

Chapter 1 : Pathology Miscellaneous Mnemonics

The official website of John Barone, MD. Dr Barone teaches USMLE pathology, internal medicine, medical genetics, immunology, and physiology. His high energy style and mnemonics make learning medicine fun!

Key processes in atherosclerosis are intimal thickening and lipid accumulation. Atherosclerotic plaque consists of 3 components: These components are arranged in central core and fibrous cap. The two most important causes of aortic aneurysms are atherosclerosis and cystic medial degeneration of the arterial media. ANCA are antineutrophil cytoplasmic antibodies seen in patients with vasculitis. Vasculitis are divided into three types: Lobular capillary hemangioma Pyogenic granuloma is a common oral benign tumor occurring as polypoidal form attached to mucosa. The lesion is caused by KSHV and shows three morphological stages: In Myocardial infarction, coagulation necrosis starts in 4 to 12 hrs and collagen deposition starts in 10 to 14 days. Myxoma is the most common primary tumor of heart in adults and Rhabdomyoma is most commonest in children. Aschoff bodies, pathognomonic of Rheumatic fever, are foci of swollen eosinophilic collagen surrounded by lymphocytes, occasional plasma cells and plump macrophages called Anitschkow cells. The thalassemia syndromes are a heterogeneous group of inherited disorders caused by genetic lesions leading to decreased synthesis of either the alpha or beta globin chain of HbA. Causes of enlarged lymph node include: Reactive lymph node enlargement, Infections – commonest is Tuberculosis and Malignancies which may be primary Lymphoma or metastatic. Papillary carcinoma is the commonest thyroid malignancy, linked with history of childhood radiation. Diagnosis rests on nuclear features, the nuclei typically are optically clear empty Orphan Annie appearance, show intranuclear inclusions and intranuclear grooves. Scharff Bloom Richardson system grades the Breast carcinoma. Medullary Carcinoma is linked with amyloid deposition. Meningiomas are divided into 3 categories: Syncytial, transitional, fibroblastic, psammomatous and secretory types fall into type 1, Clear cell and chordoid types of meningiomas fall into atypical variety and Papillary and Rhabdoid types fall into malignant variety. Dukes stage C refers to involvement of lymph nodes in carcinoma of the large bowel. Rosenthal fibers, eosinophilic granular bodies and microcysts are seen in low grade Pilocytic astrocytoma. WHO grading of Astrocytoma include: Anaplastic mitoses and endothelial proliferation and Grade IV: Synovial Sarcoma shows dual line of differentiation both epithelial like and spindle mesenchymal cells are seen. Immunomarker is CD 15 and CD The thought of origin is post germinal center B-Cell. Giant cell tumor of bone consists of Mononuclear stromal cells the main neoplastic element and evenly placed multinucleated giant cells. Tophi are pathognomonic hallmark of gout, consisting of large aggregates of urate crystals surrounded by an intense inflammatory reaction of macrophages, lymphocytes and large foreign body giant cells. Indian file pattern of tumor cells with monomorphic morphology is seen in Infiltrating lobular carcinoma of breast. Rheumatoid nodules consist of central zone of fibrinoid necrosis surrounded by a prominent rim of epithelioid histiocytes and numerous lymphocytes and plasma cells. Ewing Sarcoma PNET of bone consists of malignant round to oval tumor cells with cytoplasm containing glycogen. Osteosarcoma is confirmed by the presence of malignant lace like osteoid surrounded by tumor cells. Peripheral palisading is seen in nests of tumor cells in Basal cell carcinoma Rodent ulcer. It is locally aggressive tumor, which rarely metastasize. Lupus nephritis is of 6 classes: Malignant Melanoma shows two patterns of growth: The nature and extent of the vertical growth phase determine the biologic behaviour of malignant melanoma. Follicular carcinoma of thyroid is confirmed by capsular and vascular invasion by tumor cells. Laurens classification of gastric carcinoma include diffuse signet ring cells and intestinal types. Adenoma is the commonest tumor Pituitary gland. Fibroadenoma is commonest benign tumor of breast in young females. Invasive ductal carcinoma of breast is the commonest malignant tumor of breast. Carcinoid tumors common sites include small intestine and tip of appendix. The cells are monomorphic with abundant granular cytoplasm. Immunomarkers include Chromogranin and synaptophysins. Chronic cholecystitis is the inflammation of gall bladder revealing subepithelial fibrosis and chronic inflammation in the lamina propria. Hydatidiform mole is characterized by cystically dilated avascular chorionic villi with trophoblastic proliferation. Choriocarcinoma shows no chorionic villi. Panacinar emphysema is linked with alpha 1

antitrypsin deficiency. Reid index is the ratio of thickness of the mucous gland layer to the thickness of the wall between the epithelium and cartilage. It is increased in Chronic bronchitis. Bronchiectasis is a disease characterized by permanent dilation of bronchi and bronchioles caused by destruction of the muscle and elastic tissue resulting from or associated with chronic necrotizing infections. Asbestos is linked with Mesothelioma and Bronchogenic Carcinoma. Pleomorphic adenoma is the commonest benign tumor of salivary gland. Seminoma is the commonest malignant tumor of testis in adults. It is the most radiosensitive. Helicobacter pylori is linked with chronic gastritis, peptic ulcer disease, gastric carcinoma and gastric MALT lymphoma. Active inflammation is signified by the presence of neutrophils within the glandular and surface epithelial layer. Ulcerative colitis is characterized by pseudopolyps, superficial ulcers, cryptitis, crypt destruction, crypt distortion and crypt abscess formation. Cirrhosis of liver is characterized by nodules of variable sizes composed of benign hepatocytes and separated by thin fibrous tissue septae infiltrated by chronic inflammatory cell infiltrate. Active cirrhosis means the presence of piecemeal necrosis. Knodell Score is done to evaluate the grade and stage of hepatitis activity. Total score is Metavir score is another criteria of grading and staging of liver activity. It comprises of A for activity and F for fibrosis. Gleason Score is done for the grading of Prostatic adenocarcinomas. Perineural invasion is depicted by prostatic and pancreatic adenocarcinomas. Furrhman Grading is done for Renal cell carcinoma. All patterns of Hepatocellular carcinomas have a strong propensity for invasion of vascular channels. Crescents are seen in rapidly progressive glomerulonephritis, diffuse thickening of the glomerular capillary wall with silver spikes are seen in membranous glomerulonephritis and focal thickening of glomerular basement membrane with silver tram track appearance is seen in membranoproliferative glomerulonephritis. Diabetic glomerulosclerosis is characterized by capillary basement membrane thickening, diffuse mesangial sclerosis, kimmelstiel-wilson nodules PAS positive, capsular drops and fibrin caps. Chronic pyelonephritis is characterized on gross examination by a corticomedullary scar and on microscopy by tubular atrophy and dilation, thyroidization and chronic interstitial inflammation. Acute pyelonephritis is characterized by patchy interstitial suppurative inflammation, intratubular aggregates of neutrophils and tubular necrosis. Papillary necrosis, pyonephrosis and perinephric abscess. Multiple Myeloma is characterized by bence jones proteinuria, cast nephropathy, hypercalcemia, hyperuricemia and light chain deposition disease. Hyaline arteriosclerosis is benign hypertensive vascular change showing thickening and hyalinization of the walls with narrowed lumina of small vessels. Hyperplastic arteriosclerosis is malignant hypertensive change showing fibrosis with onion skin type layering of wall. Renal cell carcinoma is of 4 major types: Renal cell carcinoma has the tendency to metastasize widely before giving rise to any local symptoms or signs. WHO grades Transitional cell tumors into Urothelial papilloma, urothelial neoplasm of low malignant potential, low grade papillary urothelial carcinoma and high grade papillary urothelial carcinoma. PT1 is for lamina propria and PT2 is for muscle wall invasion in Transitional cell tumors. Seminomatous germ cell tumors are radiosensitive and chemo responsive while non seminomatous tumors are vice versa. Yolk sac tumor shows Schiller Duval bodies, Granulosa cell tumor shows Call exner bodies. Immature or malignant teratomas show sheets of undifferentiated cells, not seen in a benign teratoma. Teratomas in males are malignant, unless proved otherwise. Human Papilloma Virus is the etiologic agent of Squamous cell carcinoma of the cervix, the most common cervical carcinoma. Dysgerminoma is the counterpart of seminoma in females. Tubular carcinoma of breast carries the best prognosis. ER + PR positive breast carcinomas carry better prognosis and are responsive to antiestrogen drugs. Squamous cell carcinoma is characterized by sheets and groups of pleomorphic malignant squamous epithelial cells with hyperchromatic nuclei and pale cytoplasm. Cytokeratin is the immunomarker for epithelial tumors and Vimentin is the marker for mesenchymal tumors. Desmin is positive in skeletal muscle tumors. LCA is the universal leukocyte marker. Adenocarcinomas are characterized by back to back glandular structures lined by pleomorphic malignant epithelial cells with hyperchromatic nuclei and eosinophilic cytoplasm. Glandular wall sharing is one of the hall mark sign of adenocarcinomas. Acute appendicitis is depicted by the presence of neutrophils in the muscularis layer. Small cell carcinoma of the lung shows maximum paraneoplastic syndromes – most common cushing like picture and ADH like morphology. Hypercalcemia is shown by squamous cell carcinoma of lung.

Chapter 2 : Pathology Mnemonics

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Hello, my favorite brainy people of the internet! All of the mnemonics might not work for you, so take only what you need: It has a butterfly appearance as it commonly crosses the corpus callosum. Areas of necrosis and hemorrhage are present. This was asked as a MCQ in my exam! G for gangrene Lane way to remember about the hemorrhage and necrosis! A whorled appearance is seen, histopathologically. It commonly presents in women and expresses estrogen receptors. It can calcify resulting in psammoma bodies. M flipped upside down looks like a W for whorled, women. Papillary carcinoma of the thyroid Papillary renal cell carcinoma Serous cystadenocarcinoma of the ovary Somatostatinoma Mesothelioma Oligodendroglioma: Fired egg appearance or chicken wire capillary pattern seen on histology. It commonly involves the white matter of frontal lobe resulting in seizures. Eggs look like O.. Fried eggs leads to a fried brain. Fried brains cause seizures. It involves the cerebellum below the tentorium. Rosenthal fibers are eosinophilic, corkscrew fibers found in pilocytic astrocytoma. Pilocytic astrocytomas generally form sacs of fluid cysts. Histologically, shows cellular Antoni A area and paucicellular Antoni B area. Can cause bitemporal hemianopia. It is the most common childhood supratentorial tumor Infratentorial is pilocytic astrocytoma, remember? Tooth enamel like calcification is seen.

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