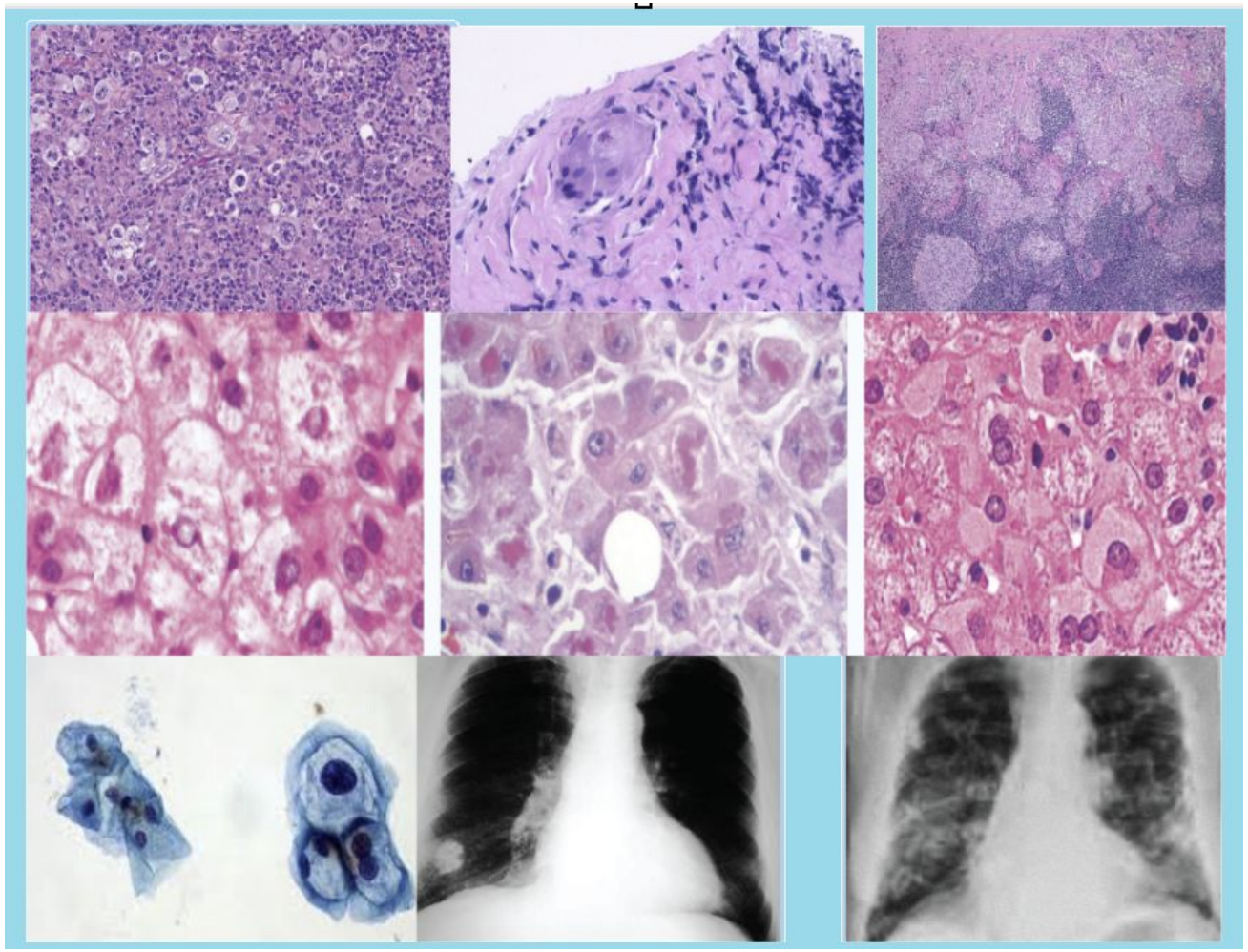
PATHOLOGY



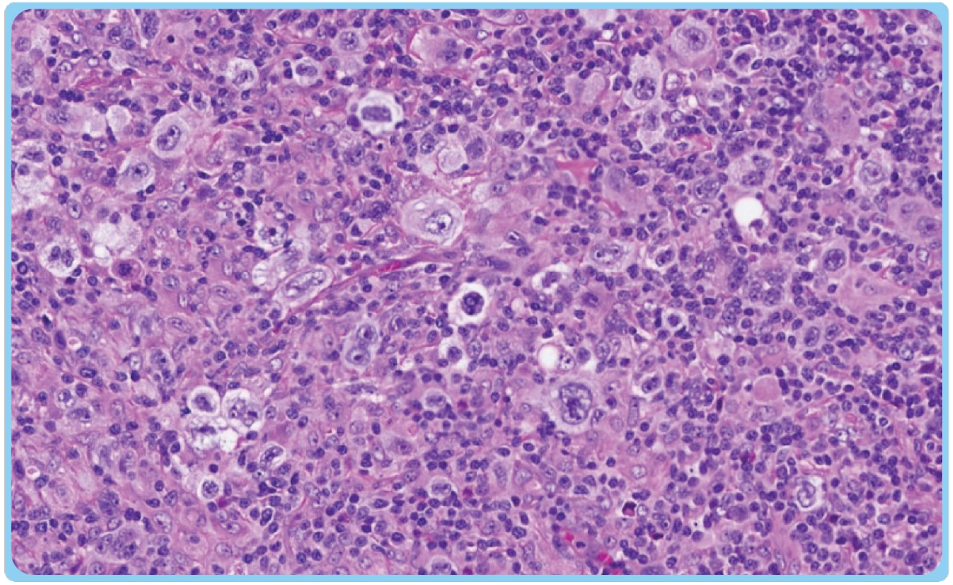
Tips for today’s session

> Smart strategy + Hard work = Results

> 30-60-90 rule

1. **A 20-year-old man presents with 6-week painless enlargement of cervical nodes with rubbery consistency, low grade fever, weight loss and loss of appetite. Excisional node biopsy is shown below. Which of the following is correct about this case?**

a. Sarcoidosis with non-caseating granulomas and elevated ACE
b. Cat-scratch disease with stellate suppurative granulomas
c. Hodgkin lymphoma with classical RS cell
d. Tuberculous lymphadenitis with caseating granulomas



H= Histological hallmark of

O= Orderly spread

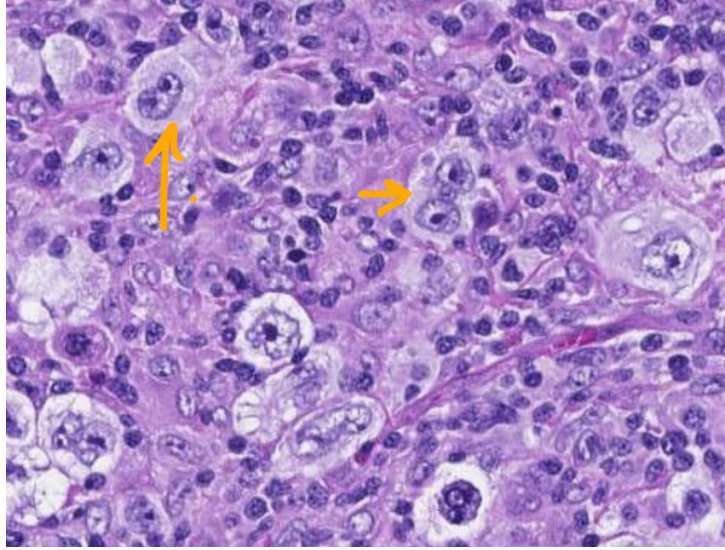
D= Dual age peak

G= Group types

K= Key trigger

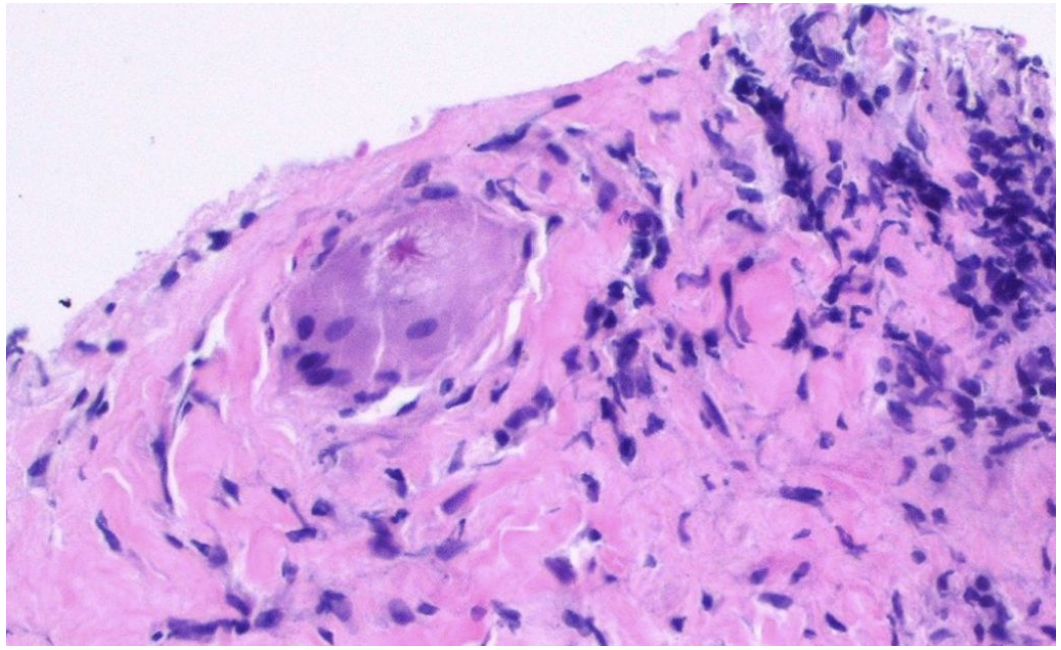
I= In tolerance to alcohol

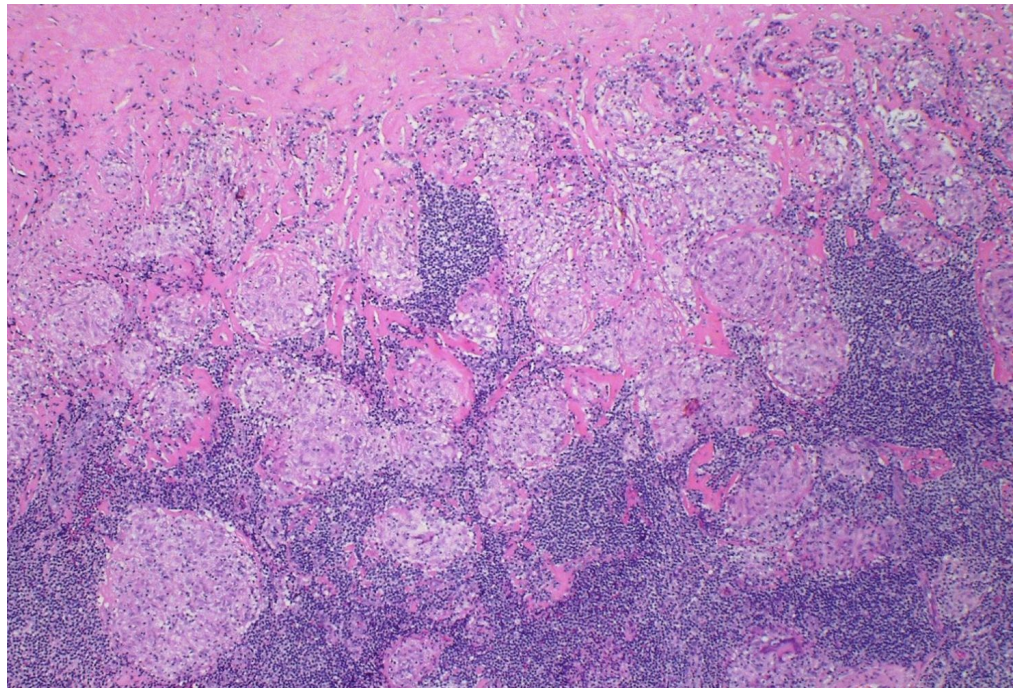
N= Nodal disease



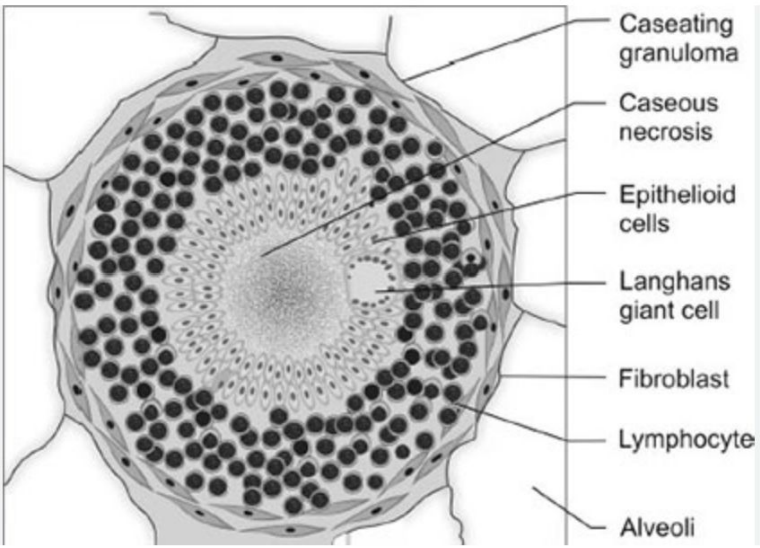
Clinical stems

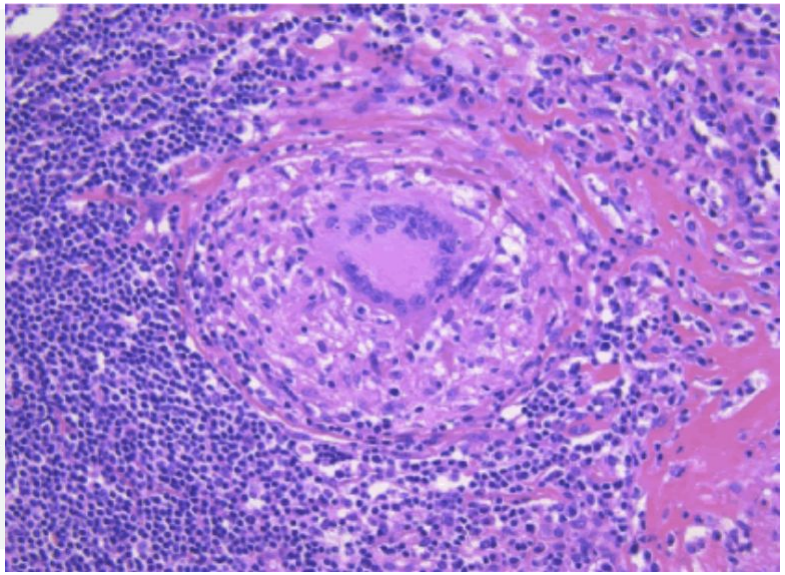
Cervical LN Matted consistency with fever and weight loss	
Cervical LN Rubbery consistency with fever and weight loss	
Mediastinal LN in young female with hypercalcemia	
Left supraclavicular LN in 65 year old man	
Shotty lymph nodes in a child	

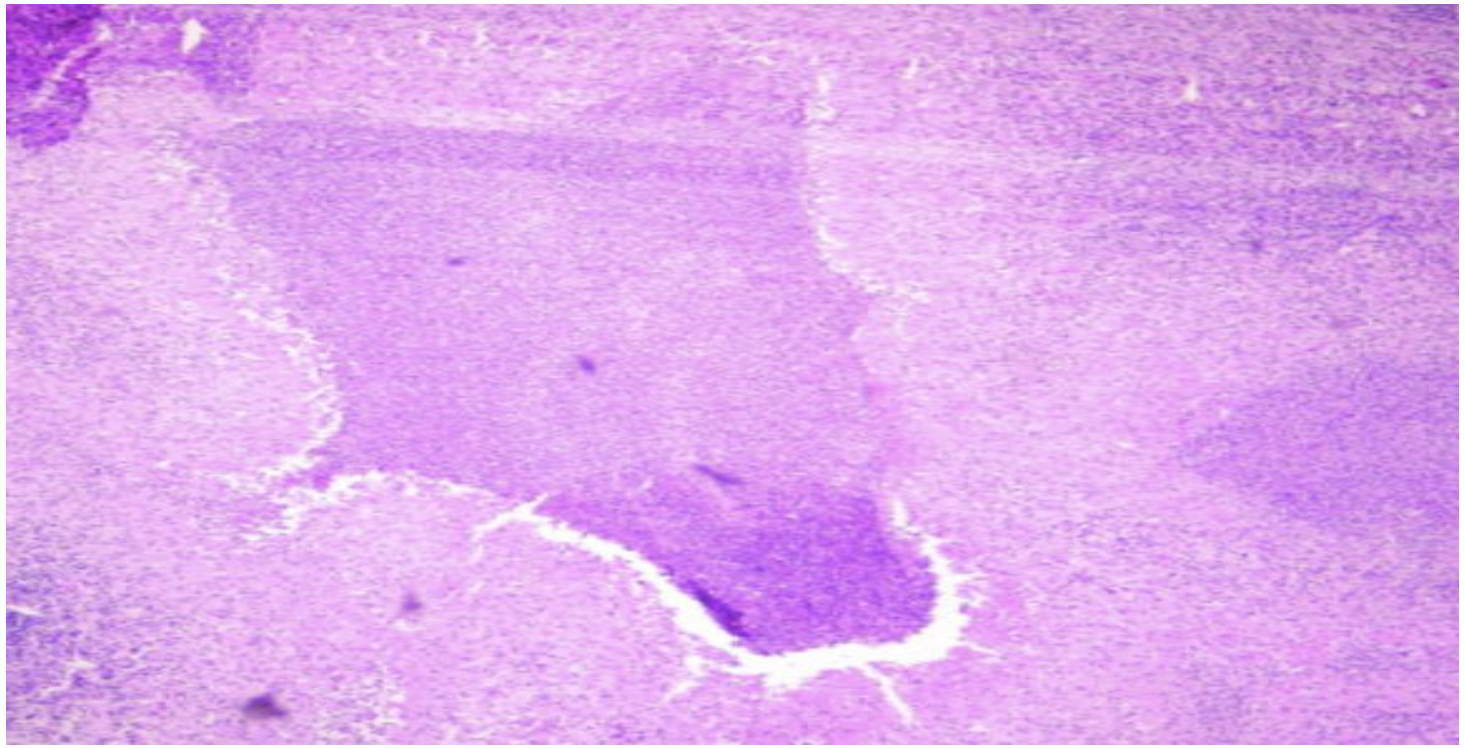




S: Schaumann bodies and skin lesions like
A: ACE elevation**, Asteroid bodies**
R: Restrictive lung disease plus hilar LN
C: Calcium elevated and Caseation absent
O: Ocular involvement of Panuveitis


Caseating granuloma
Caseous necrosis
Epithelioid cells
Langhans giant cell
Fibroblast
Lymphocyte
Alveoli





2. A 2-year-old child is having recurrent pneumonia episodes. Examination shows delayed dentition. Labs show increased Ig E levels and eosinophilia. Which of the following conditions is the cause of this presentation?

a. Job Syndrome
b. Chediak-Higashi syndrome
c. Di-George syndrome
d. Chronic granulomatous disease

Job syndrome

1. Learn ABCDE-STAT for getting a good Job !
2. AD, Abscess, Bronchopneumonia, Chemotaxis of neutrophils is defective with Coarse facies, Dentition issues with increased IgE and Eosinophila : JOB syndrome

Pathogenesis

3. Stat 3 mutation

   Th17 impaired and relative Th2 dominance
4. Th 17 defect cause defective neutrophil recruitment and chemotaxis despite normal PMN number
5. Th2 cells produce IL-4, IL-5, IL-13
6. IL-5 → stimulates eosinophil production in bone marrow

3. Which of the following cells is primarily responsible for producing circulating antibodies in response to an antigen?

a. Naive B lymphocyte
b. Activated B lymphocyte
c. Plasma cell
d. Memory B cell

4. A 12-year-old boy with rheumatic fever is receiving benzathine penicillin prophylaxis. Shortly after the injection, he develops generalized urticaria, facial swelling, hypotension, and difficulty breathing. Which of the following immunological mechanisms is primarily responsible for his reaction?

a. Eosinophil-mediated complement activation
b. Basophil mediated IL-4 release
c. Ig E mediated complement activation
d. Immune complex deposition

A = Airway B = Breathing C = Circulation D = Disability E = Exposure

Diagnosis – look for:

- Sudden onset of Airway and/or Breathing and/or Circulation problems[1]
- And usually skin changes (e.g. itchy rash)

Call for HELP

Call resuscitation team or ambulance

- Remove trigger if possible (e.g. stop any infusion)
- Lie patient flat (with or without legs elevated)
  - A sitting position may make breathing easier
  - If pregnant, lie on left side

Give intramuscular (IM) adrenaline[2]

Inject at **anterolateral aspect** – middle third of the thigh

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

If no response:

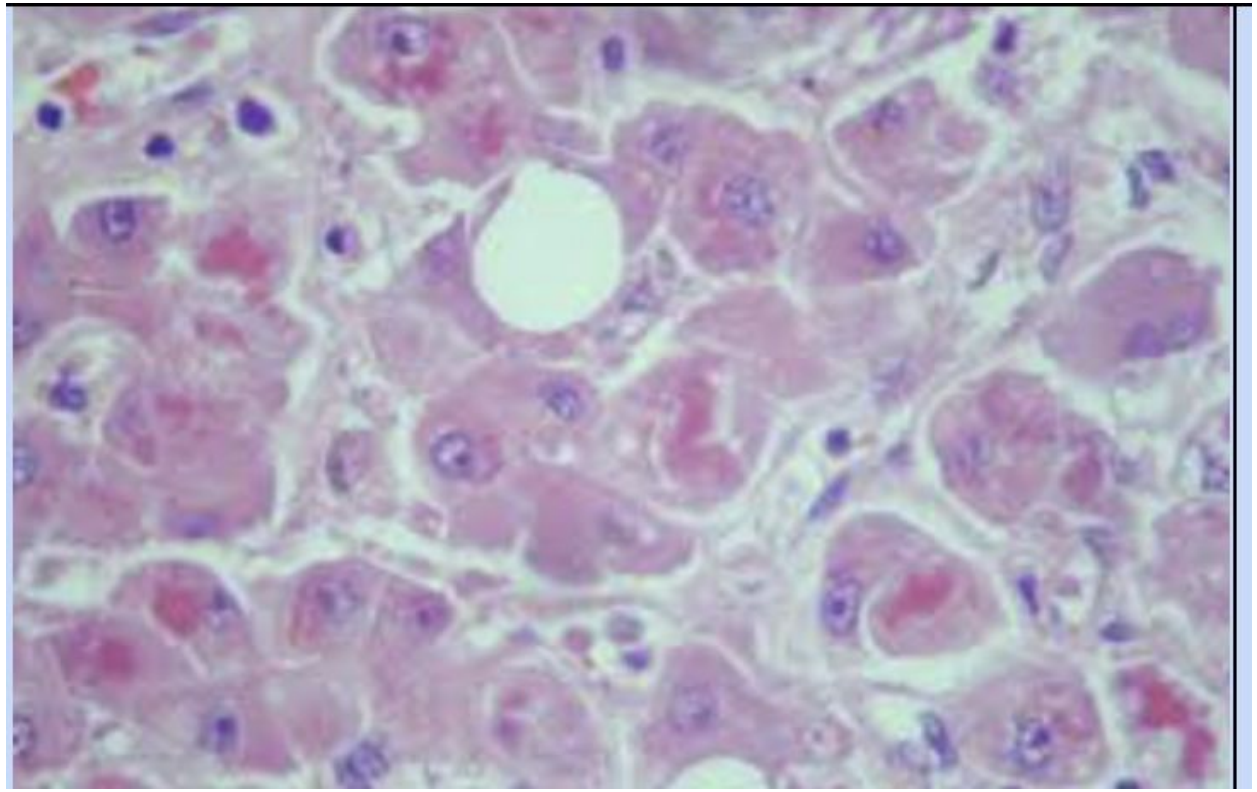
- Repeat IM adrenaline after 5 minutes
- IV fluid bolus[3]

If no improvement in Breathing or Circulation problems[1] despite TWO doses of IM adrenaline:

- Confirm resuscitation team or ambulance has been called
- Follow REFRACTORY ANAPHYLAXIS ALGORITHM

5. Which of the following histopathological findings is seen in liver biopsy of a diabetic patient with HbA1c of 12%?

a. Mallory Hyaline bodies
b. Councilman bodies
c. Kimmelstiel Wilson change
d. Armani Epstein change

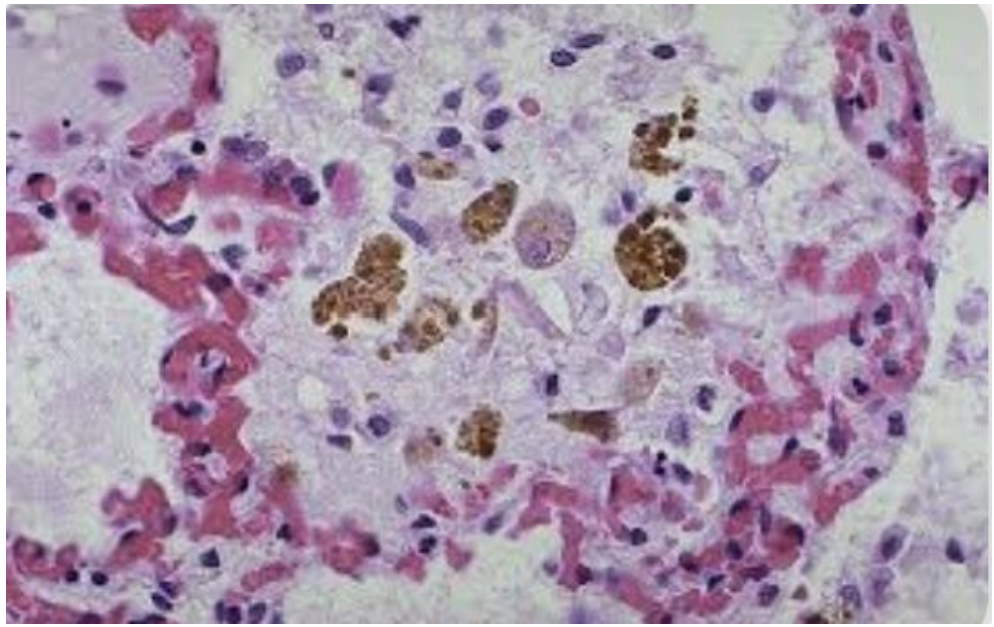


6. A 50-year-old man presents to the OPD with heartburn, cough and a 25-year history of smoking 2 packs daily. Which of the following epithelial transformations can occur in the lungs of this patient?

a. Columnar to squamous epithelium
b. Squamous to intestinal columnar epithelium
c. Transitional to squamous epithelium
d. Cuboidal to columnar epithelium

7. Hemosiderin laden intra-alveolar macrophages will be seen in which of the following conditions?

a. Hemochromatosis due to recurrent packed RBC transfusion
b. Cor pulmonale in smoker
c. Dilated cardiomyopathy
d. Construction worker in cement plant



8. Patient presents with pitting pedal oedema for the past 2 weeks. Labs: LFT = normal, serum albumin= 2 gm/dl, KFT= deranged with massive proteinuria, HbA1c is 10% and Echo report is normal. USG abdomen shows bilaterally enlarged kidneys. Kidney biopsy was done. Which of the following histopathological reports using H and E is likely to be seen?

a. Diffuse glomerulosclerosis
b. Nodular glomerulosclerosis
c. A-beta 2 microglobulin deposits
d. Apple green birefringence for Congo red deposits

9. Which of the following is not correct about T lymphocytes?

a. Derived from bone marrow
b. Constitute 70% of peripheral blood lymphocytes
c. Responsible for type IV hypersensitivity reaction
d. Concentrated in germinal centres of lymph nodes

Feature	T cells	B cells
Origin	Bone marrow	Bone marrow
Maturation	Thymus	Bone marrow
% of blood lymphocytes	~60-70%	~10-20%
Lymph node location	Paracortex	Germinal centers/follicles
Function	Cell mediated immunity and cytotoxicity	Humoral immunity, antibody production

10. Liver biopsy of a patient with jaundice and elevated liver enzymes for 6 months was performed. The patient is an IV drug user. Serology shows

HBsAg Positive, HBeAg positive

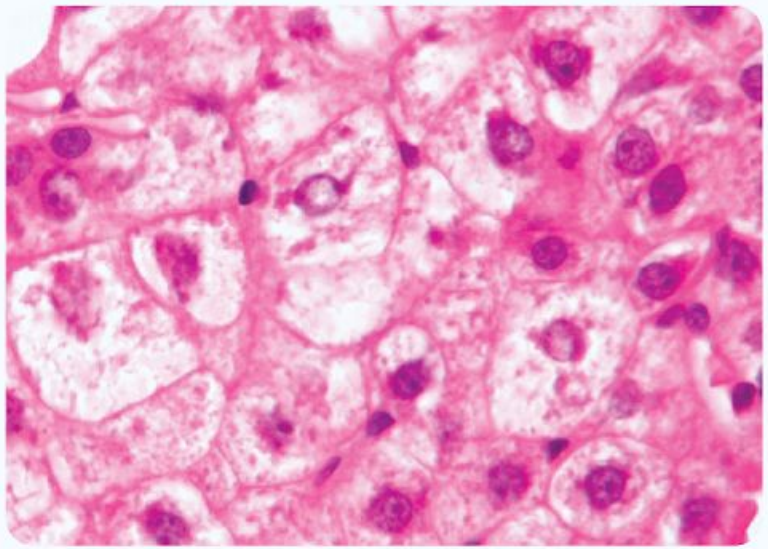
IgM anti HBc negative

IgG anti HBc positive

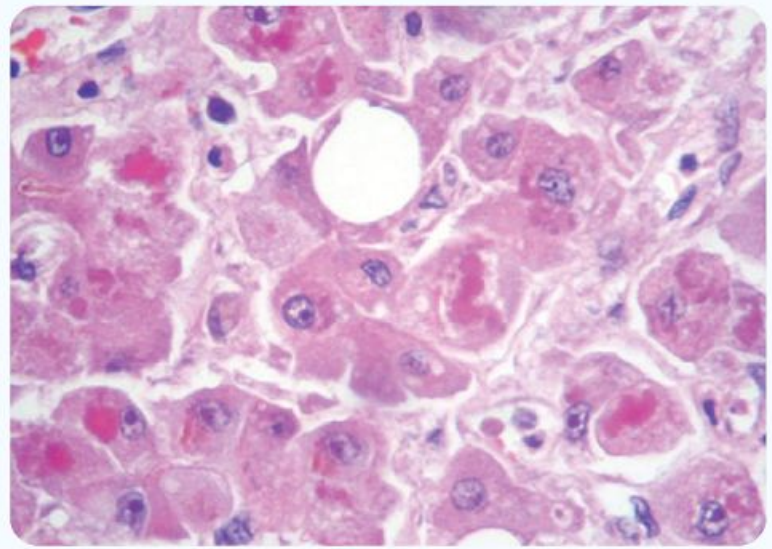
Which is the most likely finding to be seen

a. Councilman bodies
b. Ground glass appearance of hepatocytes
c. Mallory Hyaline bodies
d. Ballooning of hepatocytes

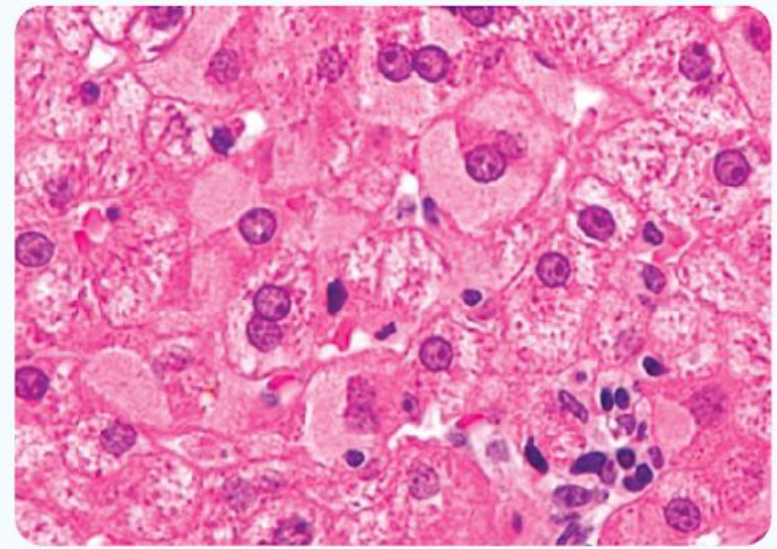
Council man body



Mallory denk



Ground glass appearance



11. . 35-year-old female with progressive limb weakness and muscle wasting for the past 1 year. On examination tongue fasciculations and hypertonia in arms is noted. The sensory system is intact. She is diagnosed as having amyotrophic lateral sclerosis. Which of the following will be seen in motor neurons of this patient?

a. Lewy bodies
b. Hirano bodies
c. Bunina bodies
d. Lafora bodies

12. All of the following changes are seen in reversible cell injury except?

a. Hydropic changes
b. Pyknosis
c. Mitochondrial swelling
d. Myelin figures

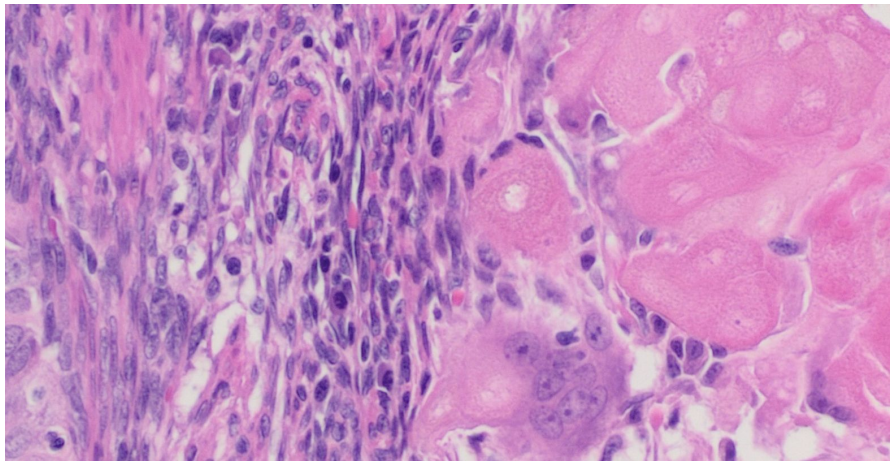
Reversible injury	Irreversible injury
• S - Swelling (Cell, mitochondria, ER) • W-Water accumulation (Hydropic change) • E- ER dilation, ribosome detachment • L-Loss of microvilli, membrane blends • L - Light nuclear changes (Chromatin clumping)	• N- Nuclear changes (pyknosis, karyorrhexis, karyolysis) • E- Enzyme leakage (lysosomal rupture) • C-calcium influx • R - Ruptured membranes (plasma, organelles) • O - Organelle damage (mitochondrial amorphous densities) • SIS - Severe injury leading to self destruction

13. “Ghost cells” are seen in which of the following conditions?

a. Fungal granuloma
b. Lipase mediated injury in pancreatitis
c. Burns
d. Fibrinoid necrosis

- Outline of the cell is maintained, but cytoplasmic and nuclear details are lost.

  Seen in coagulative necrosis.



14. Which of the following is not a pro-apoptotic regulator?

a. BAX
b. BAK
c. MCL-1
d. p53

Pro- apoptotic	BAX, BAK, BAD, BID, BIM, PUMA, NOXA	Promote mitochondrial outer membrane permeabilization (MOMP)→cytochrome c release → caspase activation →apoptosis
Anti-apoptotic (BCL -2 family proteins)	BCL-2, BCL-XL, BCL-W, MCL-1	Inhibit MOMP →prevent cytochrome c release →block apoptosis
Initiator caspases	Caspase - 8 (extrinsic), caspase - 9 (intrinsic)	Activate executioner caspases
Executioner caspases	Caspase -3, -6, -7	Cleave cellular proteins →DNA fragmentation →cell death

BCL = BLOCK CELL LOSS

15. Which is correct about Superoxide dismutase?

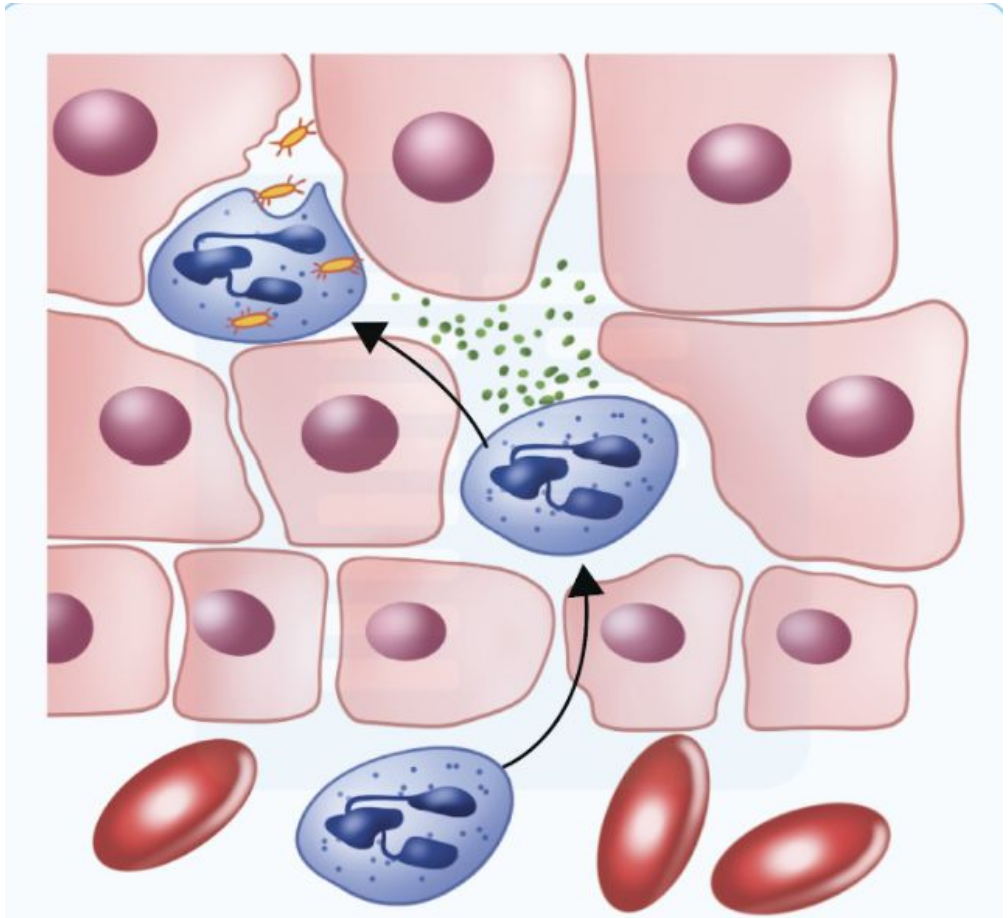
a. Degenerate Hydrogen peroxide to superoxide
b. Convert superoxide to hydrogen peroxide
c. Degenerate hydrogen peroxide to hydroxyl groups
d. Converts superoxide to hydroxyl groups

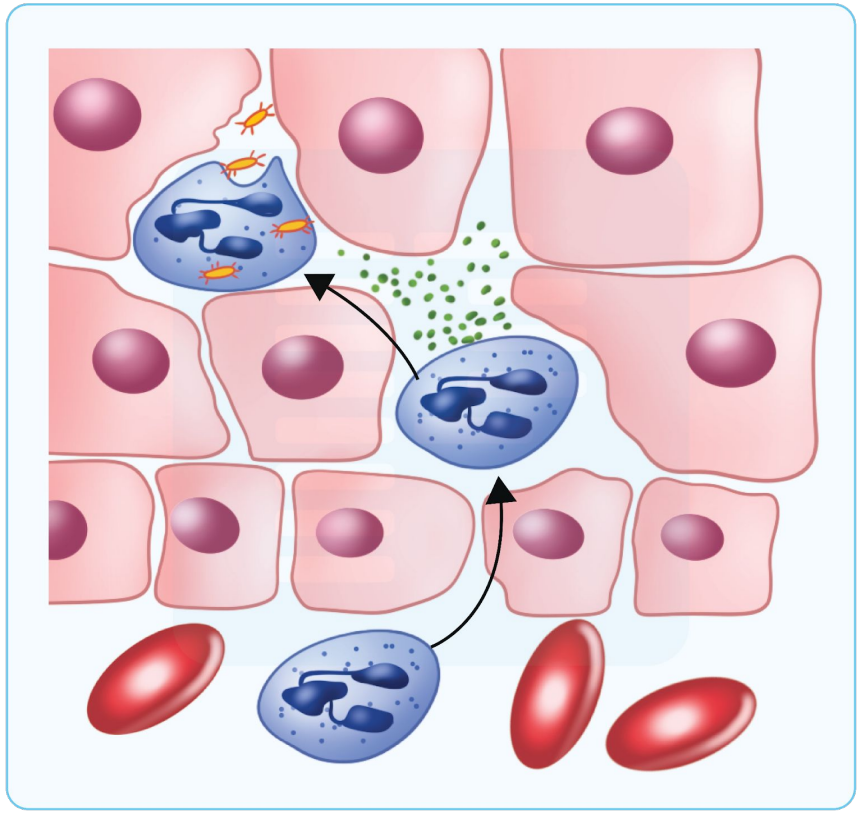
16. A 6-month-old male infant presents with sparse, kinky hair, hypotonia, and developmental delay. Laboratory tests reveal low serum copper and ceruloplasmin levels. Which of the following is correct about this condition?

a. ATP 7A defect with increased Cu/Zn-superoxide dismutase activity
b. ATP 7A defect with decreased Cu/Zn -superoxide dismutase activity
c. ATP 7B defect with increased Cu/Zn-superoxide dismutase activity
d. ATP 7B defect with decreased Cu/Zn-superoxide dismutase activity

17. Which of the following is not correct about diapedesis?

a. Most important adhesion molecule is CD 31
b. Occurs in post-capillary venules
c. In lungs, it occurs via capillaries
d. Bidirectional movement of WBC that perform phagocytosis





Hack : Please call V when 31 bad guys come

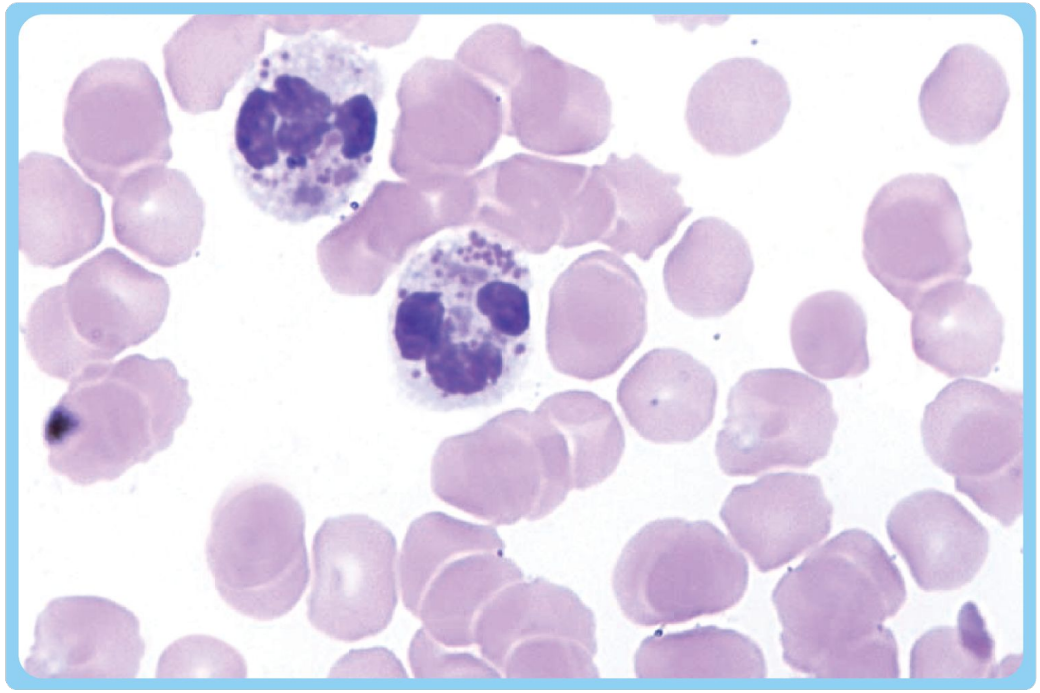
- Occurs in **P**ost **C**apillary **V**enules except lungs capillaries
- PECAM-1/ CD31 is adhesion molecule expressed by endothelial cells
- It is followed by Chemotaxis (unidirectional movement)

Feature	CD31 (PECAM-1)	CD62 family (Selectins: CD6-21/E/P
Molecule type	Ig superfamily adhesion receptor	C-type lectin family (selectins)
Primary role	Transmigration / diapedesis across endothelium	Tethering and rolling (early step)
Expression	Endothelial cells (junctions), platelets	CD62 on leukocytes
Step in cascade	Diapedesis (paracellular/transcellular)	Capture/rolling preceding firm adhesion
Aliases	PECAM-1	L-selectin, E-selectin

18. A 3-month-old male infant presents with recurrent skin infections without pus formation, delayed umbilical cord separation, and oral ulcers. Laboratory tests reveal marked leucocytosis with neutrophilia. Which of the following is the most likely defect in this patient?

a. Deficiency of CD18
b. Defect in LYST gene
c. Deficiency of adenosine deaminase
d. Deficiency of NADPH oxidase

19. A 5-year-old boy presents with recurrent skin and respiratory infections, silvery-gray hair, and light-colored eyes. On examination, he has mild ataxia. Peripheral blood smear is shown below. Which of the following is the most likely defect in this patient?



a. Defective NADPH oxidase and impaired respiratory burst
b. Defective lysosomal trafficking and impaired neutrophil adhesion
c. Defective β2 integrin and impaired neutrophil adhesion
d. STAT3 mutation and impaired Th17 differentiation

20. Which of the following is not correct about chronic granulomatous disease?

a. Increased infection with S. Aureus and Burkholderia Cepacia
b. Abnormal dihydrorhodamine test
c. NADPH oxidase defect
d. More common in girls than boys

Disorder	Inheritance	Direct/ Pathophysiology	Lab/ diagnostic Test	Infections/ Clinical Feature	Mnemonic
CGD (chronic Granulomatous Disease)	X-linked	NADPH oxidase defect →impaired respiratory burst	Dihydrorhodamine mine (DHR) test abnormal, nitroblue tetrazolium (NBT) test	Recurrent infections with catalase-positive bacteria (S. aureus, Burkholderia, Psoriatic, Nocardia, Aspergillus	"BAD Boys B: Burkholderia, A: Aspergillus D: DHR abnormal Boys affected
Job Syndrome (Hyper IgE Syndrome)	Autosomal dominant (STAT3 mutation)	Th17 defect → impaired neutrophil chemotaxis	High IgE (>2000 IU/mL) eosinophilia	Recurrent 'cold' staphylococcal abscesses, mucocutaneous candidiasis	ABCDE Stat for JOB
LAD-I (leukocyte adhesion defect)	Autosomal recessive	CD18/βintegin defect →impaired neutrophil adhesion & migration	Peripheral neutrophilia, gene sequencing CD18	Recurrent bacterial infections, delayed umbilical cord separation	LAD L: Late cord separation , A: Absent pus, D: Dangerously high neutrophils"
Chediak-Higashi syndrome	Autosomal recessive (LYST gene)	Defective lysosomal trafficking →giant granules in neutrophils	Blood smear →giant lysosomal granules, genetic testing	Recurrent pyogenic infections (staph, strep), neurological problems	"Triad: Partial albinism, recurrent infections, neurologic defects

21. Which of the following antibodies cannot fix the complement system?

a. Ig G
b. Ig M
c. Ig E
d. Ig A

22. A 25-year-old young female presents with ptosis showing diurnal variation. CT chest shows anterior mediastinal mass identified as thymus gland cancer. Which receptor is affected in this patient?

a. Antibody against nicotinic receptors at the motor end plate
b. Antibody against muscarinic receptor at motor end plate
c. Antibody against voltage gated calcium channels at motor end plate
d. Antibody against acetylcholinesterase activity

23. A farmer was returning from the field in the evening when he was bitten by a snake. On arrival to CHC he has ptosis, difficulty in counting up to 10 and areflexia. 20 vials of ASV were given. 5 days later he develops fever, extensive rash and arthralgia at all the large joints in the body. Which type of hypersensitivity reaction is seen here?

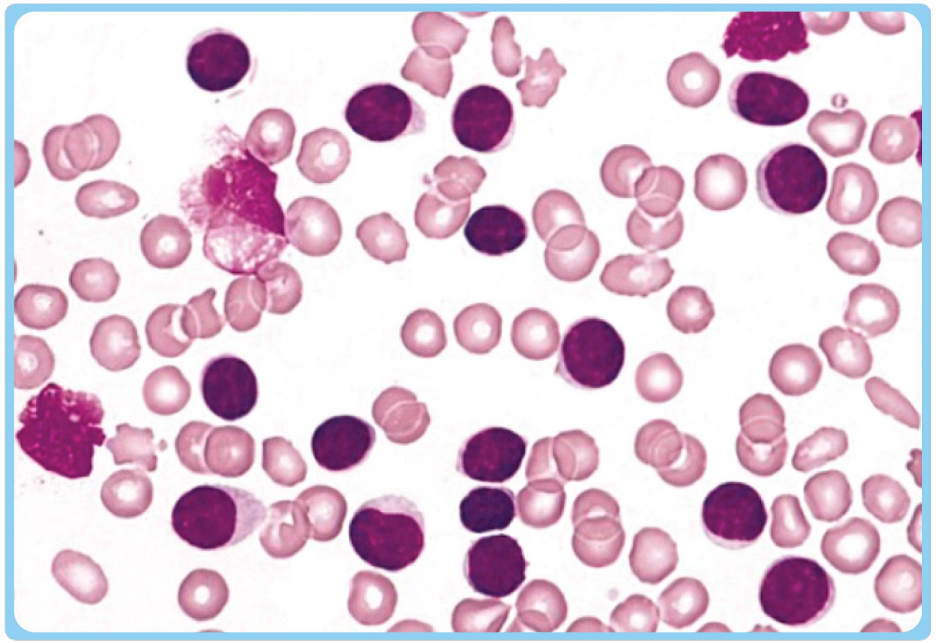
a. Type 1
b. Type 2
c. Type 3
d. Type 4

24. A 35-year-old male with lepromatous leprosy presents with fever, painful erythematous nodules on the skin, joint pain, and swelling 3 months after starting multidrug therapy. Which type of hypersensitivity reaction is most likely responsible for his current symptoms?

a. Type I
b. Type II
c. Type III
d. Type IV

25. A 65-year-old man presents with progressive anaemia and cervical lymphadenopathy. P. Smear is shown below. Which CD markers are seen in this case?

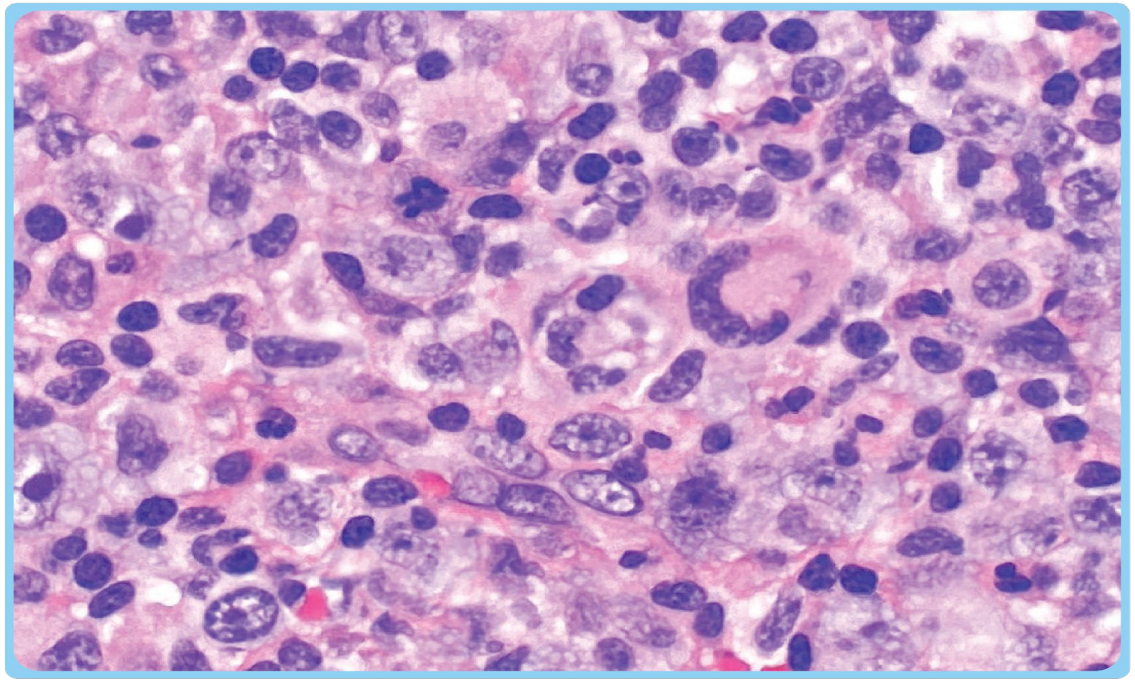
a. CD3, CD5, CD8
b. CD10, CD19, CD22
c. CD19, CD20, CD23, CD5
d. CD13, CD33, CD117



- CLL hallmark = co-expression of B-cell markers (CD19, CD20, CD23) + aberrant CD5 positivity

26. 12-year-old presents with fever, weight loss and painless cervical lymphadenopathy. Lymph node biopsy stained with H&E has hallmark cells. The diagnosis of anaplastic large cell lymphoma was made. Most likely translocation?

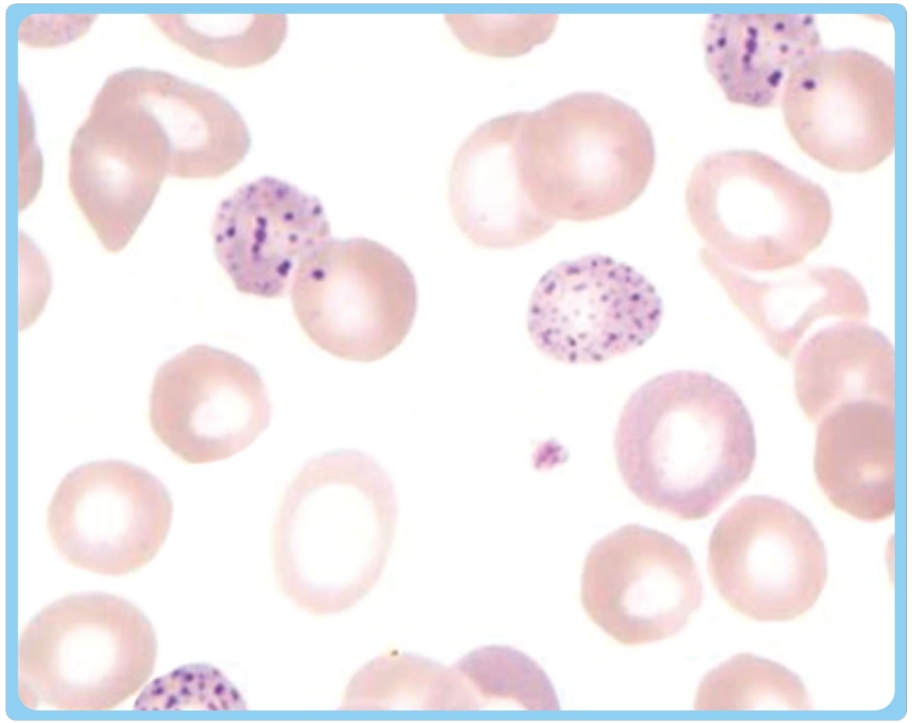
a. t(8;14)
b. t(8;22)
c. t(2;5)
d. t(14;18)

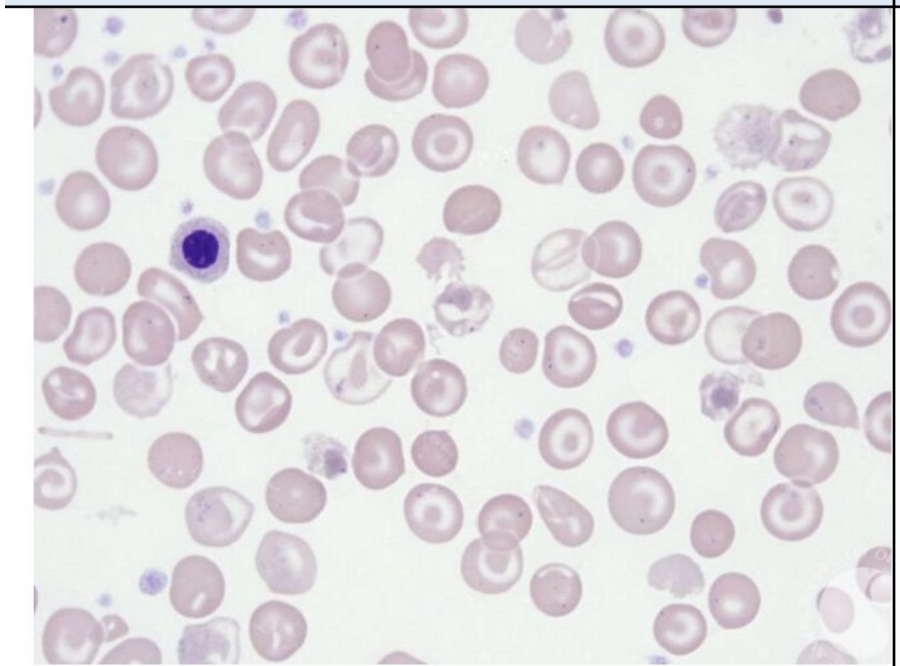
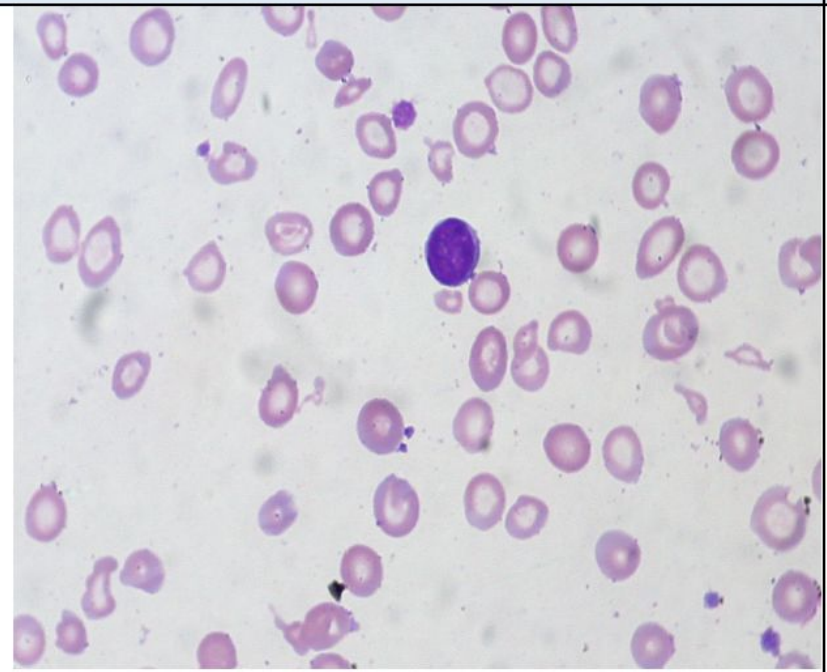
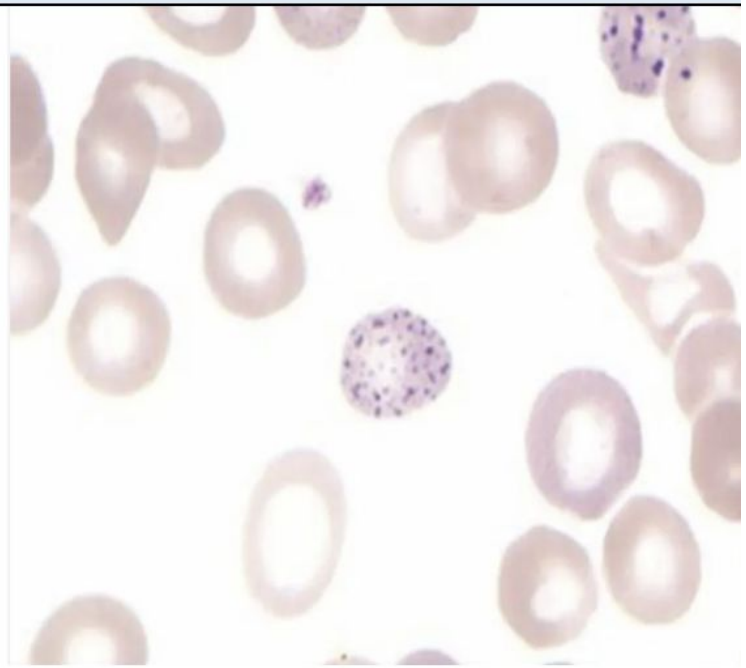


- Hallmark cells are large lymphoid cells with abundant cytoplasm, eccentric horseshoe/kidney-shaped nuclei, and prominent nucleoli seen in Anaplastic large cell lymphoma. Most cases have t(2;5) translocation with the NPM-ALK fusion gene.

27. A young boy presents with a history of ingestion of paint chips, leaves, and soil. A blood examination is conducted. Based on the clinical history and suspected environmental exposure, what is the most likely pathology?

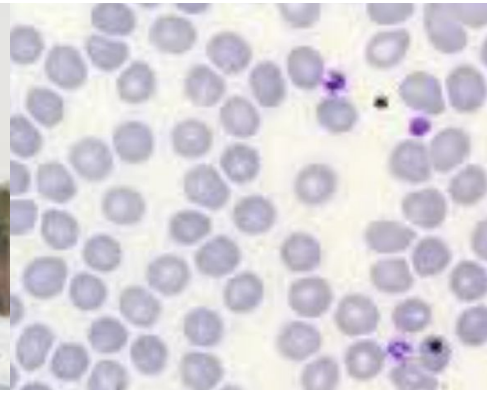
a. Lead poisoning
b. Iron deficiency anemia
c. Thalassemia
d. Sickle cell anemia



28. Bernard-Soulier syndrome is caused by a defect in which of the following platelet glycoproteins?

a. Gp IIb/IIIa
b. Gp Ib/IX complex
c. Gp Ia/IIa
d. Gp IV



Platelet count: ↓ (mild to moderate thrombocytopenia)

Bleeding time: ↑ (defective adhesion)

Platelet aggregation test:

- **Absent aggregation with ristocetin** (not corrected by adding normal plasma → helps differentiate from vWD).

- Bernard soulier syndrome has large (St. Bernard dogs are large species) platelets that have a sticking (adhesion) problem. The GpIb/IX complex on platelets helps in interaction with the Von-Willebrand factor. Lab findings:
- Prolonged bleeding time
- Normal platelet count
- Ristocetin aggregation test: No correction with normal plasma (vs vWD where it corrects).

Feature	Bernard -Soulier	Glanzmann Thrombasthenia	Wiskott - Aldrich
Inheritance	Autosomal recessive	Autosomal recessive	X -linked recessive
Defective receptor/protein	Gp Ib - IX - V (adhesion to vWF↓)	Gp IIb/IIIa (aggregation↓)	WAS protein (cytoskeleton defect)
Platelet count	Low/ normal	Normal	Low
Platelet size	Large	Normal	Small
Key clinical clue	Mucocutaneous bleeding	Mucocutaneous bleeding	Bleeding + eczema + recurrent infections
Mnemonic	‘Big Bernards Bind vWF’	‘Glue - less Glanzmann’	‘Wet, Small, Susceptible’

29. A 30-year-old man presents with periorbital oedema. Urine examination shows massive proteinuria and hypoalbuminemia. He undergoes a kidney biopsy, and congo red staining shows apple-green birefringence under polarized light. What is the most likely diagnosis?

a. Amyloidosis
b. Minimal change disease
c. Diabetic nephropathy
d. Membranous nephropathy

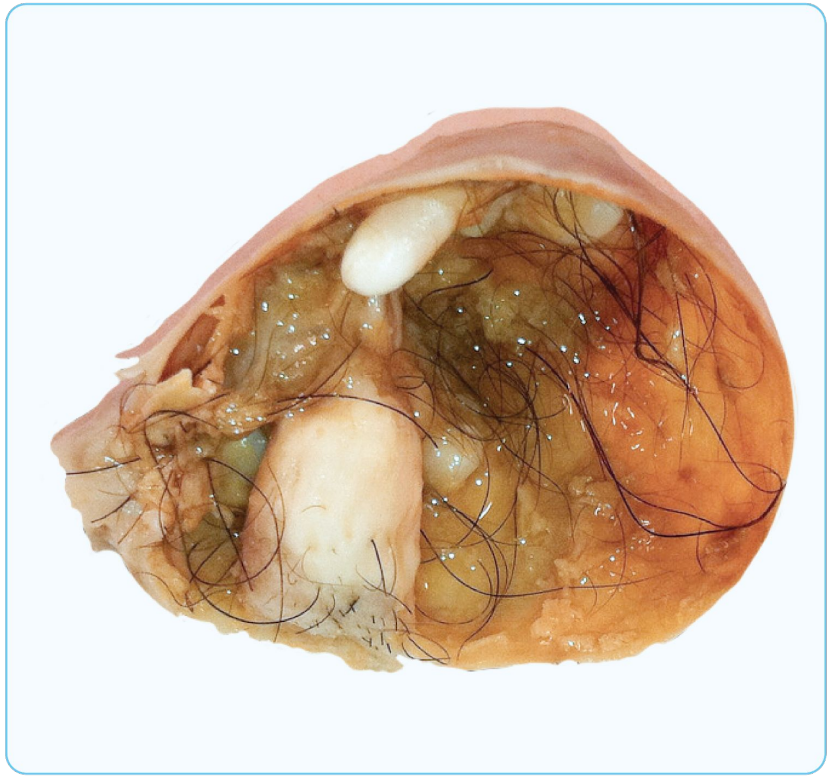
30. A newborn presents with upward slanting palpebral fissures, flat facial profile and hypotonia, Karyotyping shows a 5p deletion. What is the most likely diagnosis?

a. Edwards syndrome
b. Cri du chat syndrome
c. Down syndrome
d. Patau syndrome

Syndrome	Top 4 Physical Features	Genetic Cause
Cri du chat	High - pitched cat-like cry, microcephaly, round face, hypertelorism (wide -set eyes)	5p deletion (short arm of chromosome 5)
Edwards syndrome	Clenched fists with overlapping fingers, micrognathia, rocker-bottom feet, low -set ears	Trisomy 18
Down syndrome	Upward slanting palpebral fissures, flat facial profile, single palmar crease, hypotonia	Trisomy 21
Patau syndrome	Cleft lip/palate, microphthalmia, polydactyly, microcephaly	Trisomy 13

31. A 25-year-old woman presents with lower abdominal discomfort. There is no vaginal discharge. USG abdomen shows an ovarian mass. Post surgical image of resected tumour is given below. What is the most likely diagnosis?

a. Serous cystadenoma
b. Immature teratoma
c. Mature cystic teratoma
d. Endometrioma



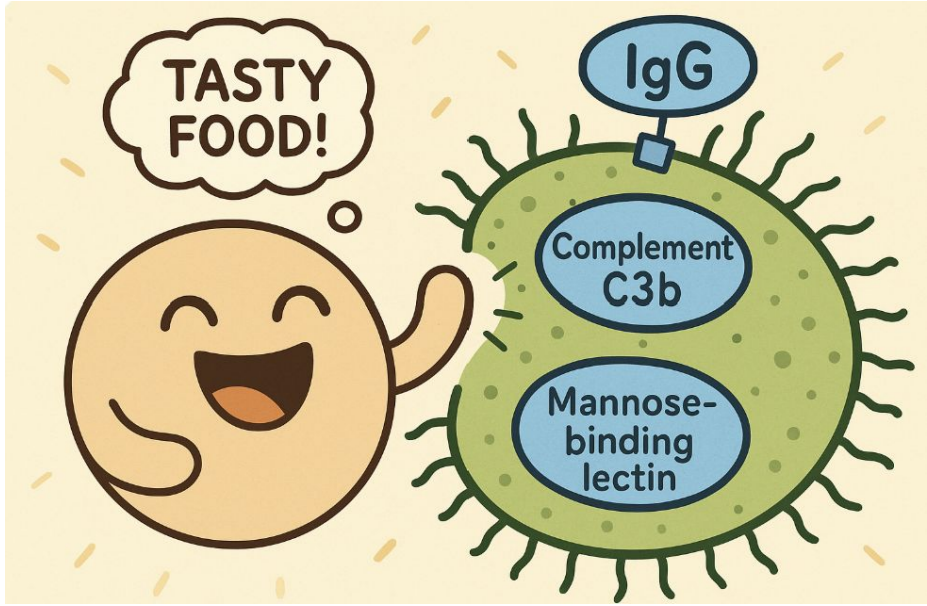
- The image shows a surgically excised ovarian mass. Notably, it contains hair and sebaceous material. These heterogeneous components are classic for a mature cystic teratoma (also known as a dermoid cyst).
- Serous cystadenoma presents as a smooth, thin-walled, fluid-filled cyst
- Endometrioma arises from endometriosis and is filled with dark "chocolate" fluid due to old blood

32. A 16-year-old girl presents to the ER with fever, severe headache, neck stiffness, and purpuric rash. Lumbar puncture is performed, and CSF analysis shows turbid fluid with low glucose, elevated protein, and 1000 neutrophils/mm^3. Gram stain demonstrates gram-negative diplococci. On further history, it is noted that the patient has had multiple hospital admissions in the past for similar episodes of severe bacterial meningitis.Which of the following is the most likely underlying reason for his recurrent infections?

a. Complement C 1,2,4 deficiency
b. Complement C5–C9 deficiency
c. Bruton's agammaglobulinemia
d. Chronic granulomatous disease

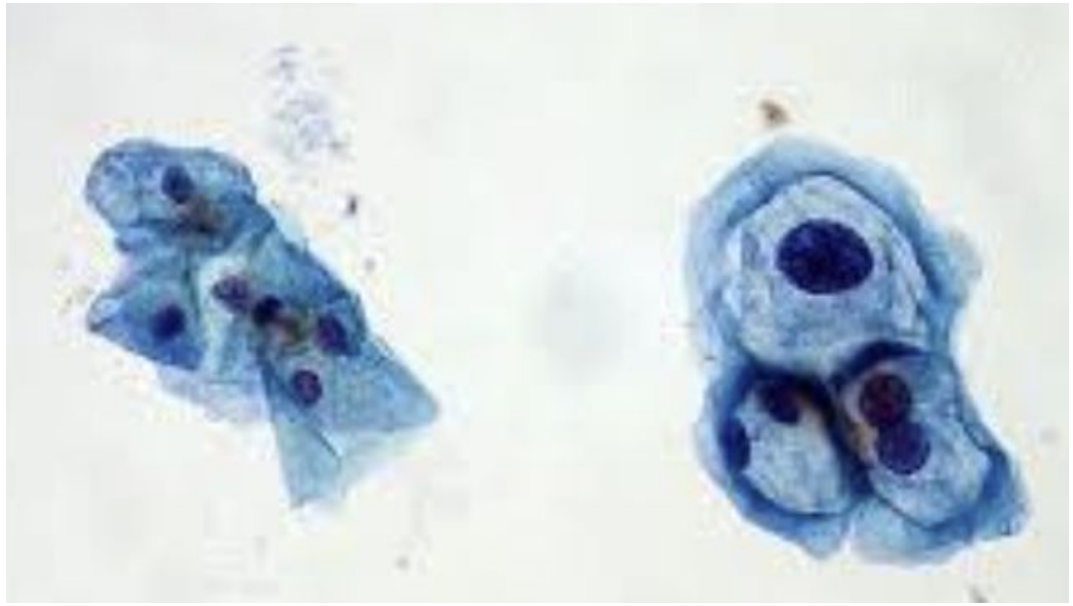
33. All of the following act as opsonins to enhance phagocytosis except?

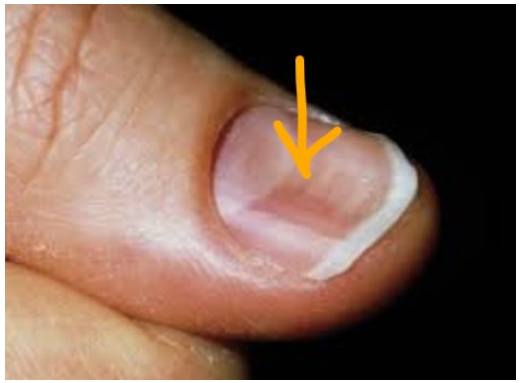
a. IgG
b. Complement C3b
c. Mannose-binding lectin
d. Complement C5a

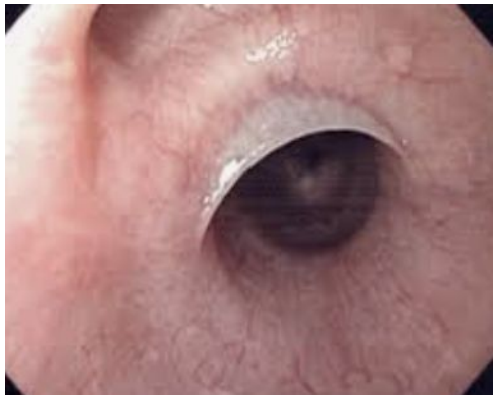


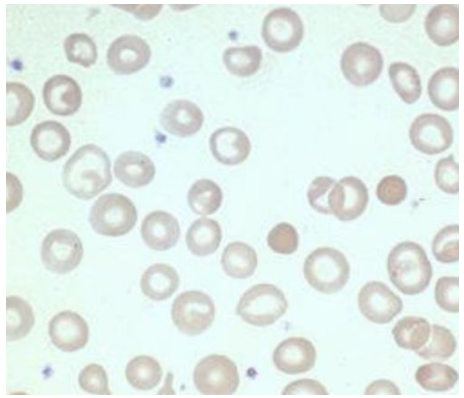
34. Koilocytosis is caused by which of the following conditions?

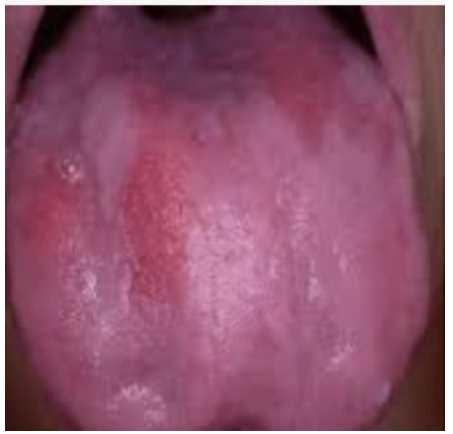
a. Human papilloma virus
b. Kaposi Herpes simplex virus
c. Upper Oesophageal webs
d. Barrett Oesophagus





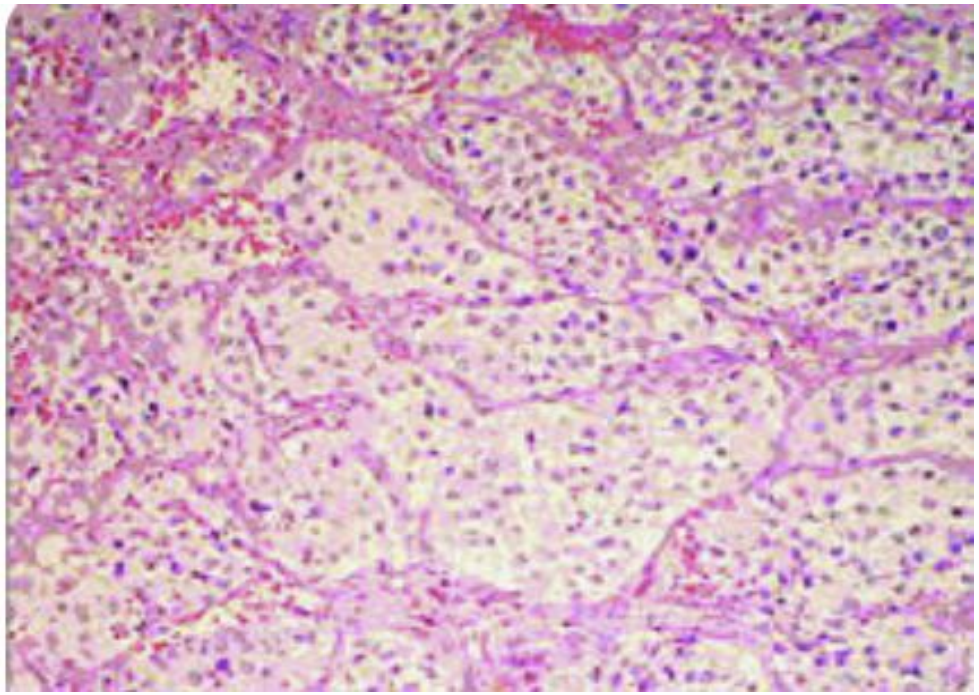






35. A 35-year-old patient undergoes a biopsy of a retroperitoneal mass. Histopathology shows “nests of cells in zellballen pattern” surrounded by sustentacular cells. Which of the following investigations is most useful for biochemical confirmation?

a. 24-hour urinary 5-HIAA
b. 24-hour urinary metanephrines
c. Serum chromogranin A
d. Serum gastrin



36. Histology of the excised mitral valve shows fibrinoid necrosis surrounded by mononuclear cells and palisading histiocytes along with Anitschkow cells in the myocardium. Which of the following is the cause of this presentation?

a. Molecular mimicry between beta- myosin heavy chains and M proteins
b. Infection of myocardium with Streptococcus pyogenes
c. Infection of pericardium with C.O.N.S
d. Fibrinoid necrosis of coronary vessels

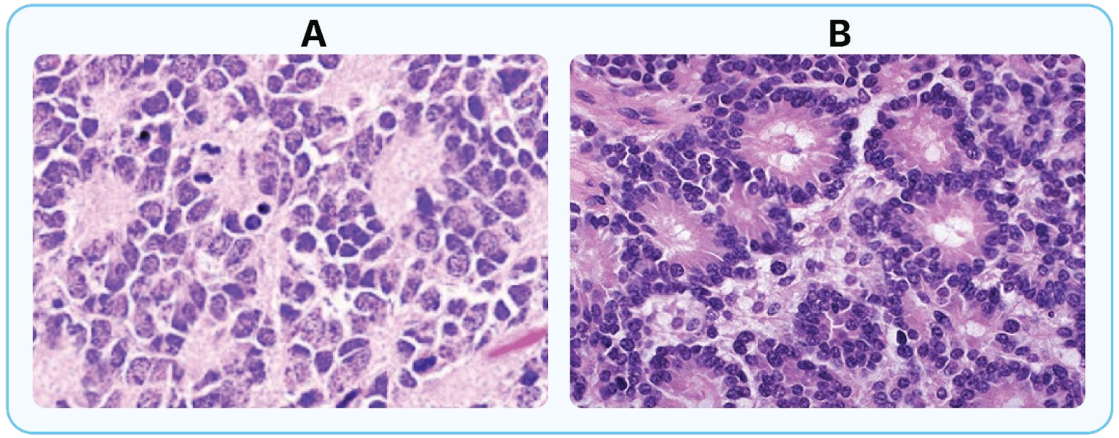
37. Which is correct about malakoplakia?

a. White patch in oral cavity due to gutka chewing
b. Chronic cystitis with foamy macrophages
c. Red patch in oral cavity due to gutka chewing
d. Chronic gastritis with extra cellular urease positive organisms

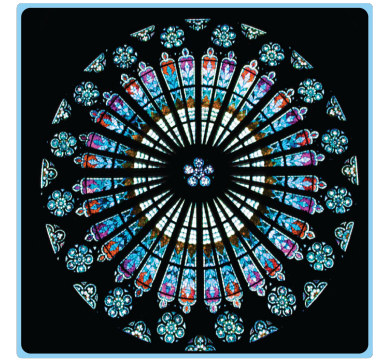
38. Gamma Gandy bodies are seen in

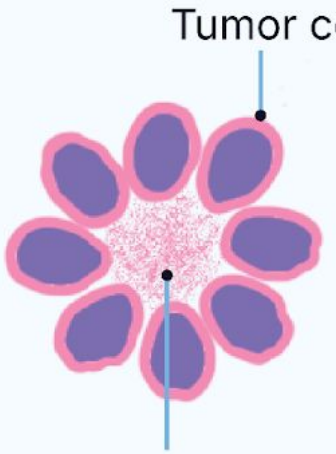
a. Cirrhosis
b. Auto splenectomy
c. Accessory spleens
d. Pyelonephritis

39. Which of the following is correct about the rosettes in the slides shown below



a. A= Homer Wright, B= Flexner Wintersteiner
b. A= Flexner Wintersteiner, B= Homer Wright
c. A= True ependymal, B= Homer wright
d. A= Homer Wright, B= True ependymal

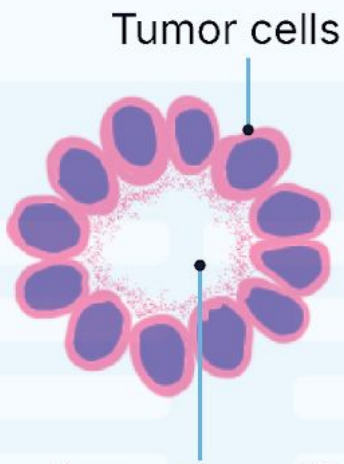




Pale Neuropil (dense feltwork of interwoven cytoplasmic processes of nerve cells and neuroglial cells)

Homer Wright Rosettes

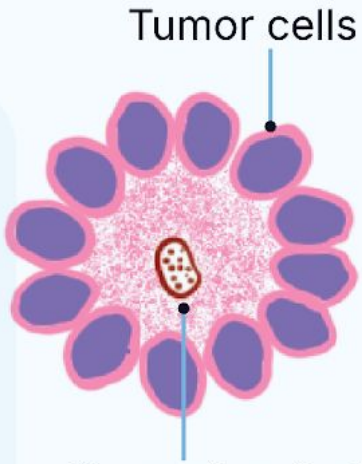
Neuroblastoma
Medulloblastoma
Pineoblastoma



Lumen formed by cell borders & fine cytoplasmic extensions. There will be NO Basement membrane

Flexner-Wintersteiner Rosette

Retinoblastoma



Neuropil projecting towards a central blood vessel

Perivascular Pseudo Rosettes

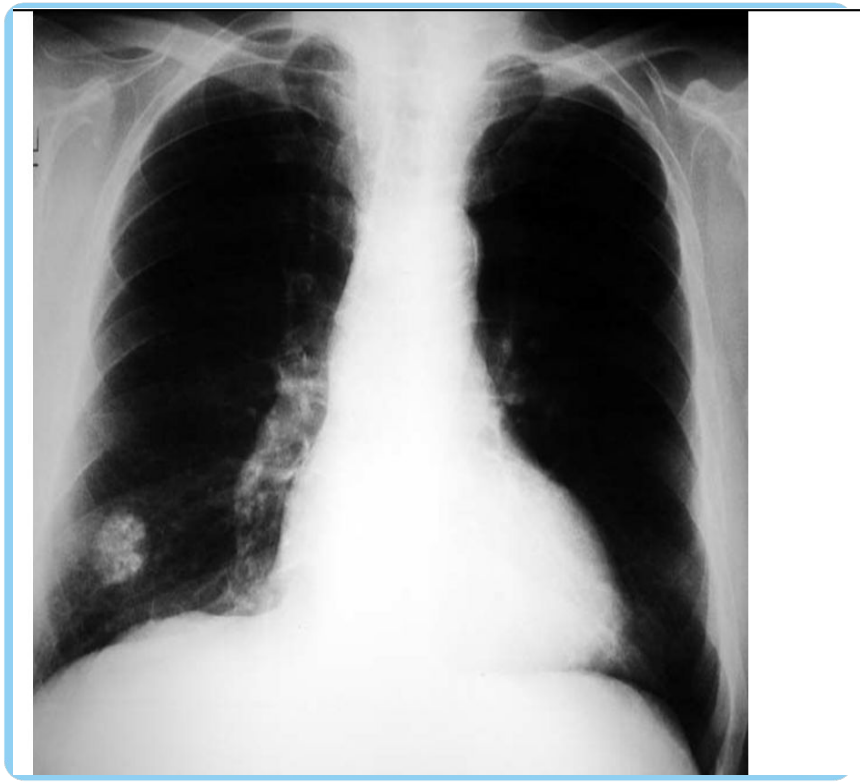
Ependymoma
Central Neurocytoma
Glioblastoma

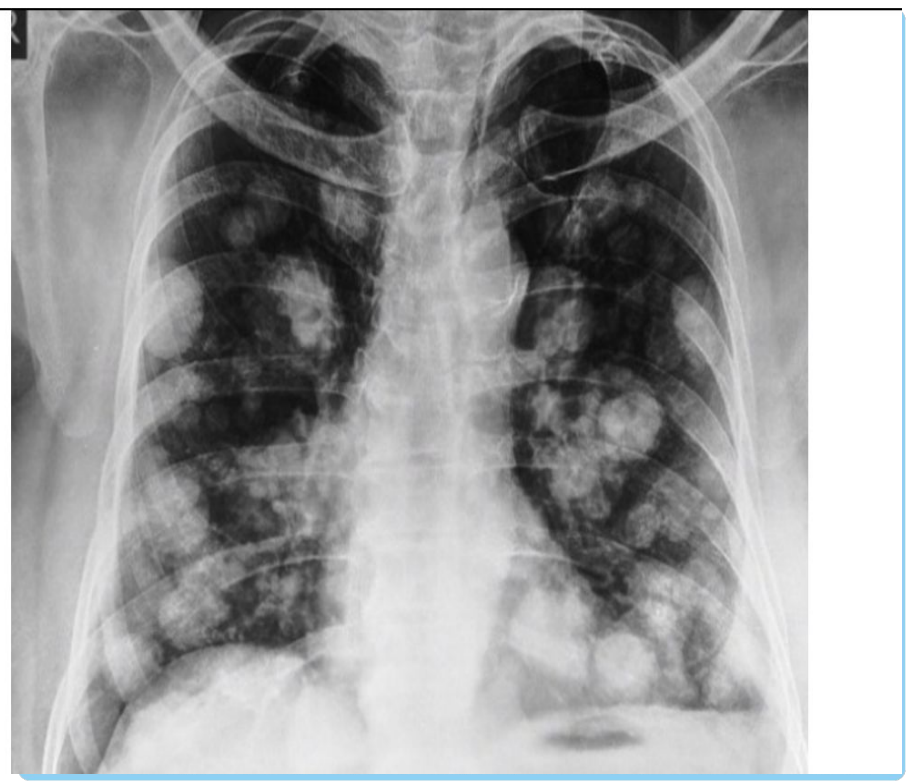
40. Which of the following is a hallmark feature of malignancy?

a. Metaplasia
b. Dysplasia
c. Anaplasia
d. Desmoplasia

41 . Which of the following is the most common benign lung tumour?

a. Small cell cancer
b. Squamous cell cancer
c. Adenocarcinoma lung
d. Pulmonary hamartoma





42 . 60-year-old patient develops cough and weight loss for the last 3 months. Biopsy of lung mass shows expression of chromogranin and synaptophysin. Which paraneoplastic syndrome will most likely occur in this patient?

a. Hypercalcemia
b. Cushing syndrome
c. Gynaecomastia
d. SIADH

43. A- 60-year-old lady presents with cachexia and gross abdominal distention. On examination, fluid thrill and shifting dullness is noted. Ascitic tap shows malignant cells. Which of the following is the leading cause?

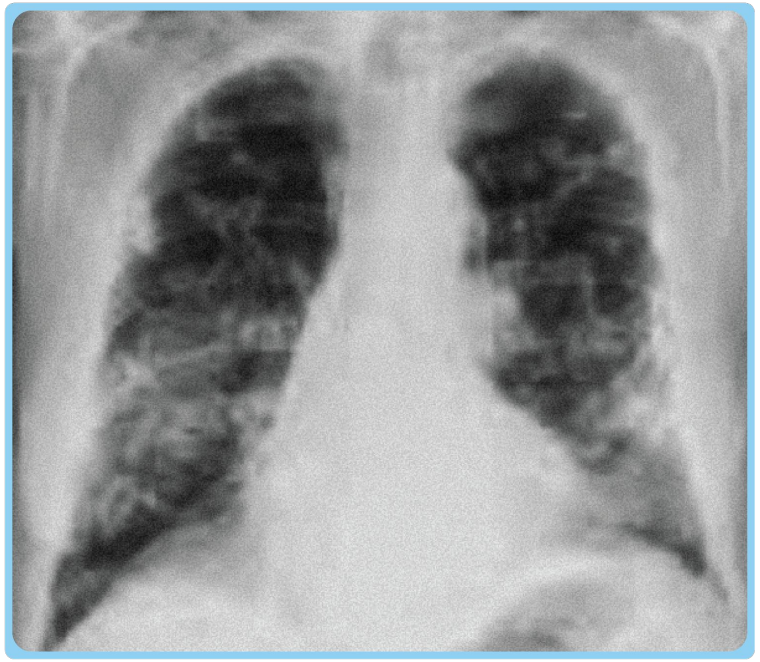
a. Pseudomyxoma peritonei
b. Serous cystadenocarcinoma of ovary
c. Serous cystadenoma of ovary
d. Mucinous cystadenoma of ovary

44. A 60-year-old man presents with obstructive jaundice. On examination palpable gallbladder is felt in RUQ. MRCP shows an ill-defined 3X 4 cm mass in the head of the pancreas. Which of the following tumour suppressor genes is most likely responsible for this presentation?

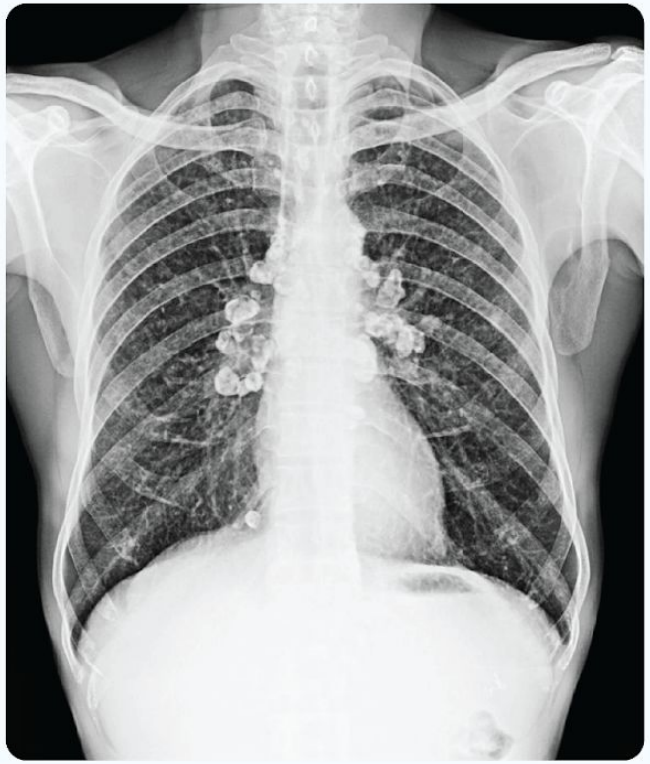
a. APC
b. DPC
c. STK11
d. INK4

45. A 30-year-old construction worker presents with shortness of breath. CXR is shown below. It was taken after pleural tapping that showed bloody pleural effusion. Which of the following is the cause of this presentation?

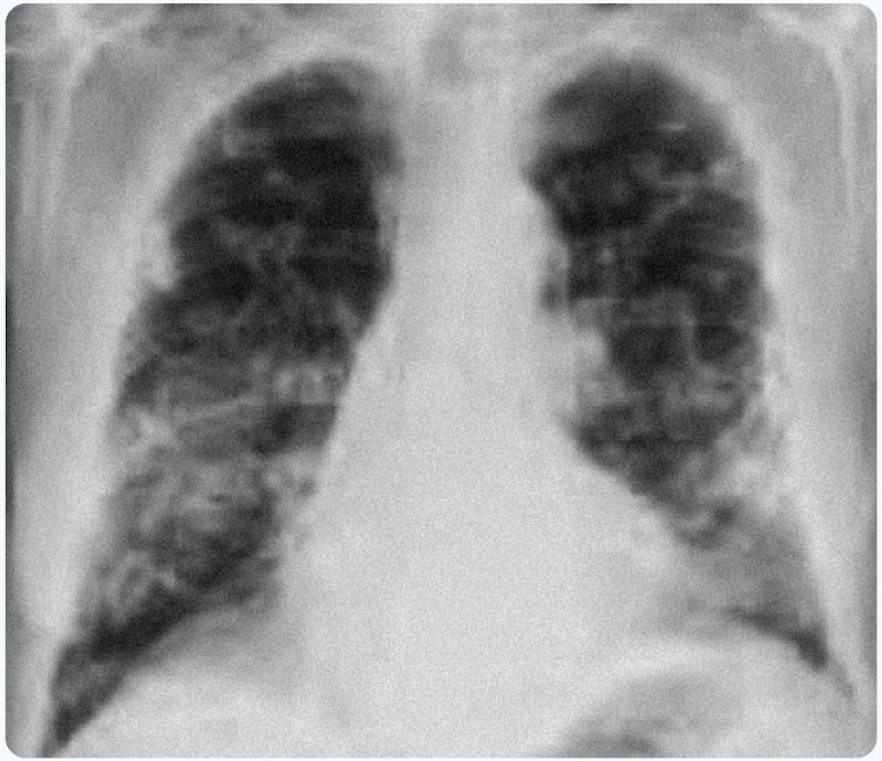
a. Silicosis
b. Asbestosis
c. CWP
d. Siderosis



Silicosis



Asbestosis



46. Hormone responsive liver tumour?

a. Haemangioma
b. Hepatic adenoma
c. Fibrolamellar variant of hepatocellular carcinoma
d. Focal nodular hyperplasia

47. Which is correct about the Klatskin tumor?

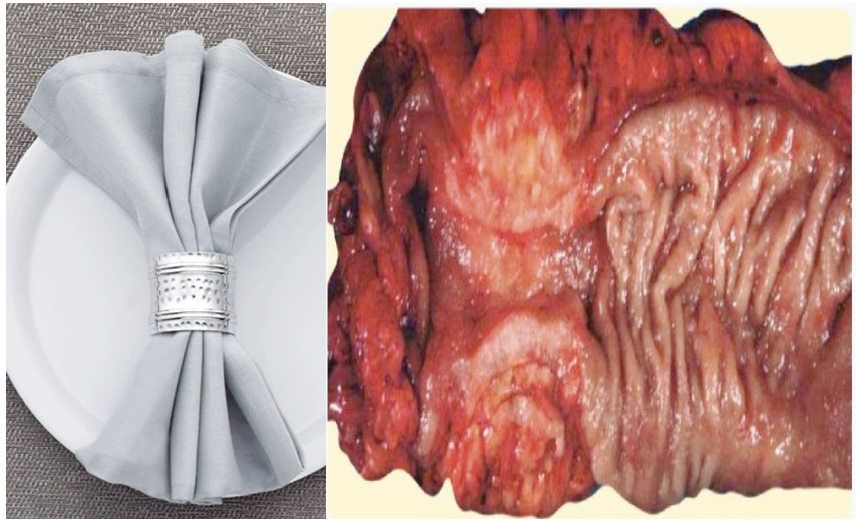
a. Cholangiocarcinoma at common hepatic duct bifurcation
b. Hepatoblastoma with high AFP levels
c. Liver metastasis from descending colon
d. Angiosarcoma caused by exposure of polyvinyl chloride

48 . A Young girl presents with chronic diarrhoea and abdominal pain episodes. On examination she has mucocutaneous pigmentation on lips. Endoscopic ultrasound shows polyps in the jejunum. Which of the following is correct about this condition?

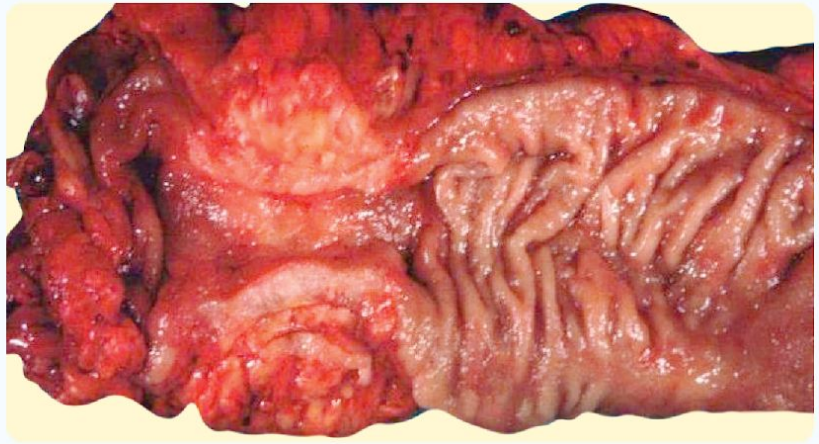
a. Gluten elimination from diet will improve her pigmentation and diarrhoea
b. Genetic basis on chromosome 19
c. APC gene on chromosome 5
d. Associated with C-KIT/CD117 mutations

49. Napkin ring configuration stricture in bowel is seen in which of the following conditions

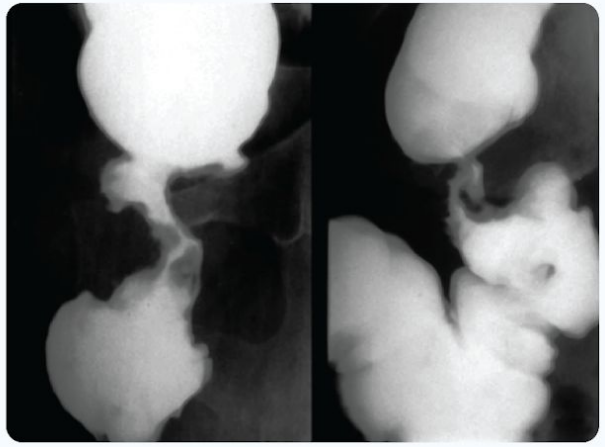
a. Colon cancer
b. Toxic megacolon
c. Crohn disease
d. Ulcerative colitis



Napkin ring

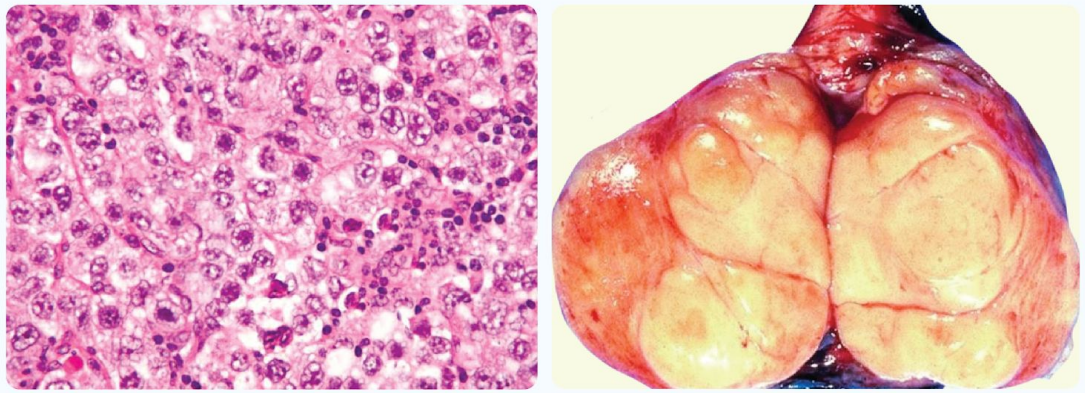


Apple core appearance



50. A 30-year-old man presents with painless testis enlargement for the last 6 months. Work up was done and high inguinal orchidectomy was done. Resected specimen and histology slide is shown. Which of the following is correct about this tumor?

a. Germ cell tumor with raised PLAP
b. Germ cell tumor with raised PAP
c. Germ cell tumor with raised HCG
d. Germ cell tumor with raised AFP



51. A 70-year-old man presents with a low back ache. MRI shows lytic lesions in the LS spine. DRE shows nodularity in the posterior lobe of the prostate. Which of the following tests will help in confirming the diagnosis of this case?

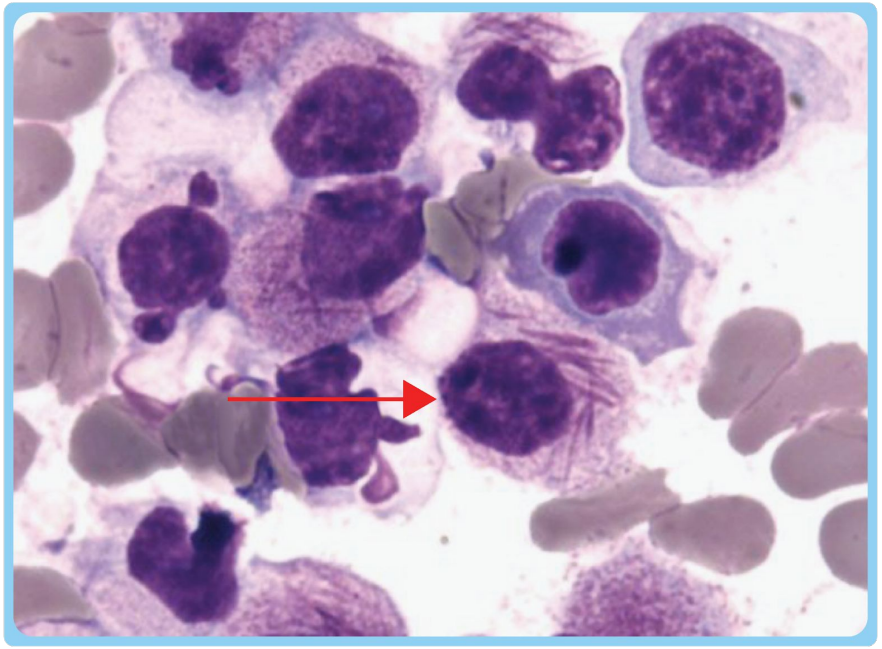
a. PSA Levels> 4 ng/ml
b. TRUS guided biopsy
c. TURP
d. PET -CT

52. Pseudo Gaucher cells on Bone marrow aspiration with low LAP score is seen in which of the following conditions

a. AML
b. CML
c. CLL
d. ALL

53. A 40 year old man is having recurrent epistaxis, hematuria episodes since last one month. On examination he has petechiae, purpura on lower limbs. Work up shows Hb: 7 gm%, TLC: 3000/cu.mm, Platelet count: 10,000/ cu.mm. P.smear is shown below. Which of the following is the cause of this presentation?

a. t(15:17)
b. inv 16
c. t (8:14)
d. t(9:22)



54. Which of the following is the most common type of non hodgkin lymphoma?

a. Nodular sclerosis
b. Mixed cellularity
c. Diffuse large B cell lymphoma
d. Burkitt lymphoma

DESCRIPTION	APPEARANCE
Large cells (20 to 60 µm in diameter) Abundant eosinophilic cytoplasm Nucleus: Typically two large nuclei -"mirror image" Prominent eosinophilic nucleolus surrounded by a halo	 Classic RS cell
Single, large, round nucleus with a large eosinophilic inclusion-like nucleolus May be seen in any subtypes of CHL	 Mononuclear cell variant (Hodgkin cell)
Abundant, lightly acidophilic or water-clear cytoplasm Large folded or multilobed nucleus One or more prominent eosinophilic nucleoli Seen in nodular sclerosis of CHL	 Lacunar cell variant

55 . A 60-year-old female presents with weakness, back pain and repeated infections. Work up shows M spike on serum electrophoresis. Prognosis is determined by which of the following?

a. Ig G and albumin
b. Hb and albumin
c. Albumin and LDH
d. Albumin and Beta 2 micro-globulin

Albumin ↓ = more IL-6, inflammation (aggressive biology).

β2M ↑ = higher tumor burden + poor renal clearance.

To this if we add LDH and cytogenetics then it becomes Revised ISS

56. An 8 month old boy is having bilateral knee haemarthosis. Mother tells of easy bruisability in a child. Work up shows BT normal, PT normal and aPTT is deranged. Gene sequencing shows F8 gene mutation. What is the best treatment for this patient to prevent recurrence of these bleeds?

a. Cryoprecipitate
b. Fresh frozen plasma
c. DDAVP
d. Factor 8 concentrate

57 . A 2 year old child is admitted with recurrent pneumonia episodes and steatorrhea. You are suspecting mucoviscidosis in this patient. Which is correct about the pathophysiology of this disease?

a. Low sweat chloride levels
b. Dehydrated periciliary fluid
c. Gain of function of CFTR protein
d. Impaired ciliary function

58. A 50 year old man is admitted with a history of recurrent falls. Neurological assessment shows dementia with chorea. Family history shows that his father had a similar neurological illness at 60 years of age. Which of the following is correct about this disease?

a. CAG trinucleotide repeats
b. CGG trinucleotide repeats
c. CTG trinucleotide repeats
d. GAA trinucleotide repeats

Trinucleotide Repeat disorders				
Repeat	Disease	Gene (Chromosome)	Inheritance	Key Clinical Features
CAG	Huntington’s disease	HTT (Chr4)	AD	Chorea, dementia, psychiatric features
CGG	Fragile X syndrome	FMR 1 (Chr X)	X-linked dominant	Intellectual disability, long face, large ears, macroorchidism
CTG	Myotonic dystrophy type 1	DMPK (Chr 19)	AD	Myotonia, cataracts, balding, gonadal atrophy
GAA	Friedreich’s ataxia	FXN (Chr 9)	AR	Ataxia loss of reflexes, cardiomyopathy, diabetes

59. In your O.P.D you have a tall person with long thin face, large ears, large testis and hyperextensible joints. He has an intellectual disability. Defect of which of the following chromosomes is responsible for this presentation?

a. Chromosome 15
b. Chromosome 17
c. Chromosome 19
d. X chromosome

60. Which of the following is the smallest human chromosome?

a. 1
b. 19
c. 21
d. 22

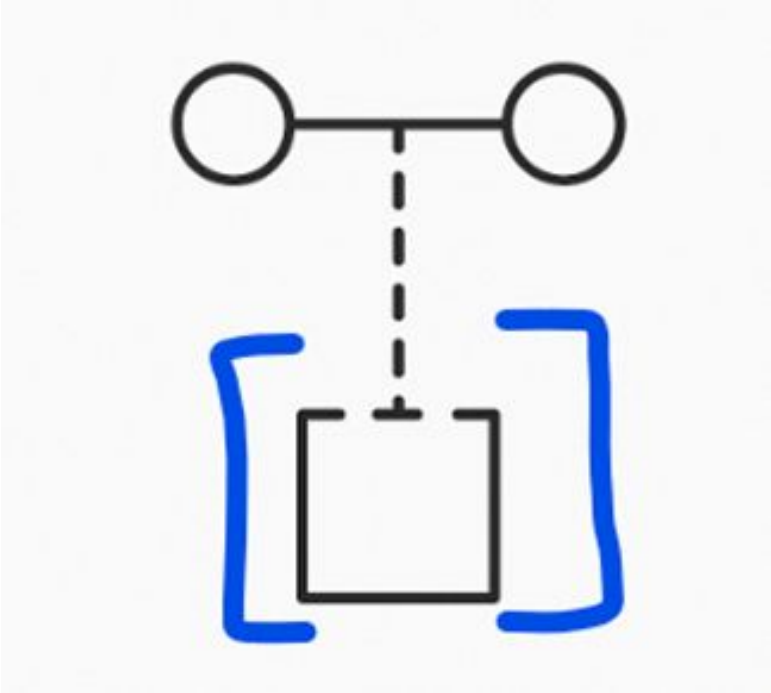
61. Which of the following is not an X linked dominant condition?

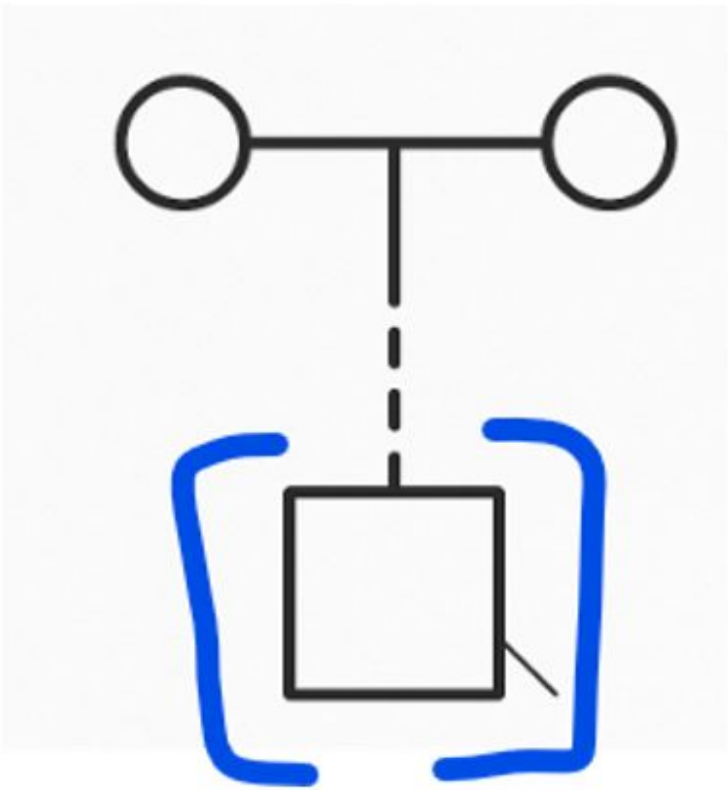
a. Vitamin D resistant rickets
b. Alport syndrome
c. Charcot marie tooth disease
d. Fabry disease

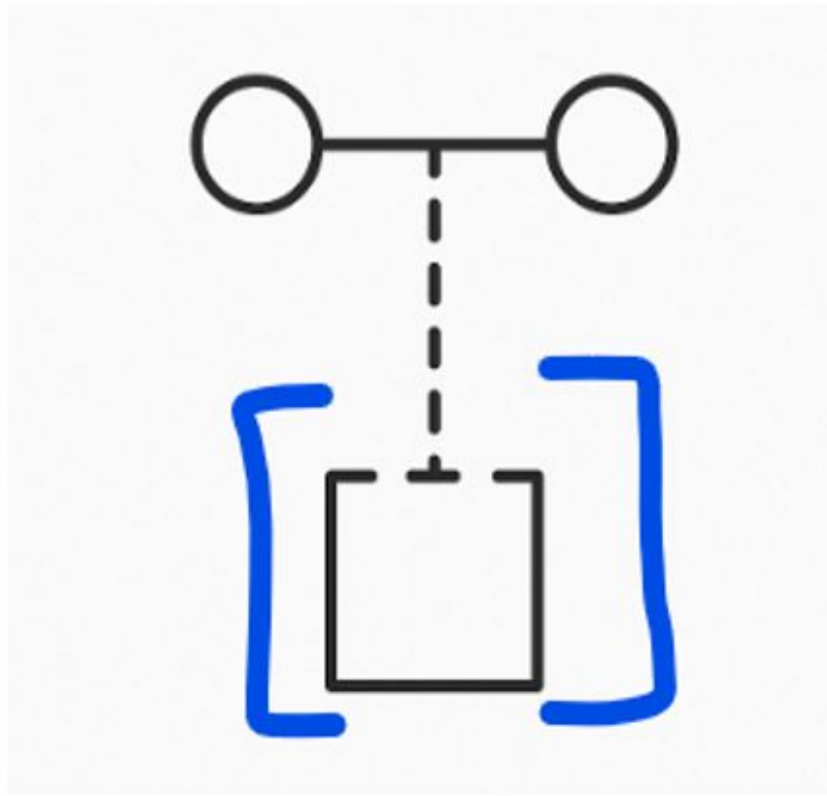
XLR	XLD
Alport	Bruton agammaglobulinemia
Incontinentia pigmenti	Lesch Nyhan syndrome
Rett syndrome	Adrenoleukodystrophy
Vitamin D resistant rickets	DMD/ BMD
Fabry’s disease / Fragile X syndrome	Eye= Red green color blindness

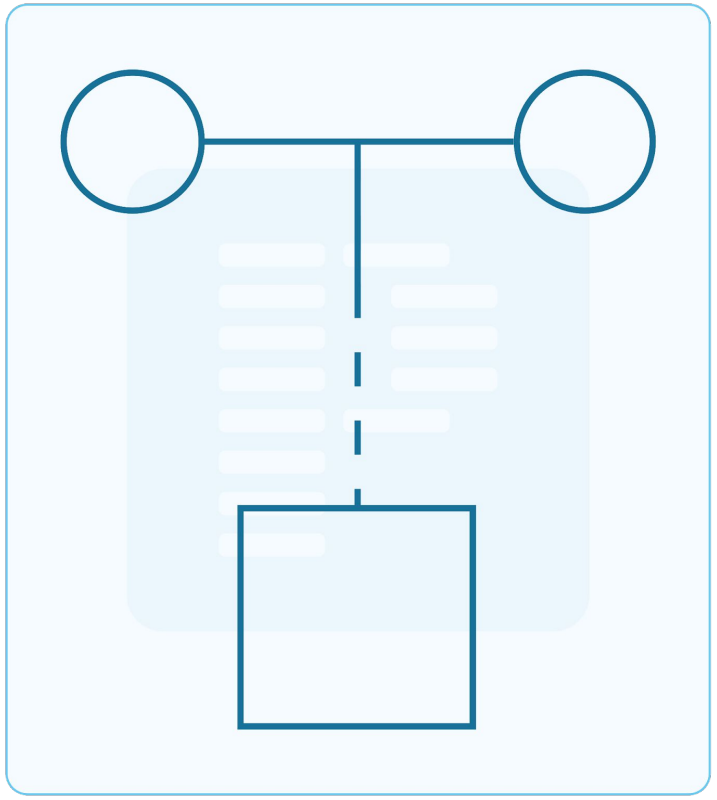
62. You are analysing a pedigree chart and come across this annotation. It implies which of the following?

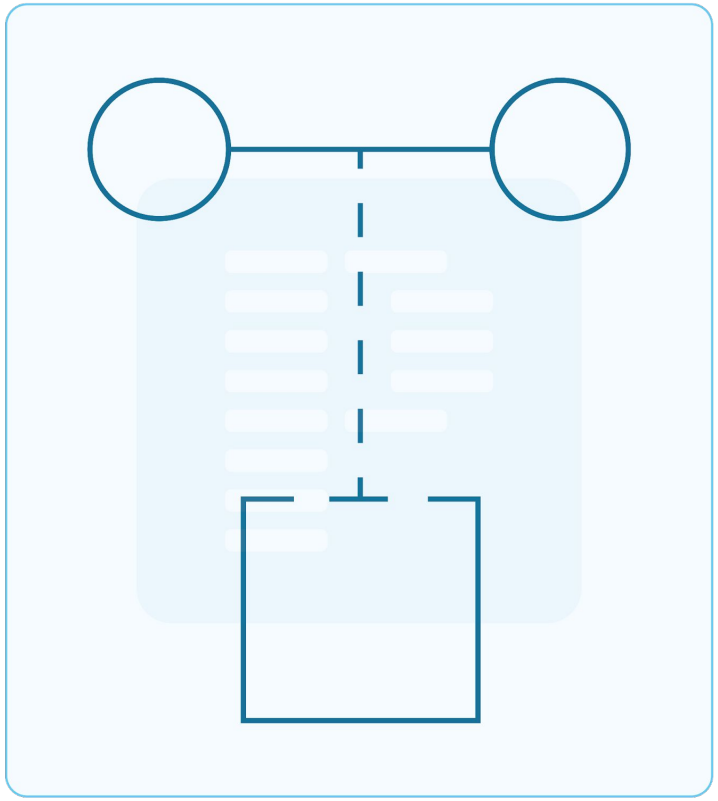
a. Adoption into the family
b. Adoption out of family
c. Consanguineous marriage
d. Illegitimate child





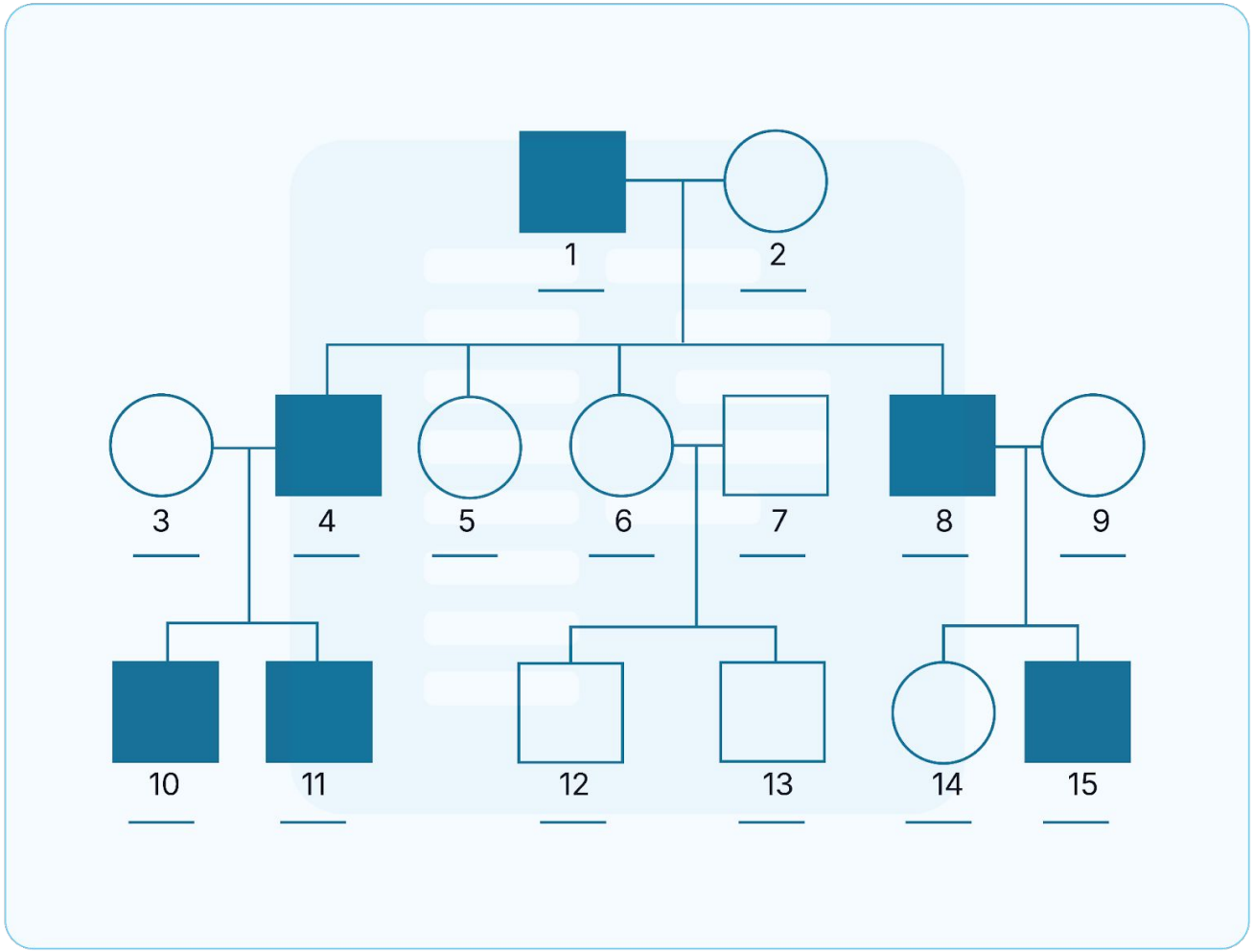


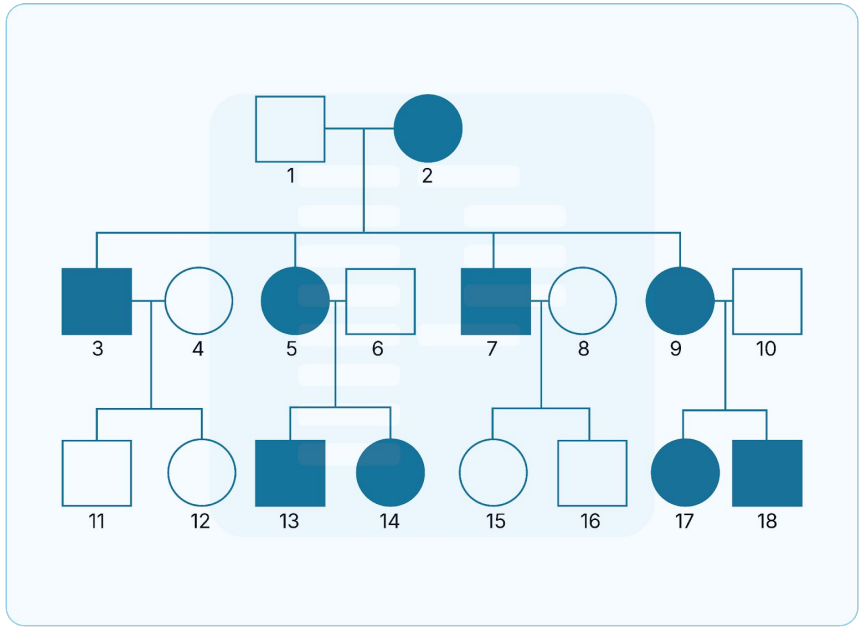




63. Which of the following is correct about pedigree analysis?

a. X linked recessive
b. X linked dominant
c. Mitochondrial inheritance
d. Y linked inheritance

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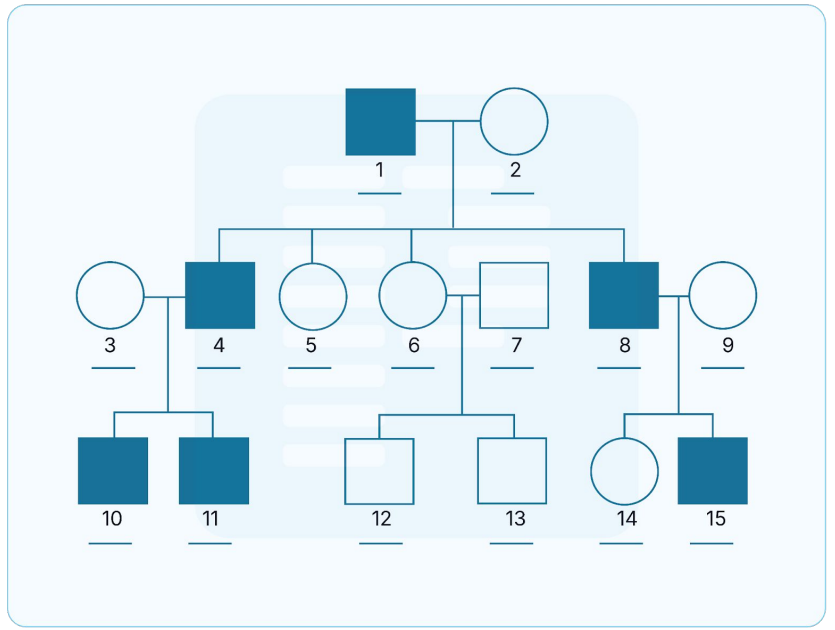
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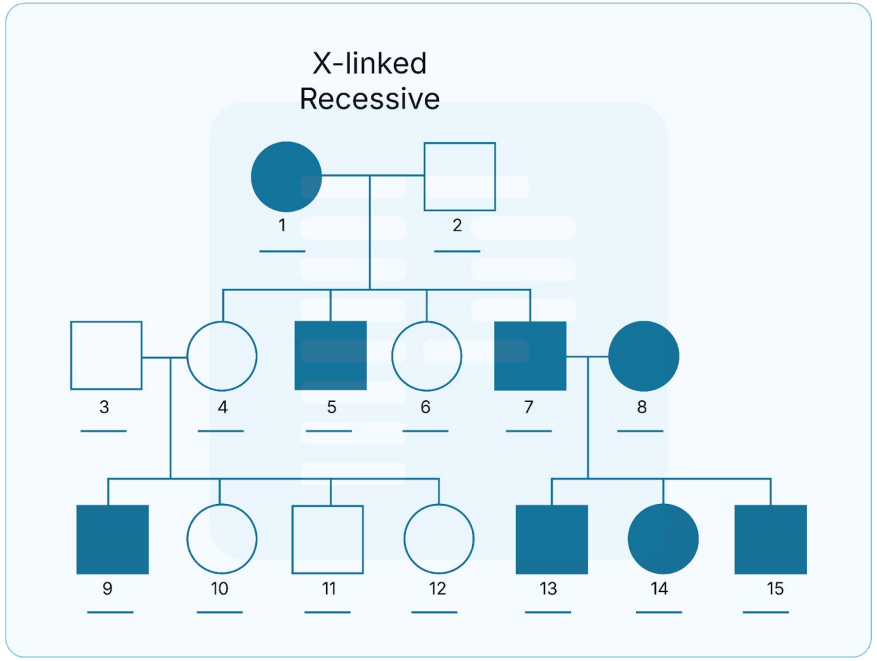
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Recessive
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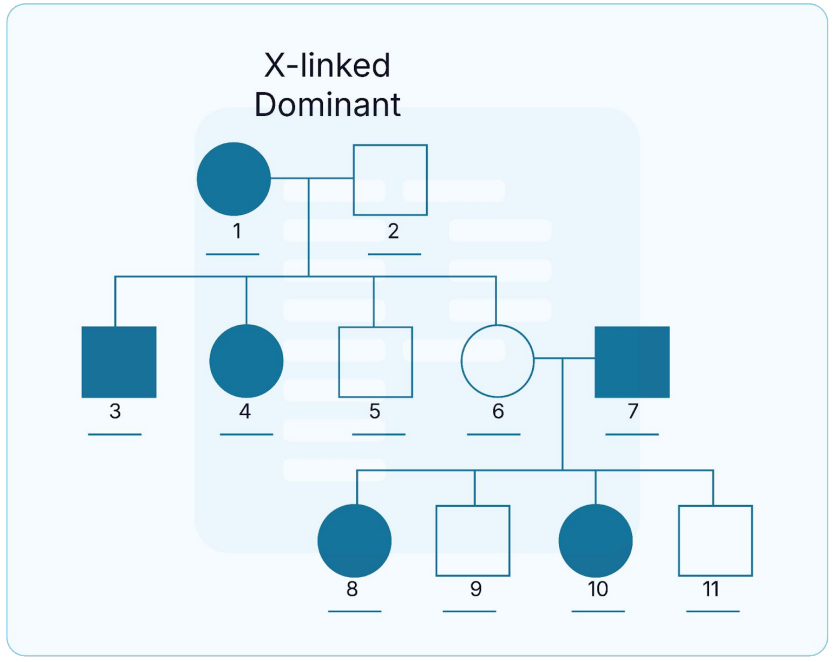
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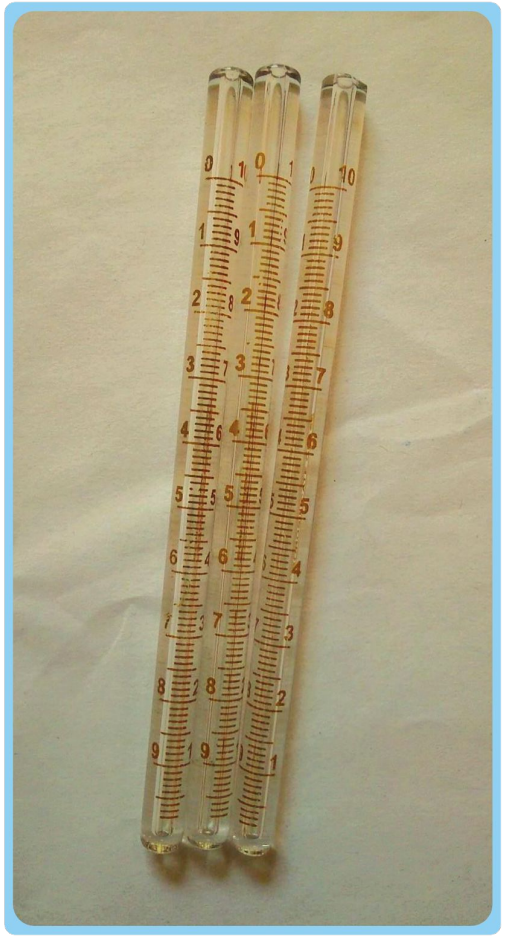
64. For a diabetic patient on a follow up visit, you intend to check his KFT and electrolytes for evaluation of diabetic nephropathy. The sample will be drawn in which color vacutainer?

a. Green
b. Lavender
c. Blue
d. Yellow

Tube color	Additive	Purpose
Blue	Sodium citrate	Coagulation studies (PT,aPTT, INR, D-dimer)
Red	No additive or clot activator	Serum collection (chemistry, serology
Green	Heparin	Plasma for chemistry tests (e.g. ammonia)
Gray	Sodium fluoride + potassium oxalate	Glucose and lactate testing

65. The following instrument will be used for evaluation of which of the following parameters

a. ESR
b. CRP
c. Bile pigments
d. Urobilinogen



66. Oval fat bodies on urine microscopy are seen in which of the following?

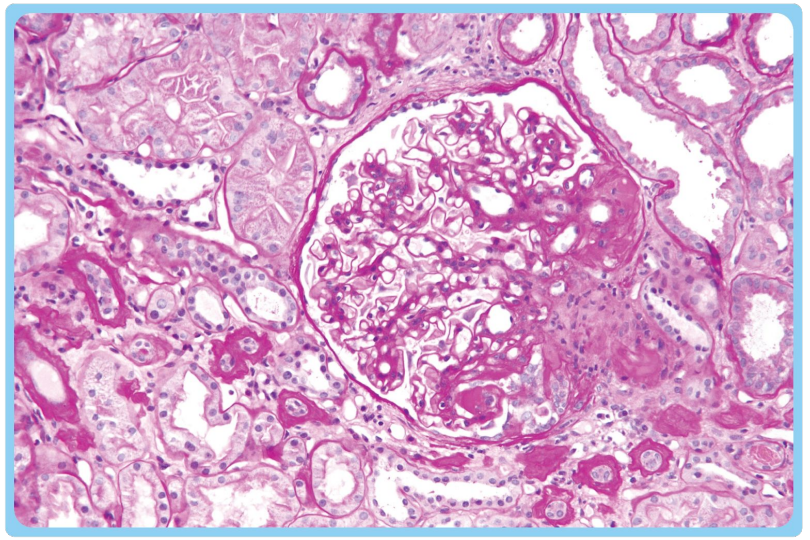
a. Fat embolism syndrome
b. Minimal change disease
c. Abetalipoproteinemia
d. Renal artery stenosis

67. Turbid synovial fluid with 100,000 WBC/ul, 90% PMN and 10% lymphocytes with positively birefringent crystals are seen in which of the following conditions?

a. Calcium pyrophosphate deposition
b. Monosodium urate deposition
c. Calcium hydroxyapatite deposition
d. Glutamate deposition

68. A 30-year-old man is having massive proteinuria with edema and hypoalbuminemia. Kidney biopsy shows foot process fusion. Light microscopy is shown below. Diagnosis is

a. Minimal change disease
b. MGN
c. FSGS
d. PSGN



69. G-banding in karyotyping is done for staining?

a. Centrosome
b. Telomere
c. Euchromatin and Heterochromatin
d. Fragile sites

70. Which of the following renal cell cancer has the worst prognosis?

a. Clear cell cancer
b. Papillary cancer
c. Bellini duct cancer
d. Chromophobe cancer

71. Leading primary malignant brain tumor of childhood?

a. Medulloblastoma
b. Craniopharyngioma
c. Pilocytic astrocytoma
d. Meningioma

72. Which of the following tumors has the highest propensity to cause tumor lysis syndrome?

a. CLL
b. CML
c. Hairy cell leukemia
d. Burkitt lymphoma

73. Which of the following is not seen with stomach cancer?

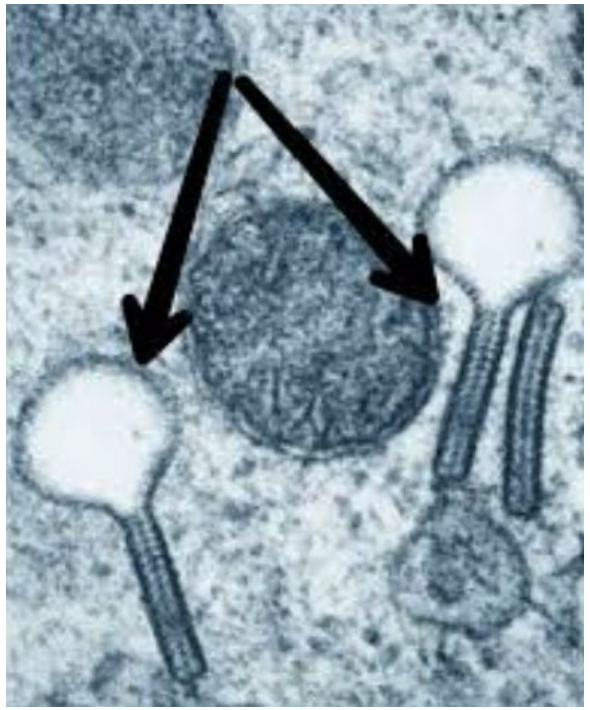
a. Linitis plastica
b. Virchow’s node enlargement
c. iron deficiency anemia
d. Umbilical bruising

74. The most common extranodal location of lymphoma is?

a. Ileum
b. Jejunum
c. Ovary
d. Stomach

75. Birbeck granules are seen in which of the following?

a. Oat cell cancer
b. Meningioma
c. Langerhans cell histiocytosis
d. Schwannoma



THANK YOU