PATHOLOGY – 1 T&D JUNE 2020

Paper Discussion

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1. 15-year-old boy is having cirrhosis of liver leading to recurrent ascites. He has developed behavioural problems, dystonia, rigidity and KF ring is noted in the eyes of patient. Which stain will be used to demonstrate copper toxicity?

RoN

Fat

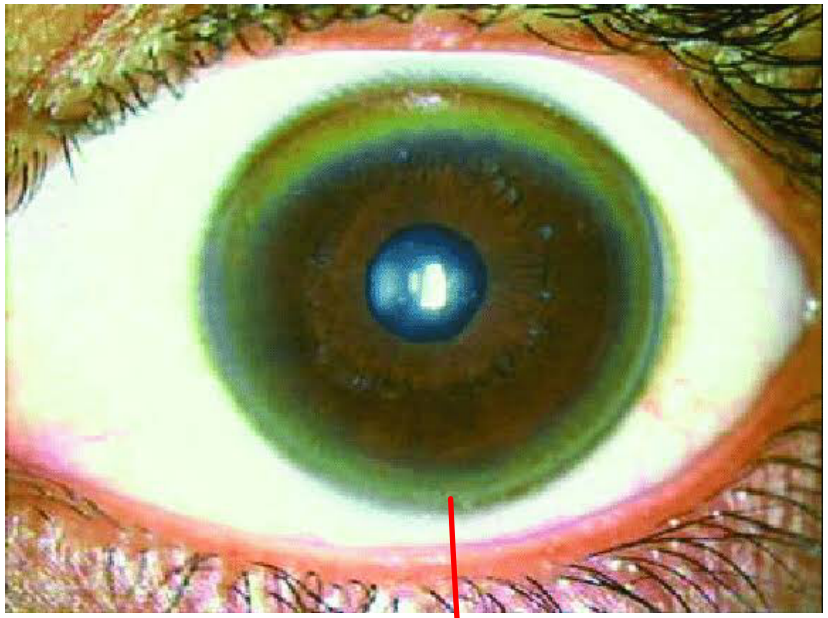
Calcium

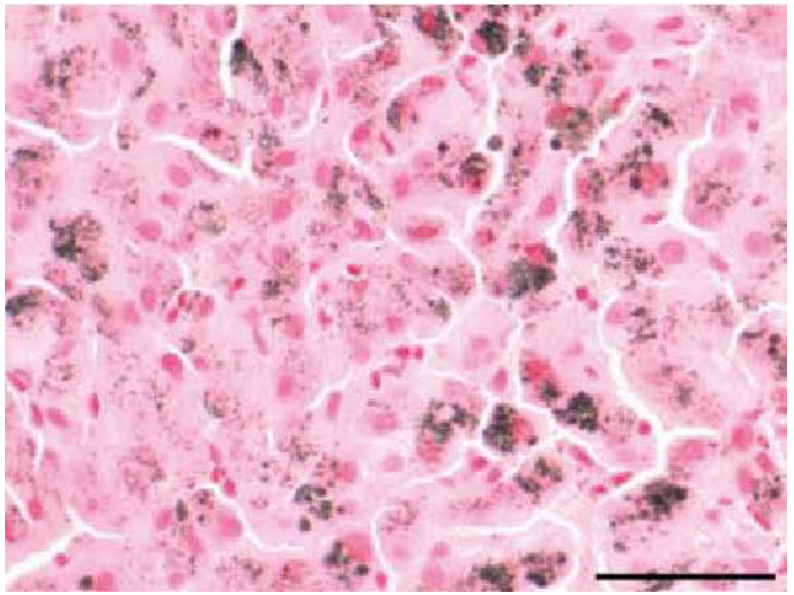
a. Hemosiderin

b. Sudan black

c. Von kossa

d. Rubeanic acid





C.L.D

Basal ganglia

KF Ring

WILSON

Cu ⇑

2. Cholesterol embolism occurs due to?

a. Trauma leading to fracture of long bones → Fat embolism

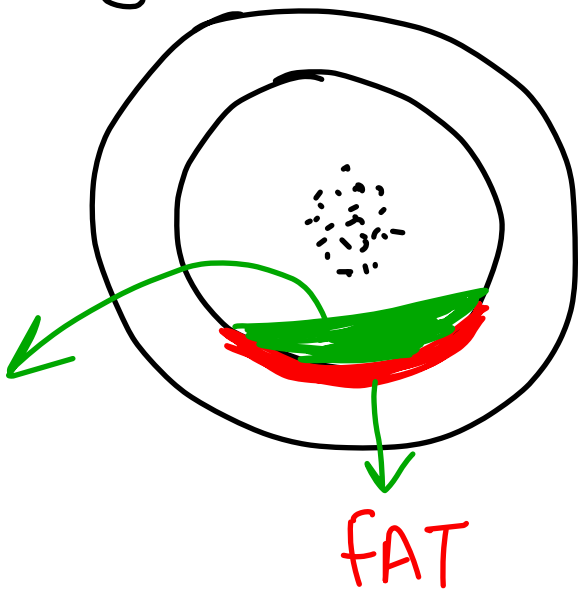
b. Worm infestation in lymphatics blocking chyle → Chyluria

c. Endothelial cell injury → Clot formation

d. Fissure of atherosclerotic plaque

↑ ATHEROSCLEROSIS

→ R.D +
→ CoMA



3. Donovan bodies are seen in?

a. Leishmania Donovani → KALA AZAR : LD Bodies

b. Granuloma inguinale

c. Lymphoma Hodgkins Reed Sternberg

d. Lymphoma Non- Hodgkins

Donovanosis
Beefy ulcer on Penis

Safety pin

Donovan Bodies

Clusters of blue- or black-staining, bipolar chromatin condensations in large mononuclear cells in granulation tissue infected with Klebsiella (Calymmatobacterium granulomatis).

4. Which stain is used for G banding in chromosome staining?

a. Congo red

b. Thioflavin T

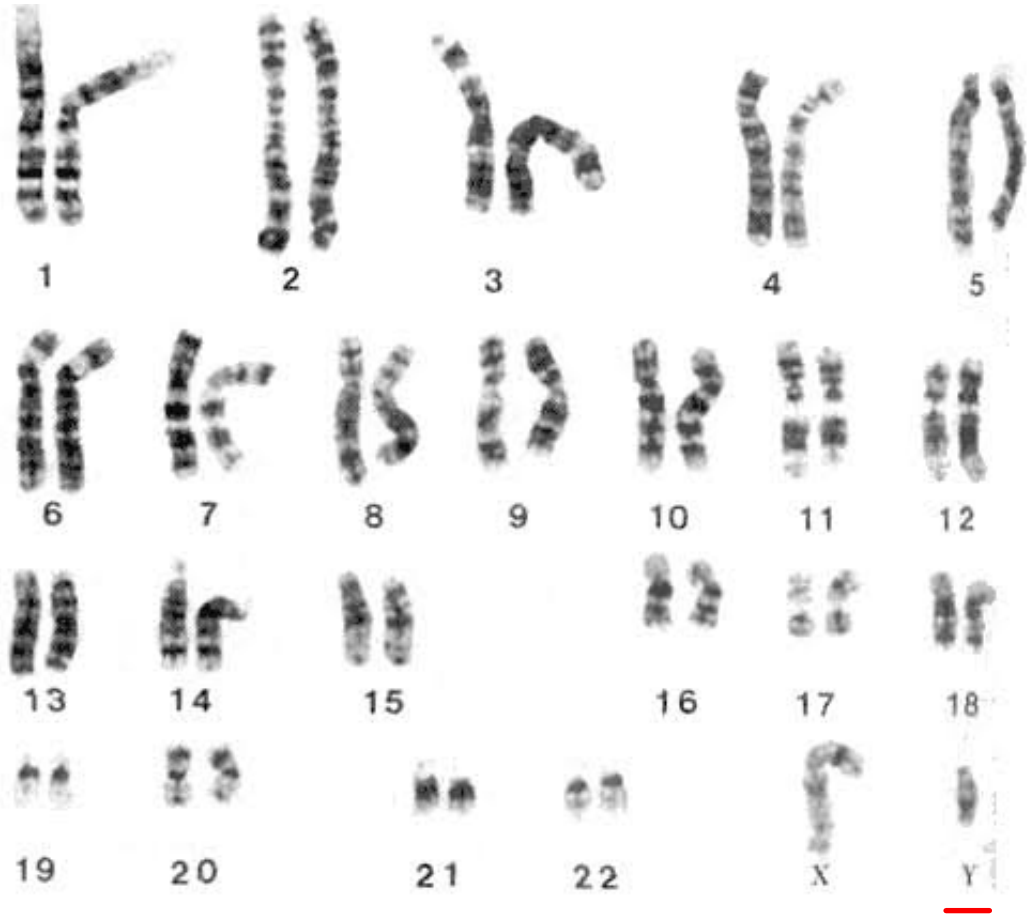
c. Giemsa

d. Quinacrine

amyloidosis

LARGEST

Q-Banding



→ Lines of Zahn

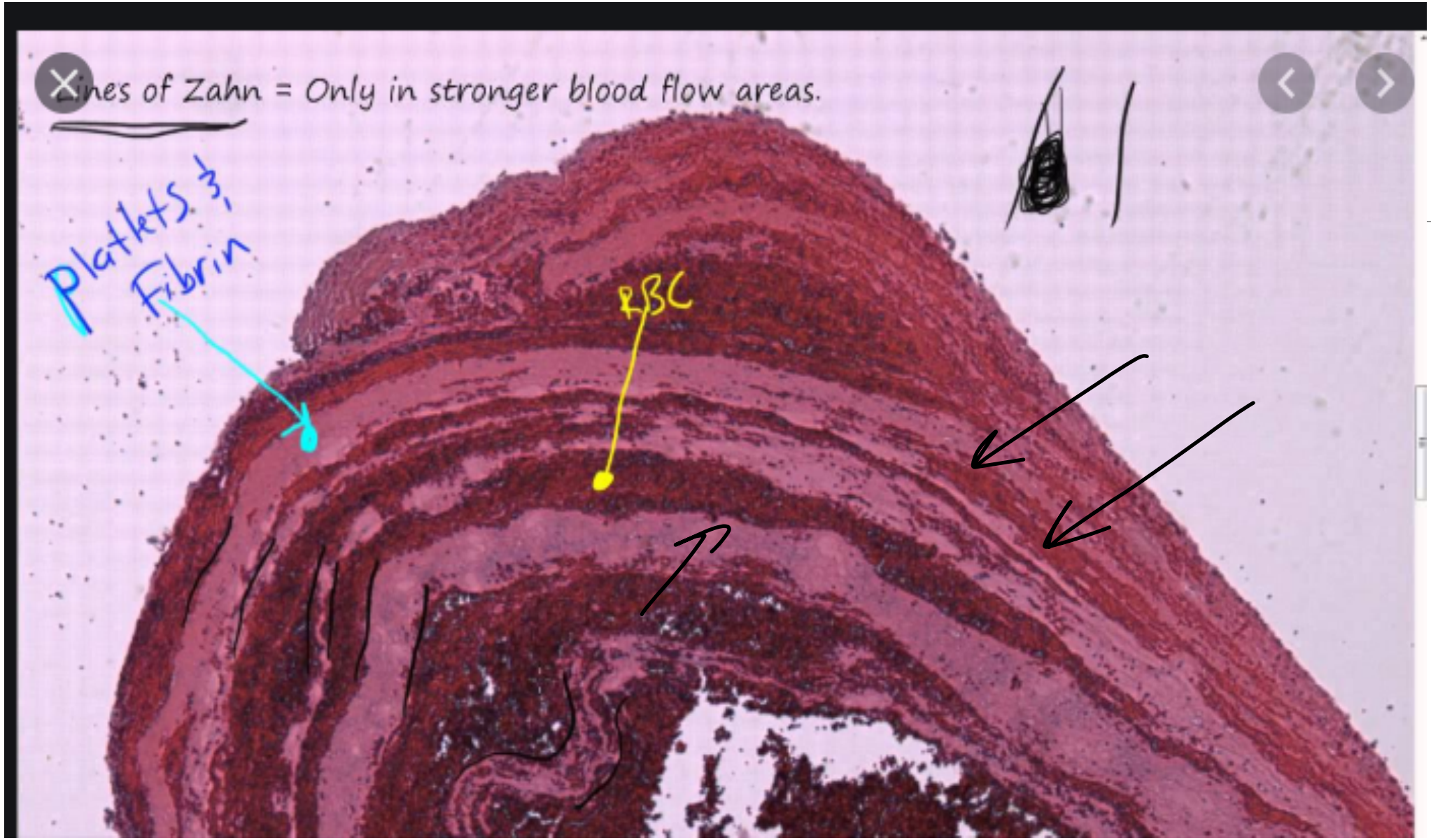
5. Coralline thrombus is seen in?

a. Arterial thrombosis

b. Venous thrombosis

c. Post mortem thrombosis → Chicken fat clot

d. Superficial thrombophlebitis


Lines of Zahn = Only in stronger blood flow areas.
Platlets & Fibrin
RBC

	Feature	Arterial Thrombi	Venous Thrombi
1.	*Blood flow*	Formed in rapidly-flowing blood of arteries and heart	Formed in slow-moving blood in veins
2.	*Sites*	Common in aorta, coronary, cerebral, iliac, femoral, renal and mesenteric arteries	Common in superficial varicose veins, deep leg veins, popliteal, femoral and iliac veins
3.	*Thrombogenesis*	Formed following endothelial cell injury e.g. in atherosclerosis	Formed following venous stasis e.g. in abdominal operations, child-birth
4.	*Development*	Usually mural, not occluding the lumen completely, may propagate	Usually occlusive, take the cast of the vessel in which formed, may propagate in both directions
5.	*Macroscopy*	Grey-white, friable with lines of Zahn on surface	Red-blue with fibrin strands and lines of Zahn
6.	*Microscopy*	Distinct lines of Zahn composed of platelets, fibrin with entangled red and white blood cells	Lines of Zahn with more abundant red cells
7.	*Effects*	Ischaemia leading to infarcts e.g. in the heart, brain etc	Thromboembolism, oedema, skin ulcers, poor wound healing

* most vulnerable To hypoxia = neurons

6. Which of the following cells is most resistant to ischemia?

---

a. Cardiac myocyte

b. Neuron → Brain dies within 4 minute of anoxia

c. Nephron → high metabolism, active Transport
Acute Tubular necrosis

d. Fibroblast

pulm edema ⇒ RBC lysis : hemosiderin

7. Brown induration of lungs is seen in?

a. Right heart failure

b. Left heart failure

c. Anthracosis

d. Berylliosis

Black pigment

Brown induration
Of lung seen in cut section

Wrong.

8. Which of the following is incorrect about Amyloidosis?

a. X ray crystallography shows a beta cross pleated sheath ✓

b. Nephrotic range proteinuria Kidney ✓

c. Sago spleen shows tapioca like granules ✓

d. Apple green birefringence on light microscopy with Schiff's reagent

Polarized " " Congo Red

I WILL BREAK ALCOHOL STATUS

Indian childhood cirrhosis, Wilson, P.B.C, Alcholic hepatitis

N.A.S.H

9. Correct about Mallory Hyaline bodies?

a. Aggregates of intermediate cytokeratin filaments in cytoplasm of hepatocytes

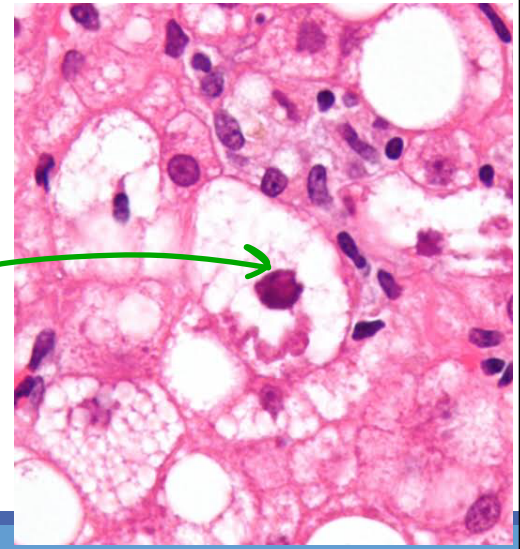
~~b.~~ Aggregates of Cytokeratin filaments in nucleus of hepatocytes

macrophage

c. Aggregates of intermediate cytokeratin filaments in cytoplasm of Kupffer cells

~~d.~~ Aggregates of Cytokeratin filaments in nucleus of Kupffer cells

eosinophilic cytoplasmic deposits



10. Correct about Ito cell in liver?

~~a.~~ Responsible for phagocytosis → KUPFFER cells

b. Storage of vitamin A

~~c.~~ Foamy macrophage in fatty liver

d. Lines intrahepatic bile ducts → Cholangiocytes

Stellate cells: fibrosis

11. Extrinsic pathway of clotting involves

a. Factor V

b. Factor 8

c. Caspase 8

d. Caspase 9

apoptosis

Injury to endothelial cells

VWF

Tissue glue

platelet adhesion

platelet aggregation

Extrinsic : 5, 7

intrinsic : 8

12. Stellate granuloma is seen due to infection with which of the following?

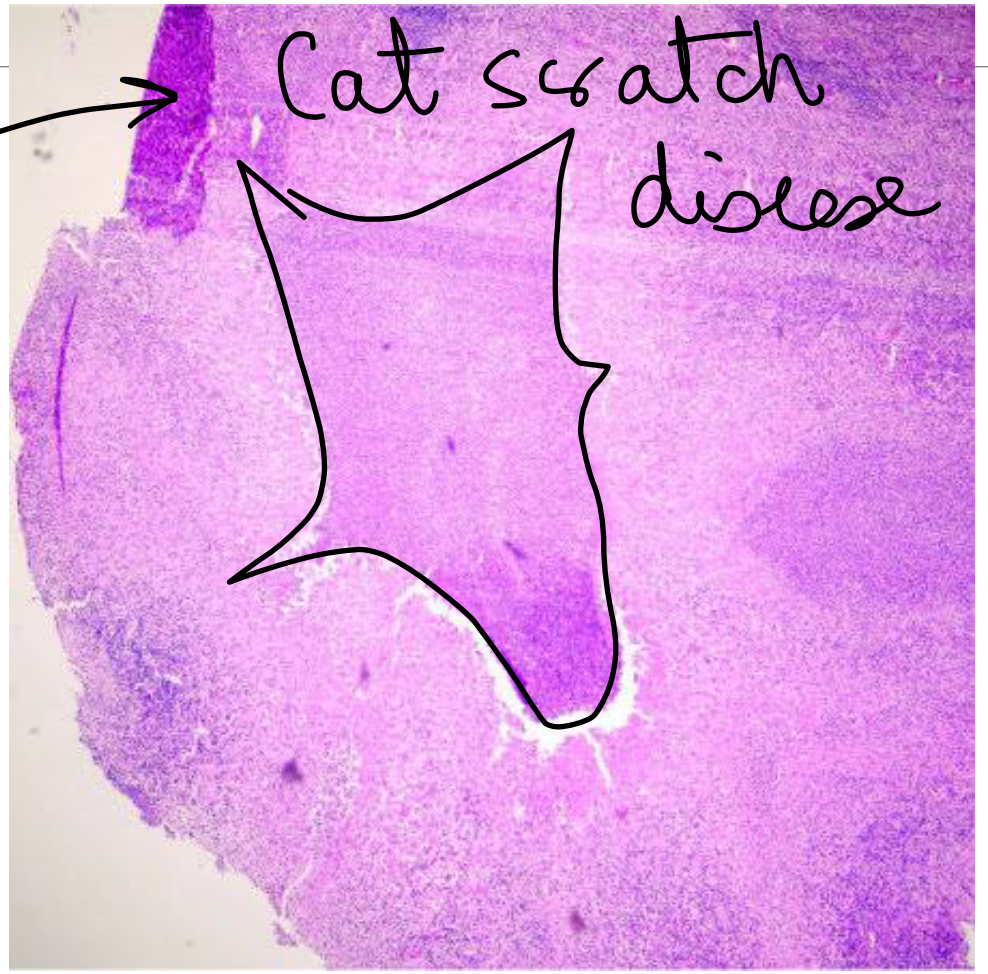
a. Nocardia Brain abscess

b. Treponema pertenue

c. Bartonella Henslae

d. Actinomyces

Bartonella quintana / Trench FEVER



13. Michealis gutman bodies are seen in:

a. Erthyroplakia / ORAL CAVITY

b. Leukoplakia

c. Malakoplakia : urinary bladder : cystitis

d. Reye syndrome

* Aspirin + VZ | influenza B
* ANICTERIC HEPATITIS
  S.Bil (n), SGOT ↑ GGPT ↑

14. Name the fixative used in routine histopathology?

a. Glutaraldehyde → Electron microscopy

b. Neutral buffered formalin

c. Hematoxylin eosin stain

d. Toluidine blue stain

Sporotrichosis Rose gardner disease

15. Asteroid bodies are seen in?

a. Silicosis

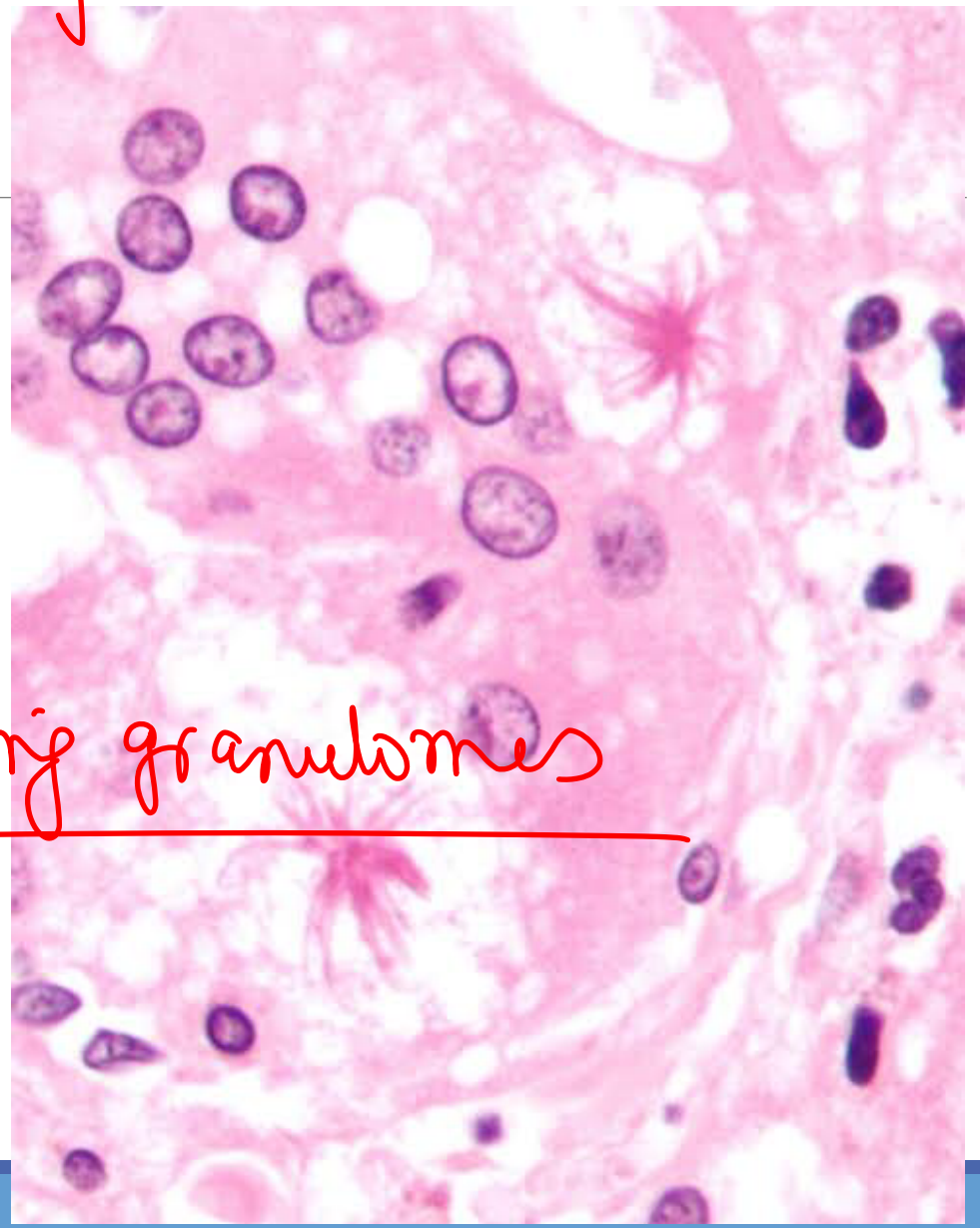
b. Anthracosis

c. Sarcoidosis

d. Coal workers' pneumoconiosis

Kveim Test

CT guided Bx : non caseating granulomas



16. Globi are found in?

CLUSTER OF Bacilli

a. TB

b. Leprosy

c. Yaws

d. Infectious mononucleosis

VIRCHOW cells

GLOBI

Skin Bx: BI

17. What is the function of Wiebel palade bodies?

a. Production of Von Wilebrand factor ↑ endothelial cells injury

b. Production of clotting factors by hepatocytes

c. Production of bile by intrahepatic cholangiocytes

d. Production of clotting factor by Stellate cells

VWF: plat adhesion

↳ TxA_2: plat aggregation

18. A 20-year-old boy says that he is very thin and has been losing weight. He has bulky foul -smelling greasy stools after every meal. Small intestinal mucosal biopsy shows Periodic acid Schiff' reagent positive intracellular bacteria visualized in lamina propria. What is the diagnosis?

a. Peptic ulcer disease

b. Bacterial overgrowth syndrome → ileum anaerobes

c. Whipple disease

d. Celiac sprue gluten autoimmune anti T.T.G

Whipple Triad insulinoma

Whipple operation 6 head of Pancreas

Steatorrhea Malabsorbtion

TROPHYERMA WHIPELLI : intra cellular bacteria in macrophages

Rx: CEFTRIAXONE COTRIMOXAZOLE

19. Prussian blue stain is used to demonstrate

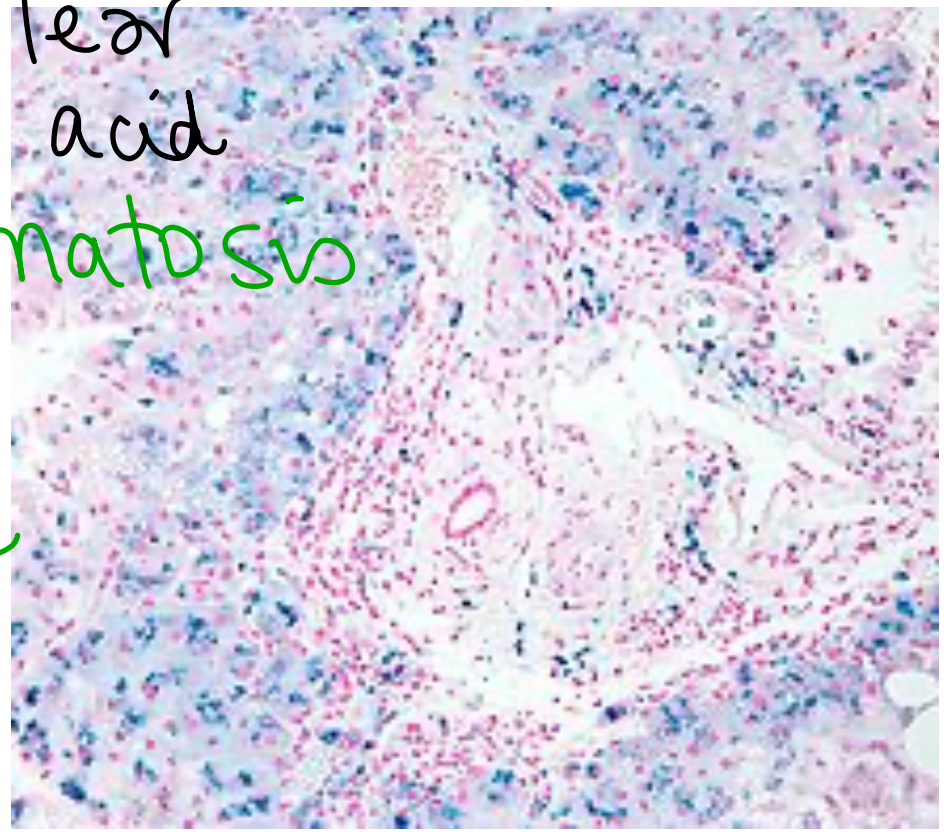
a. Lipofuschin Wear & Tear

b. Copper Rubeanic acid

c. Iron : Hemochromatosis

d. Melanin Fontana

Rx: deferoxamine
oral deferiprone



20. Emperipolesis is?

a. Active penetration of one cell by another which remains intact

b. Programmed cell death APOPTOSIS

c. Migration of leukocytes from the blood circulation to sites of inflammation DIAPEDESIS

d. Ingestion of microbes into phagosomes PHAGOCYTOSIS

Hardening of BV in old age

21.Monckeberg arteriosclerosis occurs in?

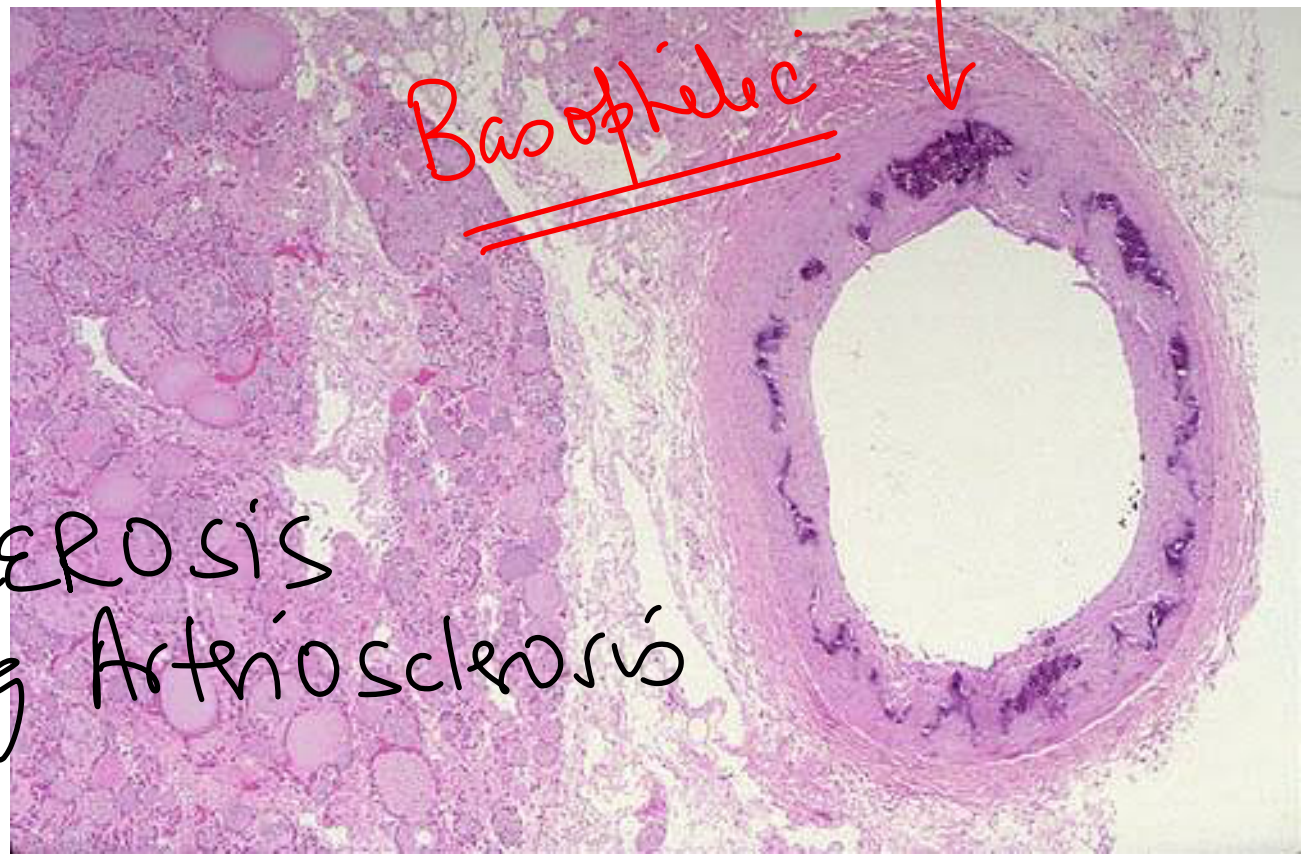
a. Tunica intima

b. Tunica media

c. Tunica adventitia

d. Internal elastic lamina

"Osseus metaplasia"



Calcification in BV

T. intima ⇒ ATHEROSCLEROSIS

T. media ⇒ Monckeberg Arteriosclerosis

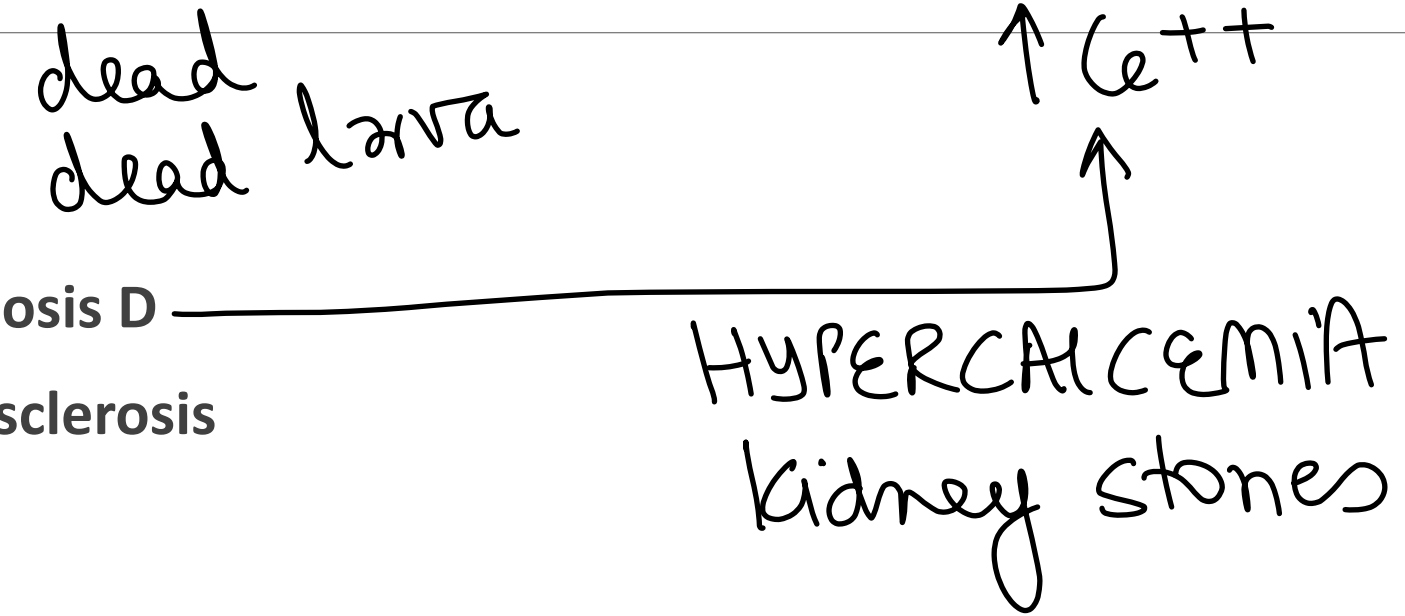
22. Which of the following is an example of metastatic calcification?

a. Post MI scar

b. Cysticercosis

c. Hypervitaminosis D

d. Monckeberg sclerosis



23. Which of the following does not exhibit physiological atrophy?

a. Thymus — Regressed by 2yr

b. Adrenal → Aldosterone, cortisol, DHEAS

c. Gonads → Post menopausal ♀

d. Brain → atrophy in AD / senile decay

24. Alpha fetoprotein is a tumour marker for?

a. Seminoma of testis

b. Non-seminomatous germ cell tumour of testis

c. Trisomy 21

d. Trisomy 18

✓

| DOWN ⇒ αFP ↑ in amniotic fluid

αFP: H.C.C | Non seminomatous testis Tumor

25. Acute auto-graft rejection occurs within?

a. Few hours

b. < 1 month

c. < 6 months

d. 6-12 months

HYPERACUTE Rej: minutes
Acute Rej: < 6 mth
chronic Rej. > 6 mth

immunomodulated / opportunistic infection

< 1mth: SSI
> 1mth - 6: P. JIROVECI, CMV
> 6mth: aspergillus, Polyome

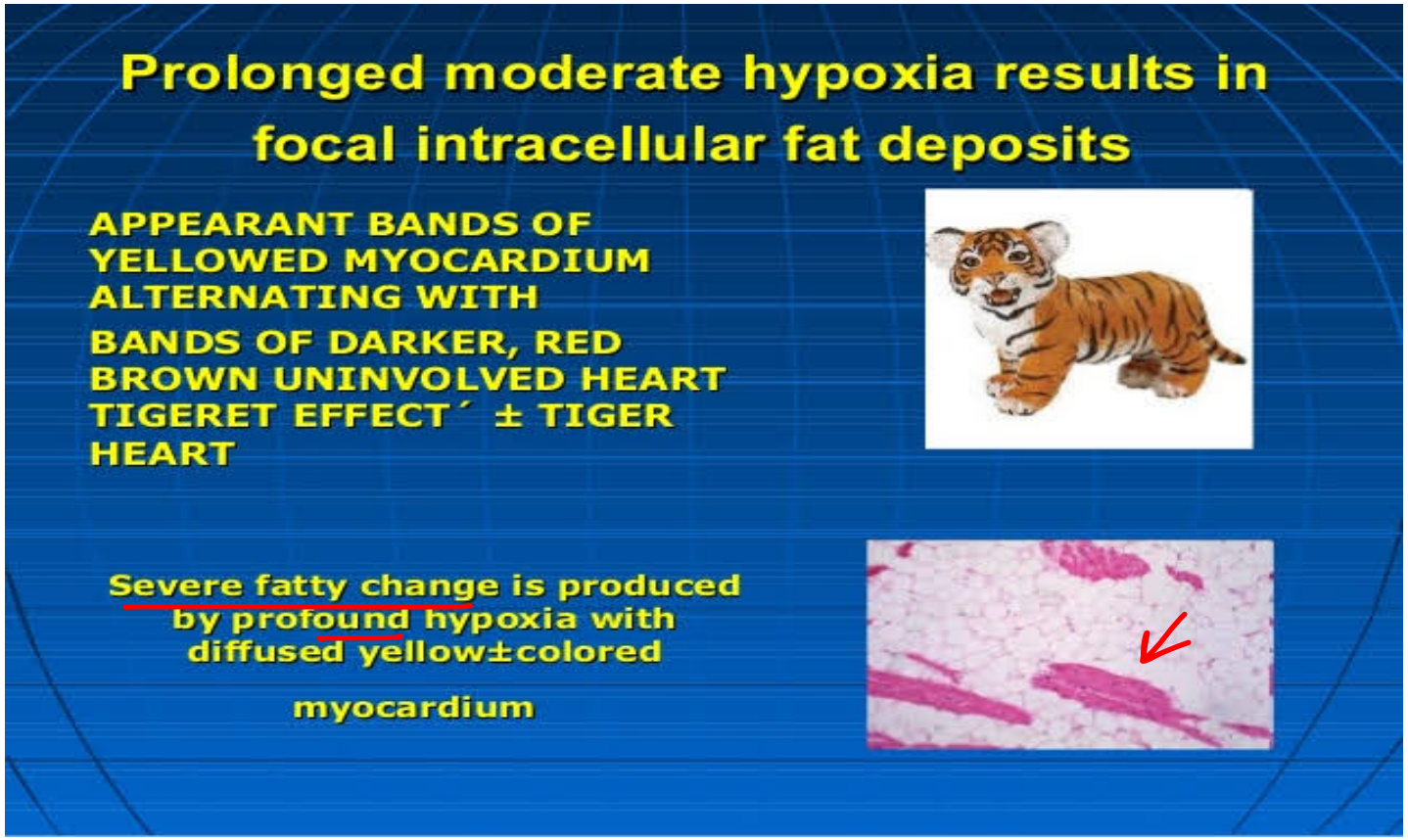
26. Tigered pattern of myocardium is found in?

a. Fatty changes in heart

b. Hibernating myocardium

c. Rheumatic heart disease

d. Hypercoagulable state



27. Antibody mediated cell cytotoxicity is mediated by?

a. Monocyte

b. Giant cells

c. T- suppressor cells

d. NK cell

(ADCC)

28. Predominant T cell is?

a. CD4+

b. CD8+

c. NK cells

d. Plasma cell

CD4 : CD8 RATIO = 2:1

29. A 30-year-old patient is admitted from rural india with symptoms of abdominal pain and fever for last 2 weeks. His blood culture is drawn with complete blood count and intravenous ceftriaxone with ofloxacin was started in the patient. Immediately the patient turned blue and had difficulty in breathing. Which of the following cells is responsible for the following presentation?

Enteric fever

anaphylactic shock

IL-4

a. Eosinophil

b. Basophil

c. Monocyte

d. Macrophage

30. Gene for HLA is located on?

a. 6p

b. 6q

c. 9p

d. 9q

gene for blood group = ch 9 q

Recurrent B.T

G.V.H.D

31. Which of the following is responsible for graft versus host reaction?

a. Recipient B lymphocytes

b. Donor T8 lymphocytes

c. Immune complexes

d. Recipient eosinophils

Donor T8 cells

↓

recipient organ damage

32. Gene for blood group is located at?

a. 6p

b. 6q

c. 9p

d. 9q

6p = HLA gene

9q = Bld gp gene

33. Amyloid accumulation in beta cells of pancreas is a feature of?

a. Chronic alcoholism induced Chronic pancreatitis

b. Type 2 diabetes mellitus : MC subtype of DM.

c. Maturity onset diabetes

d. Type 1 diabetes mellitus

(N)	I.G.T	D.M.
Fasting : < 100	100–125	> 126
2hr : < 140	140–199	> 200

mg%.

Helmet cells

MAHA

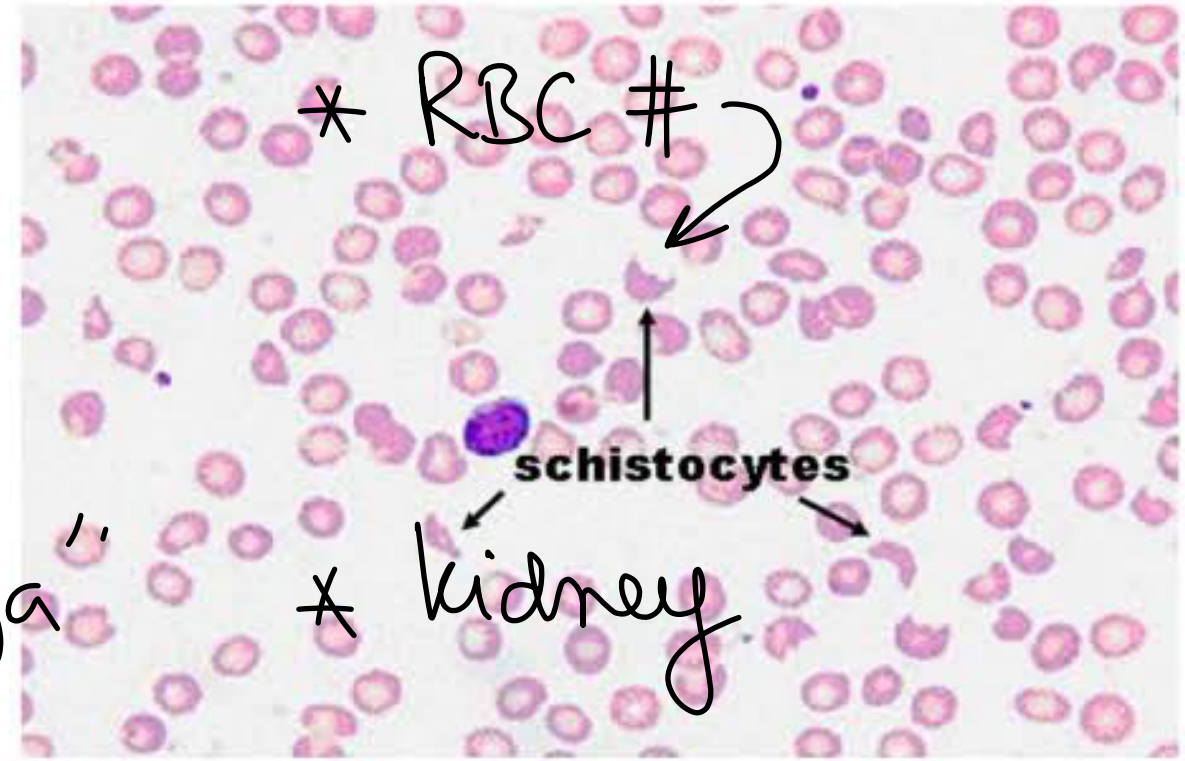
34. Microangiopathic haemolytic anemia is seen in?

a. Henoch scholein purpura

b. Haemolytic uraemic syndrome

c. Hereditary spherocytosis

d. Favism



H.U.S : EHEC
Verocytotoxin / Shiga
Complement ⊕

AIHA: spherocytes	MAHA: schistocytes

35. A 75 year- old man has developed Amnesia, apraxia and anosoagnosia. Which of the following would be found on post mortem?

a. ATTR deposition in neurons

b. Aβ deposition inter-neuronal

c. A procalcitonin deposition intra-neuronal

d. $Aβ_2$ deposition in synovium and tendon sheath

Alzeihmer's
4A AMNESIA
APHASIA
APRAXIA
ANOSOAGNOSIA

Aβ amyloid

$Aβ_2$ amyloid ⇒ dialysis dementia

36. Contraction of endothelial cells occurs due to increased vascular permeability. Which blood vessels are involved in this leakiness?

a. Arterioles

b. Capillaries

c. Venules

d. All of the above

CD 61 ⇒ platelets

37. CD62 is?

a. P- selectin

b. PECAM → CD 31

c. ICAM

d. Integrin

CD 30 = Reed Sternberg cell

CD 15 =

15 30 → RS cell

31 → PECAM

61 → platelet

62 → P- selectin

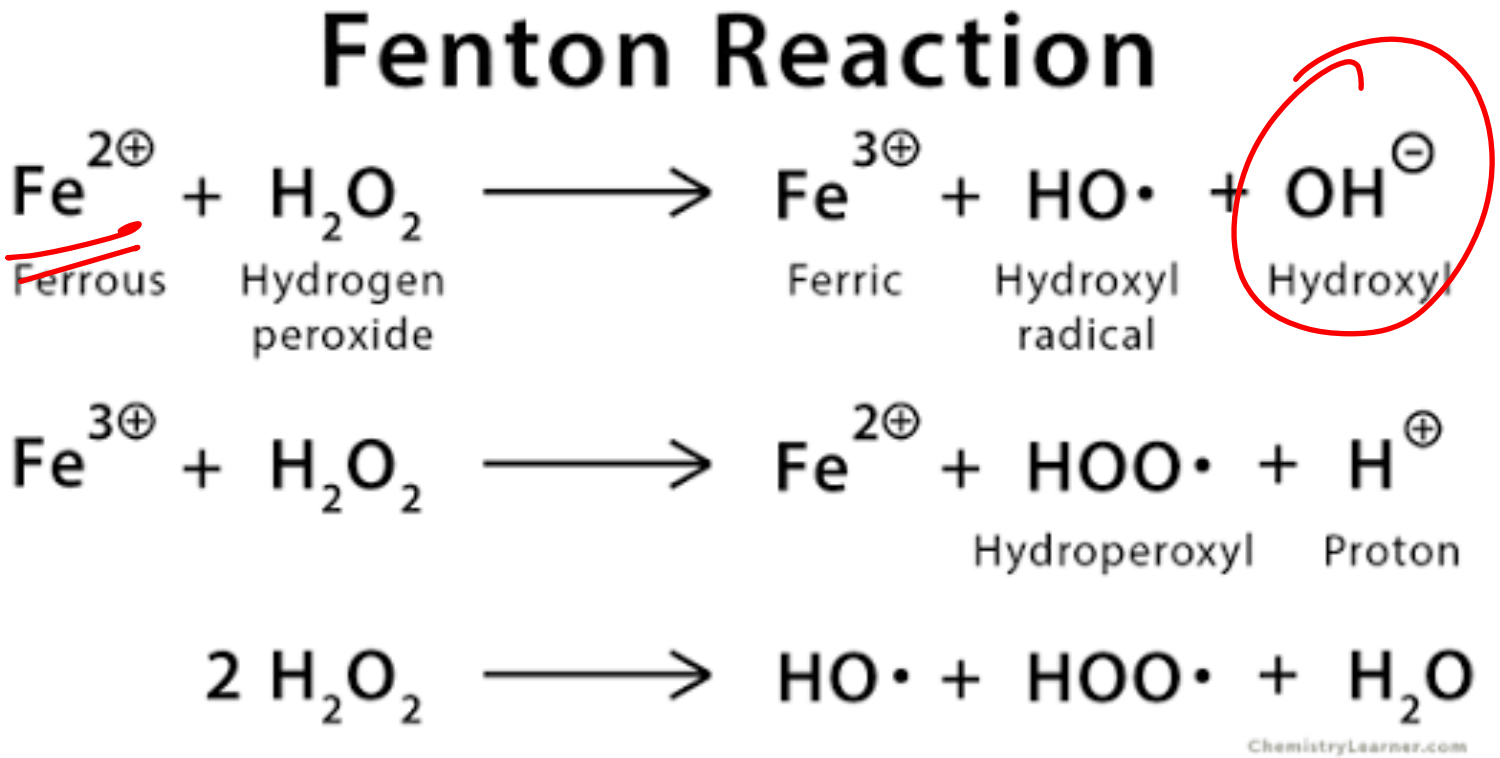
38. Fenton reaction occurs in presence of?

a. Fe^{++}

b. Superoxide radical

c. Myeloperoxidase

d. Cobalt



N:C RATio ↑, intense basophilic

39. Which of these is a Feature of cancer cells is?

a. Pleomorphism → varying size of cells

b. Prominent nucleoli

c. Aisonucleosis → varying nucleus size

d. All of these

PPM

40. Ret proto-oncogenene leads to?

MEN 2A

a. Glioblastoma

b. Sipple syndrome

c. Carcinoma breast

d. CML

→ Parathyroid adenoma
Pheochromocytoma
Medullary Ca of Thyroid

41. MHC antigen is absent in?

a. Neutrophil

b. Epithelial cell

c. RBC

d. Thrombocyte

42. Most reactive free radical?

a. Hydrogen peroxide

b. Hydroxyl free radical

c. Peroxide free radical

d. Superoxide Anion

43. ABO blood group is an example of?

a. X linked Inheritance

b. Autosomal recessive

c. Mitochondrial Inheritance

d. Codominance

44. Anticipation is seen in?

a. Fragile X syndrome

b. Prader wili syndrome

c. Angelman syndrome

d. Tay Sach disease

severity ↑ in sucessive generations

Huntington's chorea

45. Virchow cells are seen in?

a. Leprosy

b. TB

c. Malignancy

d. Cat scratch disease

GLOBI / VIRCHOW cells

↓

CLUSTER OF BACILLI

neuron specific enolase

46. Immuno-stain for neural tumours

a. NSE : → TUMOR MARKER : Oat cell Ca lung. Neuroblastoma

b. HMB-45 → Human melenome black : malignint melenome

c. Epithelial membrane antigen → CARCINOMA

d. GFAP → glial fibrillary acid protein

47. HTLV-1 leads to?

a. Tropical spastic paraparesis

b. B-cell ALL

c. Mantle Cell lymphoma

d. Follicular lymphoma

HTLV-1

adult T cell leukemia

Tropical spastic paraparesis

EBV

HL, NHL, BURKITT

NPC

48. Endometriosis is an example of?

a. Choriostoma

b. Hamartoma

c. Desmoplasia

d. Anaplasia

→ (n) Tissue at ab(n) site

Meckel's D

Stomach mucosa at 2 feet frm ileocaecal jt

Pancreatic mucosa

49. Most lethal of these hemoglobinopathies is?

a. HbH disease

b. Hb Barts : fetal life : S. anemia : LVF : hydrops fetalis

c. Hb E disease

d. Thalassemia major : CHF : < 6 mth

α Thalassemia

50. Best to differentiate between intravascular and extravascular hemolysis?

a. Ferritin STORAGE

b. Hepcidin Regulator of iron metabolism

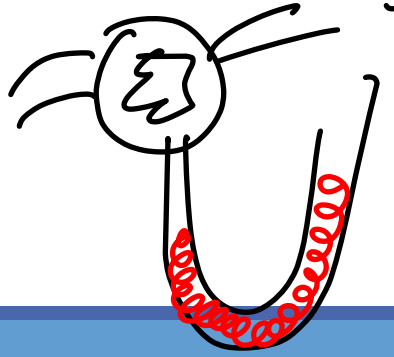
c. Transferrin Transport

d. Haptoglobin

↳ ⊖ : intravascular consumption

G6PD def: Primaquine : intravascular hemolysis

Haptoglobin ↔ free Hb



A·T·N

SPREAD

51. Most reliable feature of malignancy?

a. Pleomorphic cells — DYSPLASIA

b. Intense basophilia — ANAPLASIA

c. Loss of polarity — DYSPLASIA

d. Break of basement membrane and cell dissemination — metastasis

52. Most common type of metaplasia?

a. Columnar to squamous

b. Squamous to columnar

c. Squamous to pseudostratified columnar

d. Columnar to pseudostratified squamous

achalasia cardie

Smoker : lung

↓

Columnar → Squamous

53. Calcification of tunica intima is a feature of?

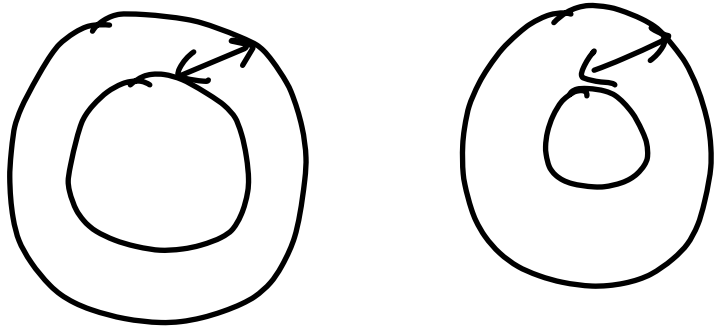
a. Atherosclerosis : INTIMA: FIBROUS CAP + FAT

b. Arteriosclerosis : MEDIA THICKENING

c. Monckeberg arteriosclerosis → Calcific^{N} : Tunica media

d. Hyaline arteriosclerosis

Tunica media ⇑



54. Which of the following does not contribute to cellular Senescence?

a. Telomere attrition ✓

b. Cell cycle arrest ✓

c. Activation of tumour suppressor genes ✓

d. Respiratory burst : PHAGOCYTOSIS

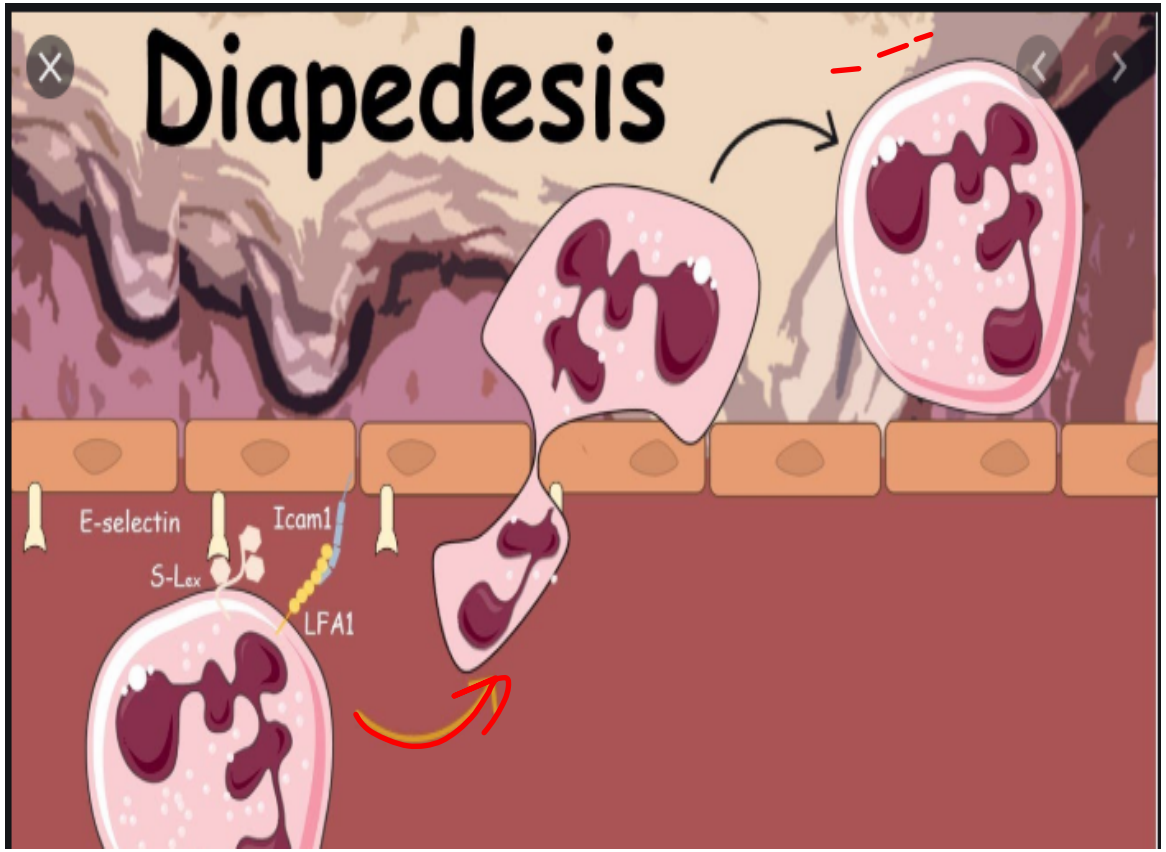
55. Diapedesis is mediated by?

a. CD21

b. CD30 – RS cell

c. CD31

d. CD45 → WBC



apoptosis

56. Executioner phase of caspase is mediated by?

a. Caspase 3 and caspase 6

b. Caspase 3 and caspase 8

c. Caspase 8 and caspase 9

d. Caspase 8 and caspase 10

EXECUTION PHASE

- Final phase of apoptosis
- Mediated by proteolytic cascade
- After initiator caspases (2, 8, 9 and 10) are cleaved to generate its active form, the enzymatic death program is set in motion by rapid sequential activation of the **executioner caspases – 3,6**

DNA #

- Caspase -3 activates **DNase** which causes **degradation of chromosomal DNA within the nuclei and causes chromatin condensation.**
- Caspase -3 induces cytoskeletal reorganisation and disintegration of cell into **apoptotic bodies**.

57. Mode of death in reperfusion injury is?

a. Apoptosis

b. Necroptosis

c. Pyroptosis

d. Autophagy

free Radicals

58. Pain is mediated via?

a. Histamine : VD: INSECT BITE, ALLERGIC Reaction

b. Lymphotactin

c. Leukotrienes : Asthma

d. Prostaglandin → Pain: NSAIDS

59. Anticipation is seen in?

a. Fragile X syndrome

b. Prader wili syndrome

c. Angelman syndrome

d. Tay Sach disease

60. Large granular lymphocytes are?

a. Dendritic cells

b. Natural killer cells

c. Cytotoxic T lymphocytes

d. Regulatory T lymphocytes

Master of immune syptm

lymphocytes

NK cells: VIRUSES, ADCC, Large granular lymphocytes

61. Most organ involvement in Amyloidosis leads to? kidney

a. Nephrotic range proteinuria

b. Nephritic syndrome

c. Restrictive cardiomyopathy

d. Senile dementia

AL : MC : ass c̄ M. myeloma

AA : chronic disease : RA | UC | CD

Aβ : AD

$A\beta_2$: dialysis dementia

MC organ involved in amyloidosis → death : heart / RCM

62. High N:C ratio and hyperchromasia is a feature of?

a. Anaplasia ✓

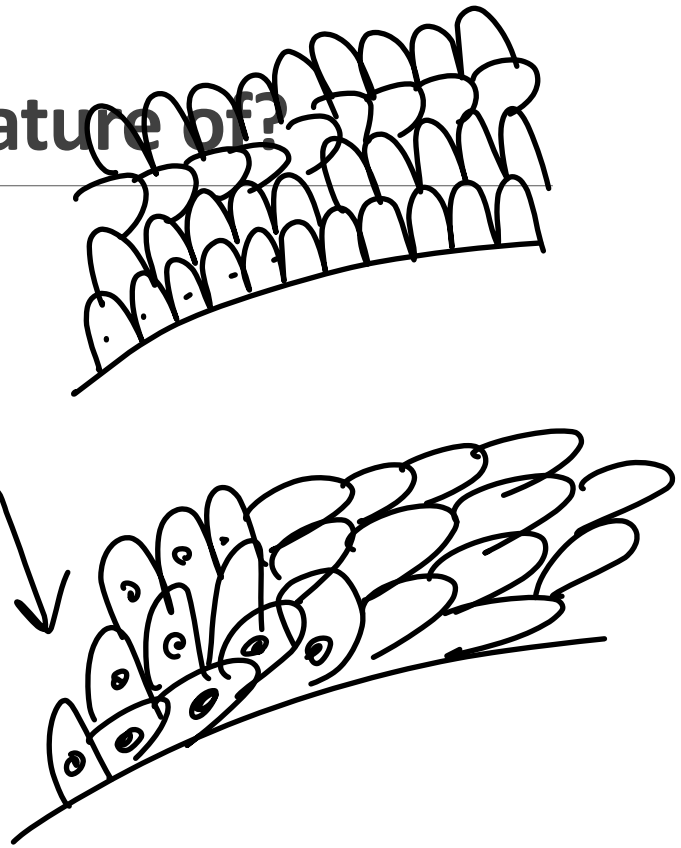
b. Metaplasia → change of epithelium Polarity

c. Dysplasia → change of

d. Malakoplakia

↓

BLADDER



63. Most common cancer in the developed world in men is?

a. Prostate

b. Lung

c. Colorectal

d. Skin

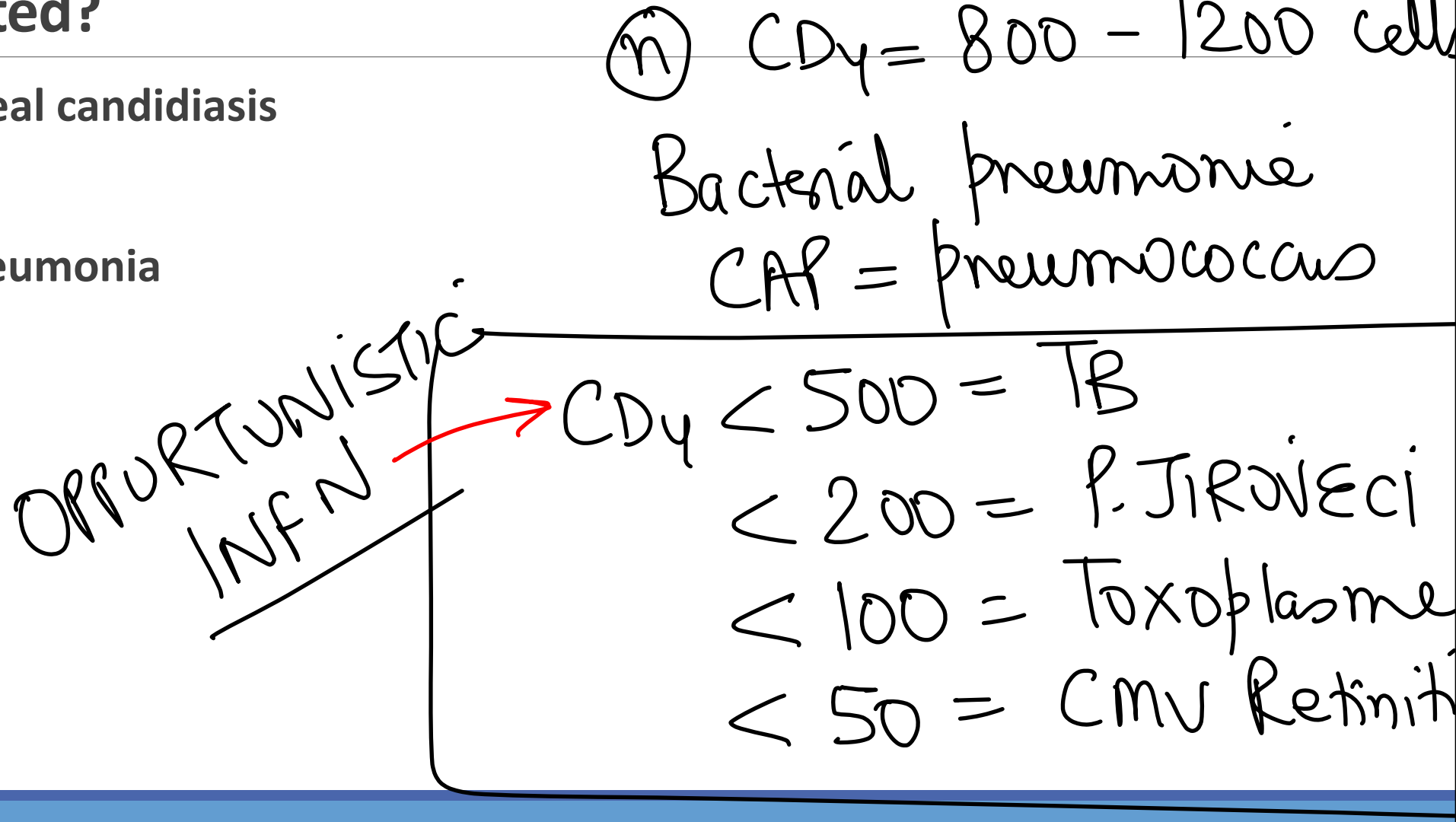
64. Commonest presentation of AIDS in case of cART not being initiated?

a. Orophyrangeal candidiasis

b. P. Jiroveci

c. Bacterial pneumonia

d. Tuberculosis



65. Which of the following is not a hypercoagulable state?

a. Antiphospholipid syndrome → anti β2 glycoprotein A/b

b. Factor V leiden mutation

c. Nephrotic syndrome LOSS OF PROTEIN C/PROTEIN S, AT III

d. Hepatic fibrosis

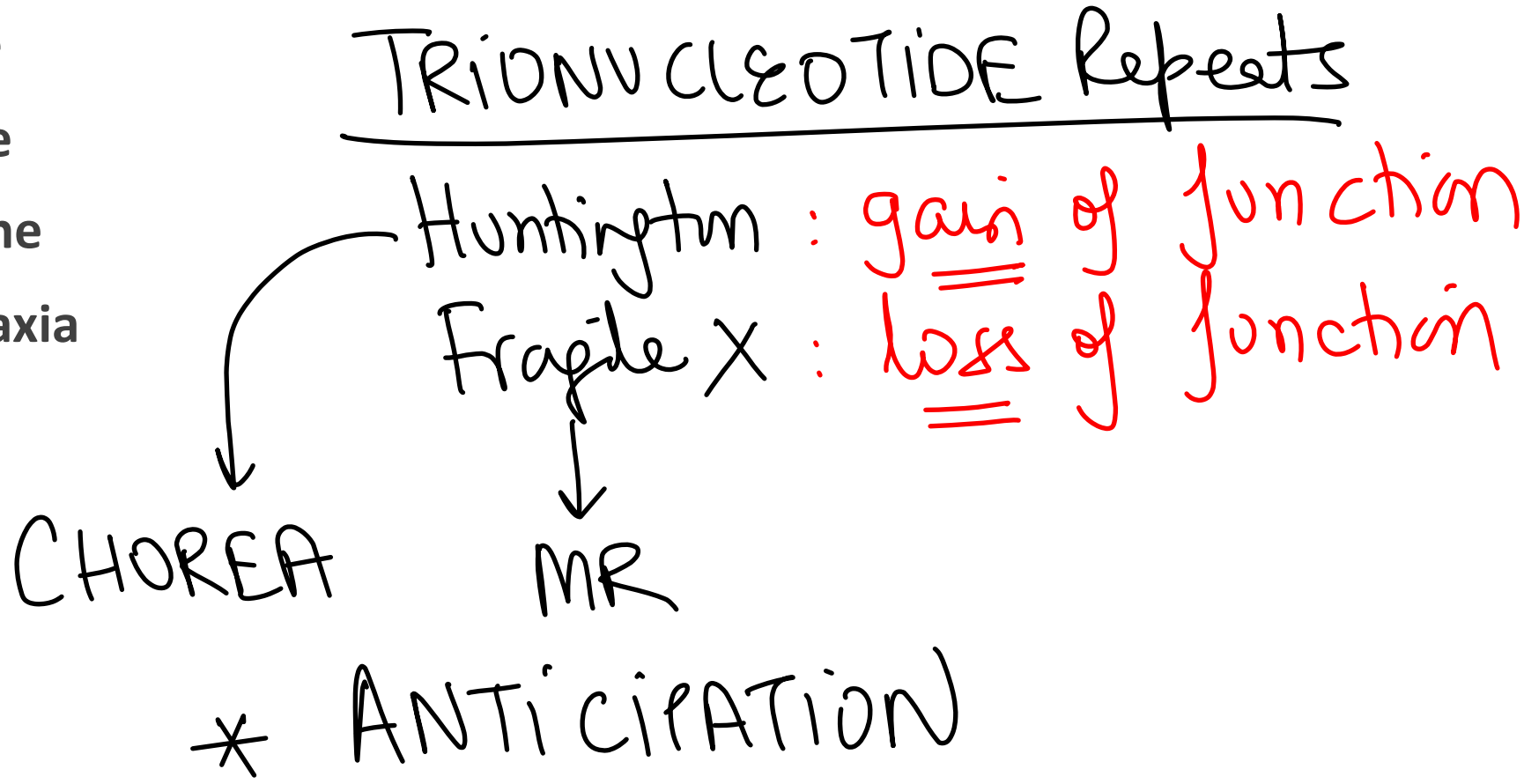
CIRRHOSIS

Clotting factor ↓: Bleeding

→ Protein C ⊄ factor V activity unopposed

66. Trinucleotide repeats with loss of function is seen in?

a. Fragile X syndrome
b. Huntington disease
c. Klinefelter syndrome
d. Spinocerebellar ataxia



67. Virchow robin spaces are found in?

a. Brain

b. Lymph nodes

c. Heart

d. Thymus

VIRCHOW TRIAD : CLOTS
VIRCHOW Node: TROISER sign
VIRCHOW Cells: leprosy
VIRCHOW Robin space: Brain

68. Type II Hypersensitivity is seen in?

a. Serum sickness

b. Arthus phenomenon

c. Pathergy phenomenon

d. Pernicious anaemia

Type III

"

: Behcet : Type IV

: Type A gastritis : @anti parietal cell A/b

@achlorhydria

B_{12} absorbtion ↓

IF

autoimmune

69. Which chromosomal translocation leads to Acute lymphoblastic Leukemia?

a. t(9:22) → philadelphia ch: CML / ALL

b. t(8:14) → BURKITT

c. Trisomy 21

d. t(15:17) → M_3 AML

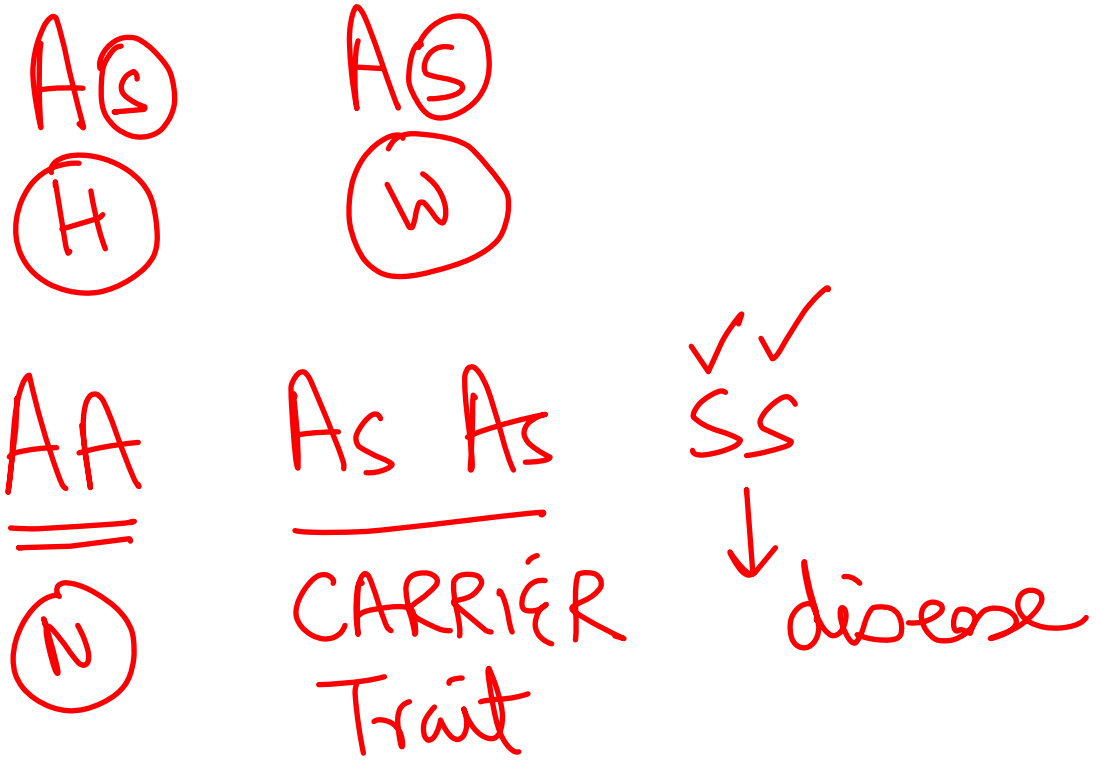
70. Consanguinity seen with pattern of inheritance?

a. AR

b. AD

c. XLR

d. XLD



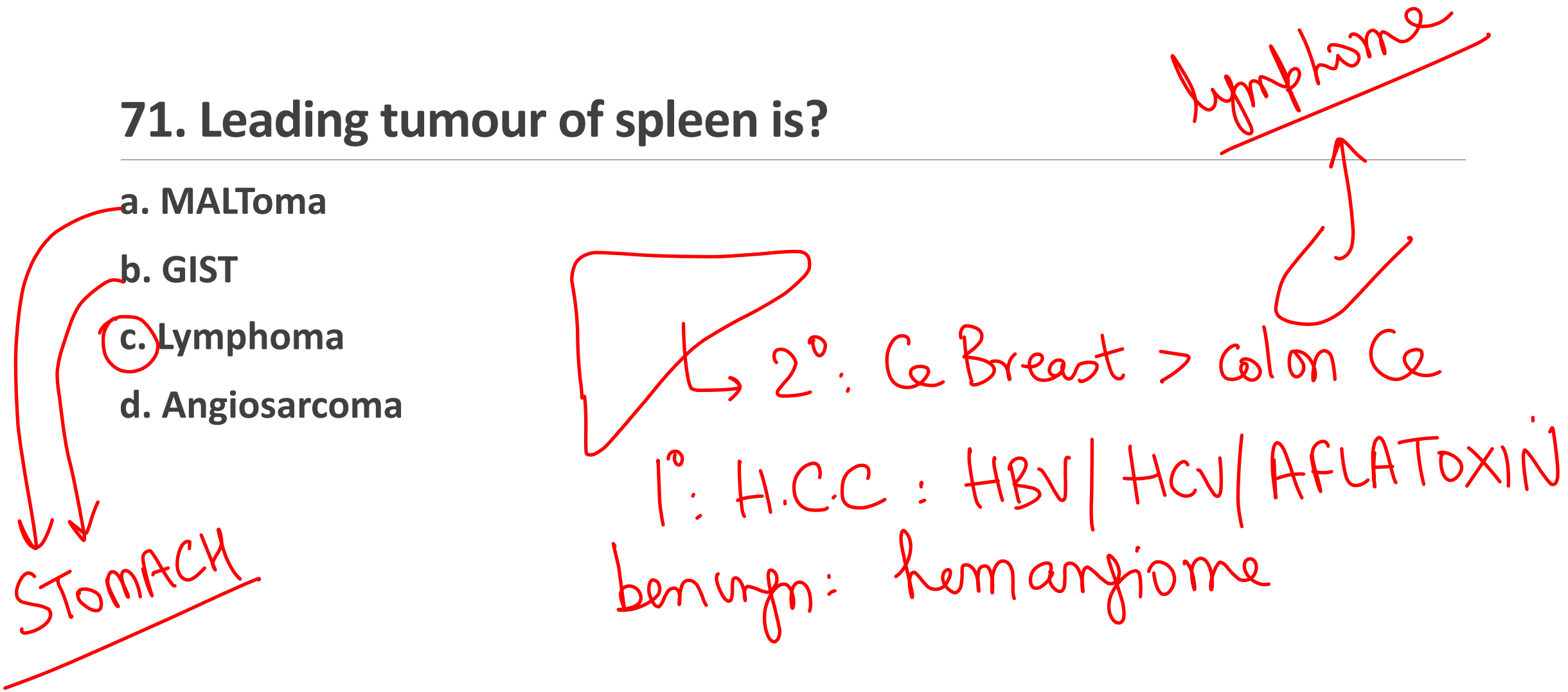
71. Leading tumour of spleen is?

a. MALToma

b. GIST

c. Lymphoma

d. Angiosarcoma



72. Which is correct about matching of carcinogenic agent with development of a particular malignancy?

a. Hepatocellular carcinoma: polycyclic aromatic hydrocarbons

↳ SMOKING

b. Stomach cancer: Nitrosamines

c. Lung cancer: Aflatoxin B

d. Bladder cancer: Benzene

↓

ALL, AML

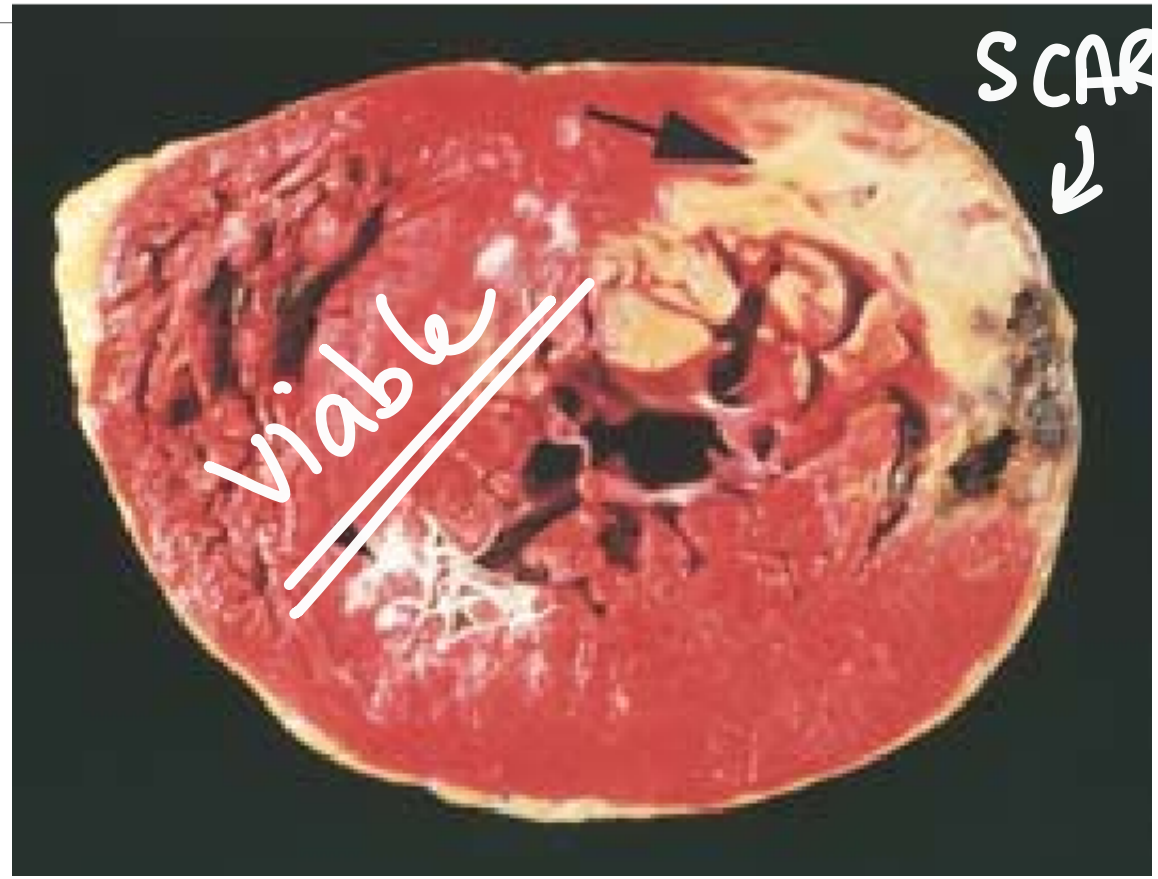
73. Triphenyltetrazolium chloride is used to study damage to heart due to MI. Which is correct about this histochemical staining?

a. Red brown colour to the infarct tissue

b. Blue colour to infarct tissue

c. Failure to uptake stain

d. Concentric circles of uptake



* C5-9 = M.A.C
membrane attacle complex

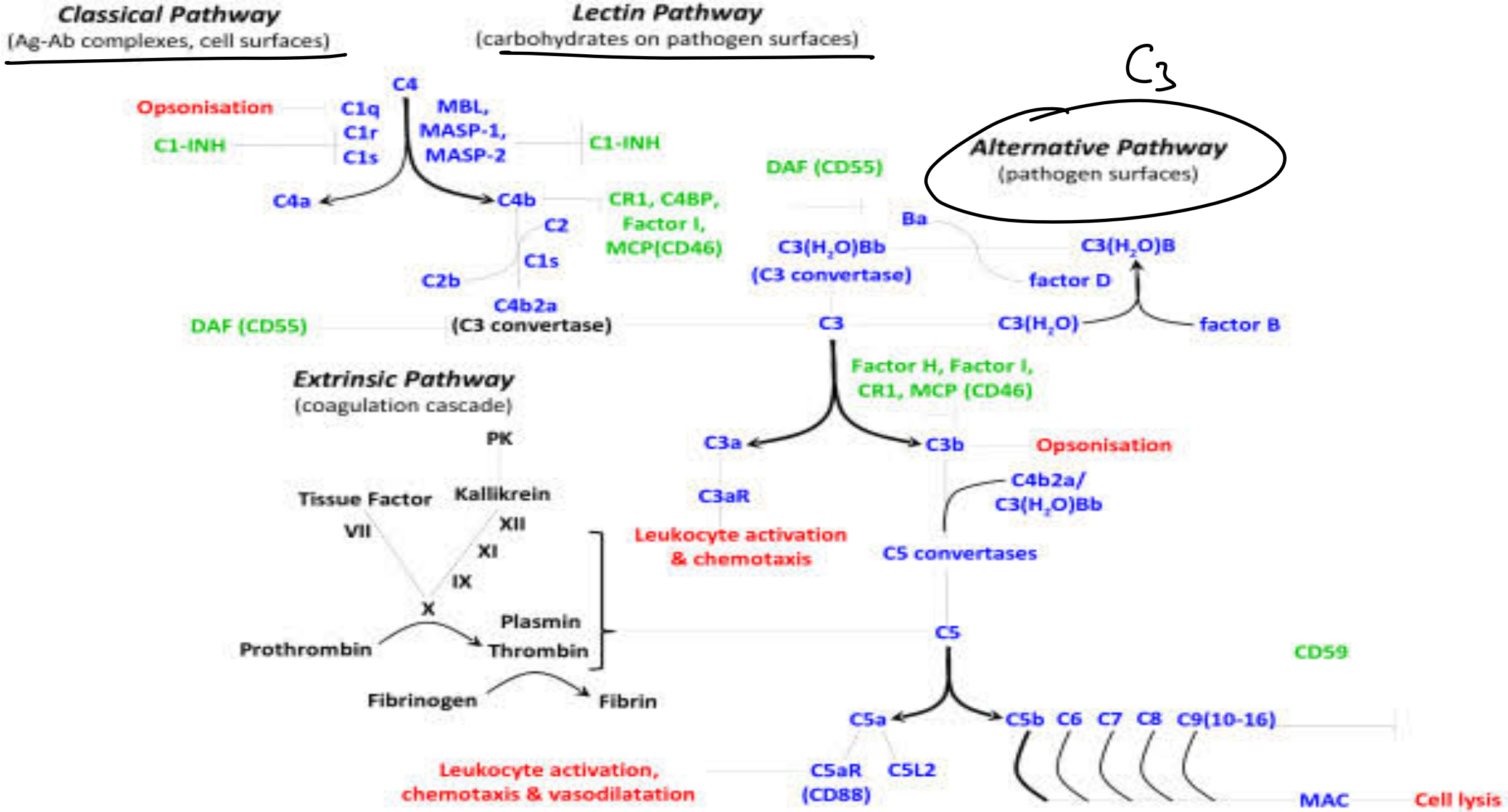
74. Classical pathway begins with?

a. C3a
b. C3b
c. C5a
d. Ag and Ab complex

* ANAPHYLATOXINS

* C5-9 ↓ deficiency
meningococcal meningitis

* OPSONIZATION


Classical Pathway
(Ag-Ab complexes, cell surfaces)
Lectin Pathway
(carbohydrates on pathogen surfaces)
C3
Alternative Pathway
(pathogen surfaces)
C4
Opsonisation
C1q
C1r
C1s
C1-INH
MBL,
MASP-1,
MASP-2
C1-INH
C4a
C4b
CR1, C4BP,
Factor I,
MCP(CD46)
C2
C1s
C2b
C4b2a
(C3 convertase)
DAF (CD55)
DAF (CD55)
Ba
C3(H2O)Bb
(C3 convertase)
C3(H2O)B
factor D
C3
C3(H2O)
factor B
Factor H, Factor I,
CR1, MCP (CD46)
Extrinsic Pathway
(coagulation cascade)
PK
C3a
C3b
Opsonisation
Tissue Factor
Kallikrein
C3aR
C4b2a/
C3(H2O)Bb
VII
XII
XI
IX
X
Leukocyte activation
& chemotaxis
C5 convertases
Plasmin
Prothrombin
Thrombin
C5
CD59
Fibrinogen
Fibrin
C5a
C5b
C6
C7
C8
C9(10-16)
Leukocyte activation,
chemotaxis & vasodilatation
C5aR
(CD88)
C5L2
MAC
Cell lysis

75. All are highly premalignant conditions of oral cavity except?

a. Chronic hyperplastic candidiasis

b. Oral submucosal fibrosis → GUTKA

c. Oral lichen planus

d. Leukoplakia

76. “Owl eye appearance of cells” noted in lung biopsy specimen is indicative of diagnosis of?

a. Non-Hodgkin lymphoma

b. Mixed cellularity subtype of Hodgkins lymphoma

c. Histoplasmosis

d. CMV infection

Owl eye : LN Bx : Reed sternberg cell