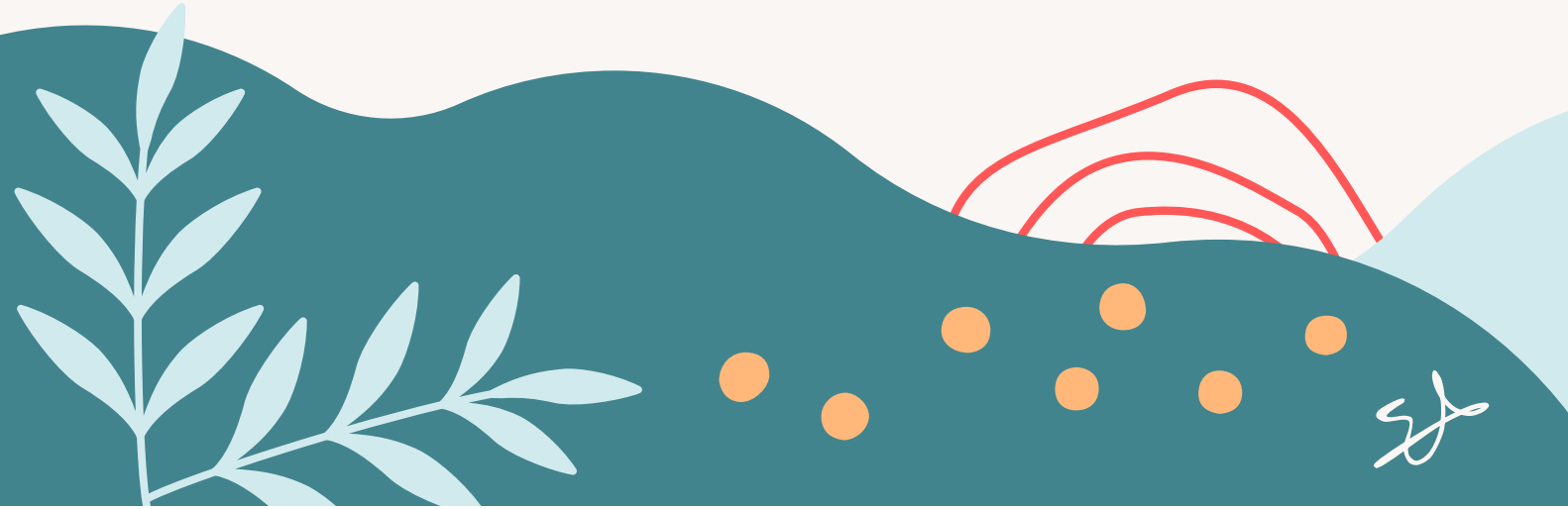


PATHOLOGY SUMMARY

HLS – FINAL
2023–2024
DONE BY EBAA



sj



BLEEDING DISORDERS

steroid + scurvy + Vasculitis + spontaneous petechiae + normal tests =

FRAGILE BLOOD VESSELS

Thrombocytopenia, prolonged PT and PTT, schistocytes, ecchymosis, severe hemorrhage + obstetric complication =

Acute DIC

Thrombocytopenia, prolonged PT and PTT, schistocytes, recurrent thrombosis + cancer related =

Chronic DIC

meningococcus sepsis, DIC, adrenal hemorrhage = acute adrenal failure (no steroids, hypotension) =

Waterhouse-Friderichsen syndrome

complicated labor → DIC → severe hemorrhage → pituitary ischemia and necrosis

Sheehan syndrome

ADAMTS13 mutation, vWF multimer, fever, thrombocytopenia, microangiopathic hemolytic anemia, renal failure and neurologic symptoms

TTP

E. Coli O157:H7, kidney endothelial damage, fever, thrombocytopenia, microangiopathic hemolytic anemia, renal failure

HUS

Autosomal dominant, ecchymosis, easy bleeding and menorrhagia, Affects platelets + factor 8

VON WILLIBRAND DISEASE

X-linked disease, Deficiency in factor 8 <1% spontaneous bleeding, Bleeding in cavities, no petechiae

HEMOPHILIA A

Christmas disease, LESS common, deficiency of factor 9

HEMOPHILIA B

autoantibody (IgG) against glycoprotein lib/IIIa or Ib/IX, spleen destroys cells, BM proliferating + VIRAL + children

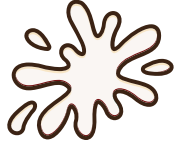
acute immune TP

autoantibody (IgG) against glycoprotein lib/IIIa or Ib/IX, spleen destroys cells, BM proliferating + middle-age women

chronic immune TP

after 1-2 weeks of high-molecular weight heparin therapy, consumptive thrombocytopenia

heparin induced thrombocytopenia



NON-NEOPLASTIC WBC DISORDERS

neutrophils less than 500 leads spontaneous infections

neutropenia

painful enlargement of lymph nodes , necrosis , abscess

acute lymphadenitis

painless enlargement of lymph nodes , necrosis , abscess

chronic lymphadenitis

sinus - cancer

B cells

T cells

rheumatologic , toxoplasmosis , HIV EBV

bartonella Hensele , cats , children , necrosis of lymph nodes , self limited

cat scratch

viral infection + interferon gamma + SIRS, high ferritin , high triglyceridemia = **Children + perforin PRF 1**

type 1 HLH

viral infection + interferon gamma + SIRS , high ferritin , high triglyceridemia = adolescent + SLAM+ X-linked , EPV virus

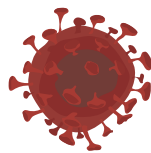
type 2 HLH

viral infection + interferon gamma + SIRS, high ferritin , high triglyceridemia = Chronic, rheumatologic

type 3 HLH

viral infection + interferon gamma + SIRS , high ferritin , high triglyceridemia= malignant t cell lymphoma

type 4 HLH



LYMPHOMAS

localized lymph nodes , Bimodal age , Reed-Sternberg cells , CD30 and CD15

Classic Hodgkin lymphoma

localized lymph nodes , Bimodal age , Reed-Sternberg cells , CD30 and CD15 , fibrous bands , Lacunar cells

nodular sclerosis Hodgkin lymphoma

localized lymph nodes , Bimodal age , Reed-Sternberg cells , CD30 and CD15 , mixed neutrophils, eosinophils, lymphocytes, plasma cells and histiocytes

Mixed cellularity Hodgkin lymphoma

localized lymph nodes , Bimodal age , Reed-Sternberg cells , normal B-cell markers (CD45, CD20),popcorn cells , malignant

Nodular lymphocyte-predominant Hodgkin lymphoma

EBV
B cells
death ligands
IL-5
=eosinophils
IL-13 = growth
good
prognosis

non-Hodgkin lymphoma

B and T-cell lymphoma ,All are malignant , extra nodular

B cells
Positive for CD20

T cells
Positive for CD2, CD3,
CD5, CD7

diffuse large b cells lymphoma

most common adults , aggressive , t(14;18) active (Bcl2) , may MYC mutation , CNS , EBV= elderly , Human Herpes Virus-8=cyclin D1

follicular lymphoma

indolent , west > 50 man , t(14;18) (Bcl2) , BM, liver and spleen , centrocytes predominate , positive stain , survival is 10

Burkitt lymphoma

common in children , jaw (endemic) Africa , CNS+GI Sporadic , t(8;14) MYC , Lipid vacuoles , Warburg metabolism

Extranodal marginal zone lymphoma

Indolent , Hashimoto thyroiditis, Sjogren syndrome , Helicobacter pylori

Mantle cell lymphoma

naïve B-cells , old men , t(11;14) ,cyclinD1 , Waldeyer ring

Small lymphocytic lymphoma

LN and solid tissue , deletion RNA mutation , prolymphocytes , small

chronic lymphocytic leukemia

BM and peripheral blood , deletion RNA mutation , prolymphocytes ,
Smudge cells

plasma - multiple myeloma

old African man , (M protein) = rouleaux, urine detection (Bence Jones proteins) , t(11;14) , bone resorption , Hypercalcemia , anemia= CRAB , high ESR , treat :Lenalidomide +Proteasome inhibitors

hairy cell leukemia

old smoker man , Mutation in serine/threonine kinase BRAF gene

Sezary syndrome:
widespread erythema
and blood leukemia

**human T-cell leukemia
virus 1 (HTLV-1) :** latent
,instable tax , Poor
prognosis , CD25

MYELOPROLIFERATIVE NEOPLASMS

chronic myeloid leukemia

Harbor t(9;22) (Philadelphia chromosome) , accelerated : resistance to imatinib , Blast crisis , anemia , Basophilia, eosinophilia

primary myelofibrosis

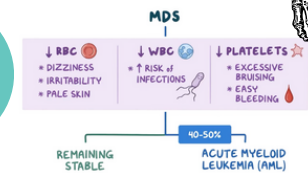
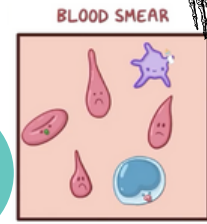
cytopenia and massive EMH , active JAK-STAT , JAK2 & CALR mutations , tear-drop cells , high-low platelets , “cloud-like” nuclei of megakaryocytes , gout, bleeding, infection ,

Essential thrombocythemia :

JAK2 mutation= more platelets , Splenomegaly

Myelodysplastic syndromes

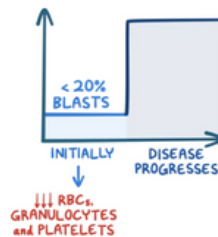
defective maturation , hypercellular BM, peripheral cytopenia and morphologic dysplasia , deletions of 5q, 7q, 20q, trisomy 8 , ring sideroblasts , P53 mutation , Survival 9-29 months



Involvement of LN, spleen and solid organs is rare. When occurs, it is called myeloid sarcoma

Acute leukemia

anemia, thrombocytopenia and neutropenia , old , (RAS)&(IDH) mutations , Auer rods , CD34, myeloperoxidase (MPO), CD13, CD33



Acute promyelocytic leukemia

AML-M3 , arrested at promyelocyte stage , t(15;17) PML to rara , vitamin A analogue , Auer rods with no expression cd34 ,

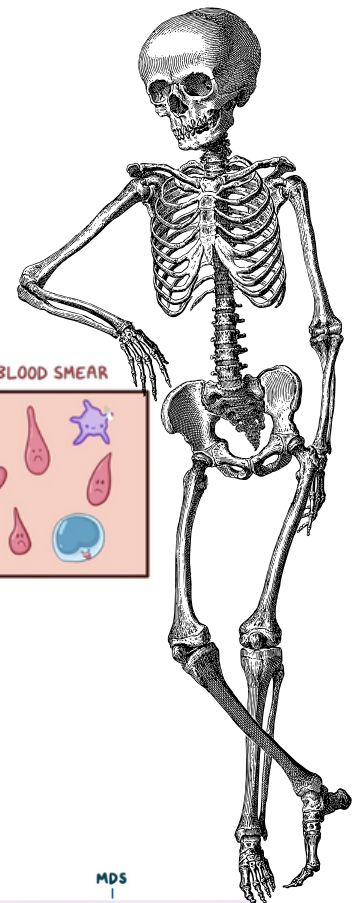
B- Acute lymphatic leukemia

childhood malignancy , CD34 and TDT , TO brain, testis, spleen , PAX5 gene mutation , (children t(12;21), involving ETV6 and TUNX1) //adults t(9;22) , poor prognosis < 2 years , good; hyperdiploidy

T- Acute lymphatic leukemia

presents in adolescents, involving thymus, more common in boys , NOTCH1 & PTEN & CDKN2A mutations , Mediastinal mass

Anemia, thrombocytopenia
 • Bone pain
 • Lymphadenopathy and hepatosplenomegaly
 • Testicular enlargement
 • CNS involvement



LANGERHANS CELL HISTIOCYTOSIS

Neoplasm of dendritic cells , CD1a and Langerin ,mutation in serin/threonine kinase BRAF

multisystemic

children <2 years ,
lesions(cutaneous&
Pulmonary&Osteolytic),chemother
apy

unisystemic

eosinophilic granuloma
unifocal or multifocal ,pituitary
gland= s (Hand-Schuller-Christian
triad) , surgical excision

اللهم كن مع المرابطين ناصراً ونصيراً اللهم سخر لهم
ملائكة السماء وجنود الارض ومن عليها... وافتح لهم
ابواب توفيقك... واشرح صدرهم ، ويسر أمرهم
.... وقوي عزيمتهم ، ومدّ صبرهم... اللهم آمين اللهم
آمين كُتِّفُوا الدعاء لأهلنا في غزّة
الله ينصرهم ويثبت أقدامهم .

بالتوفيق
دفعة-القدس