcoma (overview)
Spindle lipoma
Nodular fasciitis
Fibromatosis (desmoid tumors)

Year 3

Tumors that mimic sarcomas (spindle cell carcinoma, melanoma)
Soft tissue lesions mimicking sarcoma (nodular fasciitis, postoperative spindle nodule)
Pleomorphic lipoma, bizarre leiomyoma, myxoma)
Tumefactive fibroinflammatory lesions
Elastofibroma
Solitary fibrous tumor
Giant cell fibroblastoma
Variants MFH
Lipoma (variants)
Liposarcoma (variants)
Sarcomas with epithelioid morphology (epithelioid, rhabdoid, angiosarcoma, synovial sarcoma)
Hemangioma (variants)
Hemangioendothelioma
Peripheral nerve sheath tumors
Cellular Schwannoma

Heart and Vessels:--Year 1-2

Atherosclerosis
Valvular fibrosis
Thrombus and blood clots
Temporal arteritis

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