Block N MCQs Points

PERNICIOUS ANEMIA

- Autoimmune disease
- Associated with vitiligo
- Causes megaloblastic anemia
- Leads to ineffective erythropoiesis → ↑ unconjugated bilirubin → yellow sclera
- Glossitis is very characteristic
- Intrinsic factor antibody is most specific for pernicious anemia
- Smooth shiny tongue + jaundice + vitiligo → think pernicious anemia → confirm with intrinsic factor antibodies.

RBC life span

- Normal : ~120 days
- Hereditary spherocytosis → 10–30 days
- Sickle cell disease → 10–20 days
- Thalassemia major → 10–30 days
- G6PD deficiency (during hemolytic episode) → few days

Exam Buzzwords

- Pancytopenia without splenomegaly → aplastic anemia
- Microcytosis with normal/high ferritin → thalassemia
- Macrocytosis + neurologic symptoms → B12 deficiency
- Hemolysis + bite cells → G6PD deficiency
- Hemolysis + spherocytes → hereditary spherocytosis
- Jaundice + episodic anemia → hemolytic anemia

Felty's syndrome

- RA + splenomegaly + neutropenia = Felty's syndrome
- Long-standing seropositive rheumatoid arthritis
- Usually middle-aged female
- Severe, deforming RA with high RF titers
- Recurrent infections (due to neutropenia)
- Fatigue, weight loss
- Fever of unknown origin
- Non-healing leg ulcers
- Skin hyperpigmentation
- Lymphadenopathy (sometimes)
- Symmetrical inflammatory polyarthritis
- Rheumatoid nodules
- Extra-articular RA manifestations common
- Neutropenia (absolute neutrophil count ↓)

- Normocytic or macrocytic anemia
- Thrombocytopenia (occasionally)
- High rheumatoid factor (RF)
- Positive anti-CCP antibodies
- Elevated ESR and CRP
- Moderate to massive splenomegaly
- Hypersplenism → cytopenias
- “A patient with long-standing RA presents with recurrent infections and splenomegaly”
- “RA patient with neutropenia and leg ulcers”
- “Seropositive RA + pancytopenia + enlarged spleen”
- Felty’s syndrome is a late complication of rheumatoid arthritis
- Infection is the most common cause of mortality
- Neutropenia is the hallmark lab abnormality
- Splenectomy improves neutrophil count (treatment clue)

PNH

- Acquired clonal stem cell disorder due to PIGA gene mutation
- Loss of GPI-anchored proteins (CD55, CD59) → complement-mediated intravascular hemolysis
- Dark/cola-colored urine in the morning
- Recurrent episodes of intravascular hemolysis
- Fatigue, pallor, jaundice
- Hemoglobinuria without RBCs on microscopy
- Young adult with hemolytic anemia + pancytopenia
- Hemolysis with negative Coombs test
- Morning hemoglobinuria
- Iron deficiency due to chronic urinary iron loss
- Unusual site thrombosis is the leading cause of death
- Hepatic vein thrombosis → Budd–Chiari syndrome
- Portal, splenic, cerebral vein thrombosis
- Associated with aplastic anemia
- Pancytopenia common
- Bone marrow may be hypocellular
- ↑ LDH (very high)
- ↑ indirect bilirubin
- ↓ haptoglobin
- Reticulocytosis
- Negative direct Coombs test
- Hemosiderinuria
- Flow Cytometry (CONFIRMATORY TEST)
    - Absence of CD55 and CD59 on RBCs/WBCs
    - Gold standard diagnostic test
- Ham’s test – positive (acidified serum lysis)
- Sucrose lysis test – positive

- Complications Frequently Tested
    - Acute kidney injury
    - Pulmonary hypertension
    - Erectile dysfunction (due to nitric oxide depletion)
    - Progression to myelodysplastic syndrome or AML
- Intravascular hemolysis + thrombosis + pancytopenia = PNH
- Hemoglobinuria without hematuria → PNH
- Coombs-negative hemolytic anemia → think PNH
- Treatment Clues (Occasional MCQs)
    - Eculizumab (anti-C5 monoclonal antibody)
    - Iron supplementation
    - Anticoagulation for thrombosis
    - Bone marrow transplant = curative
- Rapid One-Liners for Last-Minute Revision
    - PNH = acquired complement-mediated hemolysis
    - Dark urine in morning = PNH
    - Budd–Chiari syndrome in hemolytic anemia = PNH
    - Flow cytometry showing ↓CD55/CD59 confirms PNH
    - Leading cause of death = thrombosis
- Young adult + Coombs-negative intravascular hemolysis + thrombosis at unusual sites = PNH

Fanconi Anemia

- Inherited bone marrow failure syndrome
- Characterized by: congenital anomalies, progressive pancytopenia, and cancer predisposition
- Mostly autosomal recessive
- Progressive pancytopenia: anemia → neutropenia → thrombocytopenia
- Bruising, petechiae, recurrent infections
- Bone marrow failure usually develops by age 10
- Congenital anomalies (~75% of cases)
    - Skeletal: radial ray defects, absent/short thumb, hypoplastic radius
    - Skin: café-au-lait spots, hyperpigmentation, hypopigmentation
    - Facial: microcephaly, triangular face, abnormal ears, epicanthal folds
    - Renal/GU: horseshoe kidney, renal agenesis
    - Short stature
- Increased risk of AML, MDS, and solid tumors (head, neck, gynecologic)
- Cytogenetic test: chromosomal breakage test (DEB or MMC) → diagnostic
- Genetic testing: identifies mutated FANCA-FANCQ genes
- Supportive: blood transfusions, growth factors (limited)
- Bone marrow transplant → only curative treatment for marrow failure

MCQs Presentations

- Microcytic anemia + pica + koilonychia = iron deficiency
- Low ferritin + high TIBC = iron deficiency
- Dysphagia + esophageal web + anemia = Plummer–Vinson syndrome
- Severe anemia + frontal bossing + splenomegaly = β-thalassemia major
- Mild microcytosis + high HbA_2 = β-thalassemia minor
- Target cells + normal iron = thalassemia
- Macrocytosis + hypersegmented neutrophils = megaloblastic anemia
- Neuropathy + macrocytic anemia = vitamin B12 deficiency
- Macrocytosis without neuro signs = folate deficiency
- Gastrectomy + anemia + neuropathy = B12 deficiency
- Pancytopenia + hypocellular marrow + no splenomegaly = aplastic anemia
- Hemoglobinuria + cytopenias + chronic episodic symptoms = PNH
- Budd–Chiari syndrome + hemolytic anemia = PNH
- Coombs-negative intravascular hemolysis = PNH
- Spherocytes + splenomegaly + jaundice = hereditary spherocytosis
- Hemolysis relieved by splenectomy = hereditary spherocytosis
- Spherocytes + positive Coombs test = autoimmune hemolytic anemia
- Bite cells + Heinz bodies + drug-induced hemolysis = G6PD deficiency
- Male + episodic hemolysis after infection = G6PD deficiency
- Thrombocytopenia + MAHA + neurologic signs = TTP
- Schistocytes + renal failure + fever = TTP
- Child + bloody diarrhea + renal failure + anemia = HUS
- Pain crises + dactylitis + autosplenectomy = sickle cell anemia
- Recurrent infections + sickle cells = sickle cell disease
- Isolated thrombocytopenia + petechiae = ITP
- Bleeding + normal PT/APTT = ITP
- Thrombocytopenia + hemolysis = TTP
- Thrombocytopenia alone = ITP
- Pancytopenia + Auer rods + ≥20% blasts (30%) = AML
- Auer rods + myeloblasts = AML
- DIC + APL (M3) = AML
- Child + lymphoblasts + mediastinal mass = ALL
- CD19 + CD10 positive → B-cell ALL
- High WBC + basophilia + splenomegaly = CML
- Philadelphia chromosome + myeloproliferation = CML
- Middle-aged patient + massive spleen + high TLC + high uric acid → CML → confirm with Philadelphia chromosome
- Elderly + lymphocytosis + smudge cells = CLL
- Raised Hb + splenomegaly + itching after bath = polycythemia vera
- High platelets + thrombosis = essential thrombocythemia
- Massive splenomegaly + tear-drop cells = myelofibrosis
- Painless lymphadenopathy + Reed–Sternberg cells = Hodgkin lymphoma
- Extranodal disease + painless lymph nodes = NHL
- Bone pain + anemia + renal failure + M-spike = multiple myeloma

- Lytic lesions + Bence Jones protein = multiple myeloma
- Hyperviscosity + IgM spike = Waldenström macroglobulinemia
- Pancytopenia + splenomegaly + RA = Felty's syndrome
- Pancytopenia + splenomegaly + kala-azar = visceral leishmaniasis
- Anemia + CKD + low EPO = anemia of chronic disease
- Chronic inflammation + low iron + normal/high ferritin = anemia of chronic disease
- Lead exposure + wrist drop + basophilic stippling = lead poisoning
- Microcytosis + iron overload + ring sideroblasts = sideroblastic anemia
- Anemia + low retics + parvovirus B19 = pure red cell aplasia
- Chronic kidney disease + normocytic anemia = EPO deficiency
- JAK2 mutation + high Hb = polycythemia vera
- Tear-drop RBCs + marrow fibrosis = myelofibrosis
- Massive splenomegaly + anemia + leukoerythroblastic picture = myelofibrosis
- Pancytopenia + hypocellular marrow + drugs/radiation = aplastic anemia
- Normal platelets + prolonged APTT + hemarthrosis = hemophilia
- Child + mucosal bleeding + prolonged bleeding time = von Willebrand disease
- Mucocutaneous bleeding + normal platelet count = von Willebrand disease
- Epistaxis + menorrhagia + easy bruising = von Willebrand disease
- Child with recurrent nosebleeds + family history = von Willebrand disease
- Prolonged bleeding time + normal platelet count = von Willebrand disease
- Prolonged APTT + normal PT = von Willebrand disease
- Prolonged PT + jaundice + bleeding = vitamin K deficiency
- Prolonged PT & APTT + sepsis = DIC
- Isolated prolonged PT = factor VII deficiency
- Neonatal Jaundice
    - Physiological: Appears >24 hours, resolves by day 7-10. Unconjugated.
    - Pathological: Appears <24 hours. Causes: ABO/Rh incompatibility, Sepsis, G6PD.
- Bone pain + renal failure + anemia + hypercalcemia = multiple myeloma
- Macroglossia + restrictive cardiomyopathy = amyloidosis
- Hyperviscosity + blurred vision + IgM spike = Waldenström macroglobulinemia
- Child + microcytic anemia + normal iron = thalassemia trait
- Child + pallor + bruising + bone pain = acute leukemia
- Newborn + jaundice + anemia = hemolytic disease of newborn
- Hemolysis + thrombosis at unusual sites = PNH
- Fanconi anemia = pancytopenia + congenital anomalies + cancer risk
- Thumb/radial defects + short stature + café-au-lait → classic clue of fanconi anemia
- Gunstock deformity: Cubitus varus following supracondylar fracture of the humerus
- The combination of vitiligo (autoimmune), pallor (anemia), and loss of vibration sense (dorsal column neuropathy/subacute combined degeneration) strongly suggests Pernicious Anemia (Vitamin B12 deficiency). Serum B12 level is the appropriate test.
- The patient has symptoms of Limited Cutaneous Systemic Sclerosis (CREST syndrome: Calcinosis, Raynaud's, Esophageal dysmotility, Sclerodactyly, Telangiectasia). The major

life-threatening complication associated with Limited Scleroderma is Pulmonary Arterial Hypertension. (Renal crisis is more common in Diffuse Scleroderma).
- Raynaud's phenomenon + arthritis are one of the most common presentations of SLE
- Cutaneous manifestations of SLE = Photosensitivity (maculopapular rash), oral ulcers, malar rash, discoid rash
- SLE
    - ANA - best screening test
    - Anti double stranded DNA antibody - highly specific for SLE (>95%)
    - Anti Smith antibodies - highly specific for SLE
    - Anti Ro antibody - SLE, Sjogren syndrome

Normal Values
Bleeding Time (BT) = 2–7 minutes
Prothrombin Time (PT) = 11–16 seconds
Activated Partial Thromboplastin Time (aPTT) = 25–35 seconds

Immunohistochemistry
- ALL
    - TdT positive
    - PAS positive
- AML
    - MPO positive

Paeds One liners
- Vegetarian mother + exclusively breastfed infant + weaning without animal products + pallor with mild jaundice = Vitamin B12 deficiency
- Developmental delay + hypotonia + anemia in infant → B12 deficiency
- Normal MCV early → macrocytosis later + pancytopenia → B12 deficiency
- Failure to thrive + delayed dentition → B12 deficiency
- Trap: Mild jaundice → NOT hepatitis → think ineffective erythropoiesis
- Toddler on prolonged cow's milk + poor diet + pallor → IDA
- Pica + pallor + spoon-shaped nails → IDA
- Low MCV + high RDW → IDA
- Most common anemia in children → Iron deficiency
- 🪤 Trap: No jaundice in pure iron deficiency
- Goat milk fed infant + anemia → Folate deficiency
- Macrocytic anemia without neurological signs → Folate
- Post-diarrheal child + anemia → Folate deficiency
- Pallor + jaundice + splenomegaly → Hemolytic anemia
- High reticulocyte count + indirect bilirubin → Hemolysis
- Family history + anemia → Inherited hemolysis
- 🪤 Trap: Jaundice + splenomegaly ≠ hepatitis
- Anemia + jaundice + splenomegaly + gallstones → HS (hereditary spherocytosis)
- Raised MCHC + spherocytes → HS

- Improves after splenectomy → HS
- Severe anemia at 3–6 months + transfusion dependent → β-thal major
- Mild microcytosis + high HbA_2 = β-thalassemia minor
- Target cells + normal iron = thalassemia
- Chipmunk facies + hepatosplenomegaly → Thalassemia
- Low MCV but normal RDW → Thalassemia
- 🪤 Trap: Very low Hb but child looks surprisingly active
- Pallor + bleeding + infections → Aplastic anemia
- Pancytopenia + hypocellular marrow → Aplastic
- No splenomegaly → Aplastic anemia
- Painful dactylitis in infant → Sickle cell
- Anemia + recurrent infections → Sickle cell
- Autosplenectomy by childhood → Sickle cell
- Jaundice without hepatomegaly in anemic child → think hemolysis / B12
- Anemia + delayed milestones → B12 deficiency
- Anemia not responding to iron → Thalassemia / B12
- Child 6–24 months + pallor + excessive milk intake = iron deficiency anemia
- Failure to thrive + microcytic anemia = iron deficiency anemia
- Infant + severe anemia after 6 months + splenomegaly = β-thalassemia major
- Child + mild anemia + very low MCV + normal iron = thalassemia trait
- Neonate + severe anemia + reticulocytopenia = pure red cell aplasia
- Child + macrocytosis + developmental delay = vitamin B12 deficiency
- Painful swollen hands/feet in infant = sickle cell dactylitis
- Recurrent infections + autosplenectomy = sickle cell disease
- Neonatal jaundice + anemia + splenomegaly = hemolytic disease of newborn
- Child + episodic jaundice after infection = G6PD deficiency
- Child + anemia + splenomegaly + gallstones = hereditary spherocytosis
- Pancytopenia + hypocellular marrow + no splenomegaly = aplastic anemia
- Severe anemia + low retics + parvovirus infection = transient aplastic crisis
- Infant + anemia + craniofacial anomalies = Fanconi anemia
- Child + pallor + bruising + bone pain = acute leukemia
- Child + lymphoblasts + mediastinal mass = T-cell ALL
- Most common childhood leukemia = ALL
- Toddler + abdominal mass + hematuria = Wilms tumor
- Child + fever + weight loss + lymphadenopathy = lymphoma
- Child post-viral illness + petechiae = ITP
- Isolated thrombocytopenia + normal child = ITP
- Thrombocytopenia + anemia + renal failure = HUS
- Infant + thrombocytopenia + eczema = Wiskott-Aldrich syndrome
- Male child + hemarthrosis + prolonged APTT = hemophilia
- Child + mucosal bleeding + prolonged bleeding time = von Willebrand disease
- Von Willebrand Disease (vWD): Prolonged Bleeding Time (BT) + Prolonged APTT. Mucosal bleeding (epistaxis/menorrhagia)
- Neonate + bleeding from umbilical stump = factor XIII deficiency

- Child + fever + pallor + splenomegaly = malaria
- Child + pancytopenia + splenomegaly + fever = kala-azar
- Infant + anemia + chronic diarrhea = malabsorption
- Most common cause of anemia in children = iron deficiency
- Most common leukemia in children = ALL
- Most common cause of thrombocytopenia in children = ITP
- Painful dactylitis in infant = sickle cell disease
- Sudden anemia after parvovirus = transient aplastic crisis
- Tumor Lysis Syndrome: Occurs after chemo. Hyperuricemia, Hyperkalemia Hyperphosphatemia, Hypocalcemia

Diagnostic MCQs

- Microcytic anemia + low ferritin = iron deficiency anemia
- Microcytosis + normal/high ferritin = thalassemia
- Macrocytosis + hypersegmented neutrophils = megaloblastic anemia
- Macrocytosis + neuropathy = vitamin B12 deficiency
- Macrocytosis without neuropathy = folate deficiency
- Pancytopenia + hypocellular marrow + no splenomegaly = aplastic anemia
- Normocytic anemia + chronic disease = anemia of chronic disease
- Hemoglobinuria + negative Coombs = PNH
- Spherocytes + positive Coombs = autoimmune hemolytic anemia
- Spherocytes + splenomegaly + negative Coombs = hereditary spherocytosis
- Schistocytes + thrombocytopenia = MAHA (TTP/HUS/DIC)
- Osmotic Fragility Test - Hereditary Spherocytosis
- Bite cells + Heinz bodies = G6PD deficiency
- Sickle cells + pain crises = sickle cell disease
- Isolated thrombocytopenia + petechiae = ITP
- Thrombocytopenia + anemia + neurologic signs = TTP
- Thrombocytopenia + renal failure + diarrhea (child) = HUS
- Thrombocytopenia + splenomegaly = hypersplenism
- Prolonged APTT + hemarthrosis = hemophilia
- Prolonged bleeding time + normal platelet count = vWD
- Prolonged PT + normal APTT = factor VII deficiency
- Prolonged PT + APTT + sepsis = DIC
- Umbilical stump bleeding + normal PT/APTT = factor XIII deficiency
- Child + pallor + bruising + bone pain = ALL
- Auer rods + myeloblasts = AML
- Philadelphia chromosome + splenomegaly = CML
- Elderly + lymphocytosis + smudge cells = CLL
- Gum hypertrophy + monocytic leukemia = AML M5
- Raised Hb + itching after bath = polycythemia vera
- High platelets + thrombosis = essential thrombocythemia
- Tear-drop cells + massive splenomegaly = myelofibrosis
- Painless lymphadenopathy + Reed–Sternberg cells = Hodgkin lymphoma

- Extranodal lymphadenopathy = non-Hodgkin lymphoma
- Bone pain + anemia + renal failure + M spike = multiple myeloma
- Hyperviscosity + IgM spike = Waldenström macroglobulinemia
- Pancytopenia + splenomegaly = hypersplenism
- Pancytopenia + no splenomegaly = aplastic anemia
- Hemolysis + thrombosis at unusual sites = PNH
- Bleeding time prolonged + APTT prolonged = vWD
- Bleeding time normal + APTT prolonged = hemophilia
- Suspected SLE → First test = ANA
  Confirmed / activity assessment → Anti-dsDNA
- Ankylosing spondylitis = X Ray of sacroiliac joint is best initial test
  MRI spine is most accurate test
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Inheritance patterns

- Sickle Cell Disease - Autosomal Recessive
- Thalassemia Major (β-thalassemia major) - Autosomal Recessive
- HbC Disease - Autosomal Recessive
- Hereditary Spherocytosis - Autosomal Dominant
- G6PD Deficiency - X-linked Recessive
- Hemophilia A (Factor VIII) - X-linked Recessive
- Hemophilia B (Factor IX) - X-linked Recessive
- Von Willebrand Disease (Type 1 & 2) - Autosomal Dominant
- Von Willebrand Disease (Type 3) - Autosomal Recessive
- Fanconi Anemia - Autosomal Recessive
- Paroxysmal Nocturnal Hemoglobinuria - Acquired (not inherited)
- Osteogenesis imperfecta - Autosomal dominant
- Achondroplasia - Autosomal Dominant
- Marfan syndrome - Autosomal Dominant
- Duchenne Muscular Dystrophy - X-linked recessive
- Becker Muscular Dystrophy - X-linked recessive
- Limb Girdle Muscular Dystrophy - Autosomal dominant or recessive
- Facioscapulohumeral Dystrophy - Autosomal dominant
- Myotonic Dystrophy - Autosomal dominant

Visceral Leishmaniasis (VL / Kala-azar):

- Protozoan parasite: Leishmania spp.
- Vector: Female sandfly
- Fever: intermittent, weeks to months
- Pallor & anemia
- Hepatosplenomegaly – massive spleen
- Weight loss
- Pancytopenia: anemia, leukopenia, thrombocytopenia
- Hypergammaglobulinemia (↑ IgG)

- Untreated → fatal in months
- Lab diagnosis
- Definitive: Demonstration of amastigotes (Leishman-Donovan bodies) in tissue
- Serology: rk39 rapid test (VL)
    - Molecular: PCR (sensitive)
    - Gold standard diagnosis: tissue demonstration of amastigotes (Splenic aspirate)
- Liposomal amphotericin B = drug of choice for VL

Management based MCQs

- Iron deficiency anemia + low ferritin = oral iron therapy
- IDA + intolerance to oral iron = IV iron
- IDA + ongoing blood loss = treat cause + iron
- Severe anemia with hemodynamic instability = packed RBC transfusion
- Megaloblastic anemia + neurologic signs = vitamin B12 injection
- Suspected B12 deficiency = give B12 before folate
- Folate deficiency anemia = oral folic acid
- Autoimmune hemolytic anemia = steroids (first line)
- AIHA refractory to steroids = splenectomy / rituximab
- Hereditary spherocytosis + symptomatic = splenectomy
- G6PD deficiency acute hemolysis = remove trigger + supportive care
- Sickle cell pain crisis = IV fluids + oxygen + opioids
- Sickle cell disease prevention = hydroxyurea
- PNH with hemolysis = eculizumab
- PNH with thrombosis = long-term anticoagulation
- Definitive cure of PNH = bone marrow transplant
- Asymptomatic ITP (platelets >30,000) = observe
- ITP with bleeding = steroids
- Severe ITP bleeding = IVIG + steroids
- Chronic refractory ITP = splenectomy
- TTP suspected = plasmapheresis (urgent)
- Platelet transfusion in TTP = contraindicated
- HUS = supportive care + dialysis if needed
- Antibiotics in EHEC-HUS = avoid
- Acute bleed in hemophilia A = factor VIII concentrate
- Acute bleed in hemophilia B = factor IX concentrate
- Mild hemophilia A = desmopressin (DDAVP)
- Hemophilia with inhibitors = bypassing agents
- vWD type 1 = desmopressin
- Severe vWD bleeding = cryoprecipitate / vWF concentrate
- Avoid aspirin in vWD
- Acute leukemia suspected = bone marrow biopsy
- APL (AML M3) = ATRA immediately
- ALL in children = combination chemotherapy

- CML first-line = imatinib
- Tumor lysis syndrome prevention = hydration + allopurinol
- Polycythemia vera = phlebotomy + aspirin
- Essential thrombocythemia high-risk = hydroxyurea
- Myelofibrosis symptomatic = JAK inhibitors
- Aplastic anemia = immunosuppression or bone marrow transplant
- Fanconi anemia = bone marrow transplant
- Multiple myeloma = chemotherapy + steroids
- Myeloma bone disease = bisphosphonates
- Neonatal vitamin K deficiency bleeding = vitamin K injection
- Pediatric ITP without bleeding = observe
- Sickle cell child infection prophylaxis = penicillin + vaccination
- β-thalassemia major = regular transfusions + iron chelation
- Psoriasis
    - Topical steroids/emollients (Mild).
    - Methotrexate/Biologics (Severe).
    - Systemic steroids are Contraindicated (can cause Pustular Psoriasis).
- Koebner Phenomenon (lesions at trauma sites) is seen in both Psoriasis and Lichen Planus.
- Molluscum Contagiosum: Pearly, dome-shaped, umbilicated papules
- Seborrheic Dermatitis: Greasy yellow scales on scalp/brows/nasolabial folds. Associated with Parkinson's Disease.
- Contact Dermatitis: Nickel is the most common cause (wrist watch, jewelry). Diagnosis via Patch Test
- Hemorrhagic Shock: Tachycardia, Hypotension. Resuscitate with Ringer's Lactate.
- Colles Fracture: Distal radius fracture with Dorsal displacement ("Dinner Fork" deformity)
- Smith Fracture: Distal radius with Volar (palmar) displacement
- Galeazzi Fracture: Radius shaft fracture + Distal Radio-Ulnar Joint (DRUJ) dislocation.
- Monteggia Fracture: Ulna shaft fracture + Radial Head dislocation
- Humerus Midshaft: Radial Nerve injury -> Wrist Drop.
- Supracondylar Humerus: Anterior Interosseous (Median) or Ulnar. Risk of Gunstock Deformity (Cubitus Varus).
- Fibula Neck: Common Peroneal Nerve -> Foot Drop.
- Osteosarcoma: Malignant. "Sunburst" appearance or Codman's Triangle on X-ray. Metaphysis of distal femur.
- Ewing's Sarcoma: Malignant. "Onion Peel" appearance. Diaphysis of long bones. Mimics osteomyelitis.
- Giant Cell Tumor (GCT): Benign/Aggressive. "Soap Bubble" appearance. Epiphysis
- Multiple Myeloma: Lytic "Punched out" lesions in skull/spine.

MSK Medicine

- Symmetrical inflammatory polyarthritis + morning stiffness >1 hr = Rheumatoid arthritis

- RA + splenomegaly + neutropenia = Felty's syndrome
- Anti-CCP positivity + erosive arthritis = Rheumatoid arthritis
- DIP joints spared + MCP/PIP involvement = Rheumatoid arthritis
- RA + sudden neck pain + neurological signs = Atlanto-axial subluxation
- Young male + inflammatory back pain + morning stiffness = Ankylosing spondylitis
- Anti CCP specificity for Rheumatoid arthritis - 95%
- RF specificity for Rheumatoid arthritis - 70%
- HLA-B27 positivity + uveitis = Ankylosing spondylitis
- Low back pain + alternating buttock pain = Sacroiliitis
- Bamboo spine on X-ray = Ankylosing spondylitis
- Asymmetric oligoarthritis + urethritis + conjunctivitis = Reactive arthritis
- Psoriasis + arthritis + nail pitting = Psoriatic arthritis
- IBD + peripheral arthritis = Enteropathic arthritis
- Knee pain worse with activity + relieved by rest = Osteoarthritis
- Heberden's nodes (DIP) = Osteoarthritis
- Bouchard's nodes (PIP) = Osteoarthritis
- Joint space narrowing + osteophytes = Osteoarthritis
- Morning stiffness <30 minutes + crepitus = Osteoarthritis
- Jerky, Asymmetric antalgic gait - knee OA
- Sudden severe monoarthritis + first MTP joint = Gout
- Needle-shaped crystals + negative birefringence = Gout
- Rhomboid crystals + positive birefringence = Pseudogout (CPPD)
- Chondrocalcinosis on X-ray = Pseudogout
- Chondrocalcinosis on X-ray = CPPD disease
- Hyperuricemia + tophi = Chronic gout
- Big toe involvement → Gout
- Knee or wrist calcification on X-ray → Pseudogout
- Needle-shaped, negative birefringent crystals → Gout
- Rhomboid, positive birefringent crystals → Pseudogout
- Gout: Erosions with overhanging edges; tophi in chronic cases.
- Pseudogout: Chondrocalcinosis (cartilage calcification) on X-ray.
- Gout: Usually men >30–40, postmenopausal women; more common overall.
- Pseudogout: Older adults, usually >60 years; no strong male predominance.
- Malar rash + arthritis + renal involvement = SLE
- Anti-dsDNA positivity + nephritis = SLE
- Raynaud's phenomenon + skin thickening = Systemic sclerosis
- CREST features = Limited cutaneous systemic sclerosis
- Proximal muscle weakness + heliotrope rash = Dermatomyositis
- Proximal muscle weakness without rash = Polymyositis
- Adult + symmetric proximal muscle weakness + difficulty rising from chair → think inflammatory myopathy (polymyositis)
- Most accurate investigation for Polymyositis - Muscle biopsy
- Dry eyes + dry mouth + parotid enlargement = Sjogren syndrome
- Elderly + jaw claudication + raised ESR = Giant cell arteritis

- Shoulder & hip girdle pain + morning stiffness = Polymyalgia rheumatica
- Asthma + eosinophilia + neuropathy = EGPA (Churg–Strauss)
- Sinusitis + hematuria + arthritis = Granulomatosis with polyangiitis
- Palpable purpura + arthralgia = IgA vasculitis
- Dry eyes + dry mouth + parotid enlargement = Sjogren syndrome
- Fragility fractures + low bone mass = Osteoporosis
- Bone pain + Looser's zones = Osteomalacia
- Bone pain + high ALP + normal calcium, phosphate and PTH = Paget disease
- Paget's Disease - Bone pain, Pathological fracture, Deafness and tinnitus (compression of CN VIII)
- Subperiosteal bone resorption = Hyperparathyroidism
- Elderly fall + shortened externally rotated limb = Neck of femur fracture
- Posterior hip dislocation + flexed adducted limb = Posterior dislocation of hip
- Widespread pain + fatigue + normal labs = Fibromyalgia
- Morning stiffness improves with activity = Inflammatory arthritis
- Pain worsens with activity = Degenerative arthritis
- DIP involvement spared = Rheumatoid arthritis
- DIP involvement present = Osteoarthritis / Psoriatic arthritis
- Axial skeleton involvement = Spondyloarthropathy
- Child + bowed legs + delayed milestones + frontal bossing = Rickets
- Craniotabes + rachitic rosary + delayed closure of fontanelle = Rickets
- X-ray: cupping, fraying, metaphyseal widening = Rickets
- Hypocalcemia + hypophosphatemia + high ALP = Rickets
- Rickets = Bow legs (genu varum), Widened wrists, Rachitic Rosary, Frontal bossing.
- Vitamin D deficiency in infancy + bone deformities = Nutritional rickets
- Adult + diffuse bone pain + proximal muscle weakness + difficulty walking = Osteomalacia
- Looser's zones (pseudo-fractures) on X-ray = Osteomalacia
- Hypocalcemia + hypophosphatemia + raised ALP = Osteomalacia
- Bone pain worse at night + fractures with minimal trauma = Osteomalacia
- Fever + localized bone pain + swelling + warmth = Acute osteomyelitis
- Chronic draining sinus over bone + sequestrum on X-ray = Chronic osteomyelitis
- MRI: marrow edema + cortical destruction = Osteomyelitis
- Neonate + irritability + pseudoparalysis of limb = Acute hematogenous osteomyelitis
- Juvenile Idiopathic Arthritis (JIA)
    - Pauci-articular: < 5 joints involved. Risk of Uveitis (requires slit lamp exam if ANA+)
    - Systemic (Still's): Spiking fevers, salmon-pink rash,hepatosplenomegaly.
- Most common childhood MD: Duchenne
- Most common adult MD: Myotonic dystrophy
- Pseudohypertrophy of calves: Duchenne
- High CK in a child + Gowers sign: Duchenne
- Facial weakness + scapular winging: FSHD
- Autosomal dominant MD: Myotonic, FSHD (Facio scapulo humeral Dystrophy)

- X-linked MD: Duchenne, Becker
- Barlow (dislocates) and Ortolani (relocates) tests for Developmental Dysplasia of Hip (DDH)
- Herpes Simplex Virus (HSV) is the most common trigger for Erythema Multiforme
- Multiple Sclerosis frequently involves the cerebellum, leading to ataxia.
- BCG vaccine is administered via the Intradermal route
- IPV is IM
- Pentavalent and Pneumococcal are IM
- Chondroitin and Glucosamine are supplements often used for OA symptom relief, although other options like NSAIDs are standard medical therapy.
- Pityriasis Alba presents as hypopigmented, dry, scaly patches, commonly on the face of children with an atopic background.
- Cholinergic urticaria is triggered by a rise in core body temperature (exercise, hot food, emotion), presenting as small pinpoint wheals.
- Ankylosing Spondylitis - Aortitis (ascending aorta) → Aortic root dilatation → Aortic regurgitation
- Drug monitored by INR → Warfarin
- Anticoagulant NOT monitored by INR → Heparin (monitored by aPTT)
- Most common skin cancer worldwide: BCC
- Maternal anti-Ro/SSA and anti-La/SSB autoantibodies can cross the placenta and cause damage to the fetal cardiac conduction system, leading to congenital heart block in the newborn. This condition is known as neonatal lupus erythematosus. Mothers may have SLE, Sjögren's syndrome, or be asymptomatic carriers of these antibodies.
- Monocryl suture (Poliglecaprone 25) loses most of its tensile strength in approximately 21 days

- Fracture Neck of Femur Management
    - Internal fixation of the femoral head
    - Total Hip Replacement in case of AVN
- Osteoarthritis Management
    - Pain management: paracetamol, NSAIDs (usually topical), weak opioids
    - Weight reduction and physiotherapy
    - Joint replacement surgery (last resort)
- Osteoporosis Management
    - Bisphosphonates - alendronate (first-line)

Timeline of Wound Healing

- 0–24 h: Neutrophils dominate
- 48–72 h: Macrophages dominate → start proliferation
- >3 days: Fibroblasts, endothelial cells, keratinocytes dominate

Sarcoidosis

- Bilateral hilar lymphadenopathy + non-caseating granulomas = Sarcoidosis
- Young adult + dry cough + dyspnea + skin lesions = Pulmonary sarcoidosis

- Erythema nodosum + bilateral hilar lymphadenopathy = Löfgren syndrome (acute sarcoidosis)
- Pulmonary fibrosis + restrictive PFT + reticulonodular shadow = Chronic sarcoidosis
- Lupus pernio (chronic violaceous skin lesions on nose/cheeks) = Chronic sarcoidosis
- Hypercalciuria + nephrolithiasis + granulomatous inflammation = Renal sarcoidosis
- Elevated serum ACE + hypercalcemia = Sarcoidosis activity marker
- CD4/CD8 ratio >3.5 in bronchoalveolar lavage = Pulmonary sarcoidosis
- Non-caseating granulomas on biopsy = Definitive diagnosis

Molluscum Contagiosum

- Firm, smooth and umbilicated papules
- Caused by a pox virus (MCV)
- Immunocompromised people are at high risk

MSK MANAGEMENT MCQs

- Osteoarthritis
    - First-line treatment = Weight loss + exercise
    - Persistent pain despite lifestyle measures = NSAIDs
    - Elderly with OA + GI risk = Topical NSAIDs
    - Acute OA flare with effusion = Intra-articular corticosteroid
    - End-stage OA with severe disability = Joint replacement
- RHEUMATOID ARTHRITIS
    - First-line DMARD = Methotrexate
    - Early RA (<6 months) = Start DMARD immediately
    - RA flare while on DMARDs = Short-term corticosteroids
    - RA not responding to MTX = Add biologic (anti-TNF)
    - RA patient with infection = Stop biologics temporarily
- ANKYLOSING SPONDYLITIS
    - First-line therapy = NSAIDs
    - Best non-drug therapy = Regular exercise & physiotherapy
    - Persistent active disease = Anti-TNF therapy
    - Severe kyphosis with disability = Surgical correction
- GOUT (VERY HIGH-YIELD)
    - Acute gout attack = NSAIDs / Colchicine
    - Acute gout + CKD = Low-dose colchicine / steroids
    - Do NOT start allopurinol during acute attack
    - Recurrent gout attacks = Allopurinol
    - Target serum uric acid = <6 mg/dL
    - Tophaceous gout = Urate-lowering therapy (Allopurinol, Febuxostat, Probenecid, Sulfinpyrazone, Pegloticase)
- PSEUDOGOUT (CPPD)
    - Acute CPPD arthritis = NSAIDs
    - CPPD in elderly = Intra-articular steroids
- LOW BACK PAIN

    - Acute mechanical back pain = NSAIDs + early mobilization
    - Red flags present = Urgent imaging
    - Disc herniation without neuro deficit = Conservative management
    - Progressive neuro deficit = Surgery
    - Chronic back pain >6 weeks = Physiotherapy
- OSTEOPOROSIS
    - First-line drug = Bisphosphonates
    - Osteoporosis + esophageal disease = IV bisphosphonate
    - Postmenopausal osteoporosis = Bisphosphonates
    - Fragility fracture = Start osteoporosis treatment
- OSTEOMALACIA
    - Treatment = Vitamin D + calcium
- PAGET DISEASE
    - Symptomatic Paget = Bisphosphonates
    - Asymptomatic Paget = Observation
- EMERGENCIES (VERY IMPORTANT)
    - Septic arthritis = Urgent IV antibiotics + joint drainage
    - Cauda equina syndrome = Emergency surgery
    - Compartment syndrome = Immediate fasciotomy
- FIBROMYALGIA
    - First-line management = Patient education + exercise
    - Best initial therapy = Graded aerobic exercise
    - Widespread pain + sleep disturbance = Amitriptyline
    - Persistent symptoms = Duloxetine / Pregabalin
    - Treat associated depression/anxiety = Improves symptoms
- SLE
    - First-line = Hydroxychloroquine + NSAIDs
    - Mild cutaneous flare = Topical corticosteroids
    - Cytopenias = Short-term corticosteroids
    - Arthralgia/arthritis not responsive = Add low-dose steroids or DMARD (methotrexate)
    - Lupus nephritis class III–V = High-dose corticosteroids + cyclophosphamide / mycophenolate mofetil
    - Neuropsychiatric lupus = IV methylprednisolone ± cyclophosphamide
    - Life-threatening SLE flare = IV steroids immediately

ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) – Management

- Treatment phases:
    - Induction → Consolidation → Maintenance
    - CNS prophylaxis is mandatory (even if asymptomatic)
- Induction therapy (most tested)
    - Vincristine + Corticosteroid (Prednisolone/Dexamethasone)
    - L-Asparaginase

    - ± Anthracycline (Daunorubicin) in high-risk
    - 👉 Goal: Complete remission (<5% blasts in marrow)
- Consolidation
    - High-dose Methotrexate
    - Cytarabine
    - ± Cyclophosphamide
- Maintenance (longest phase – 2–3 years)
    - 6-Mercaptopurine (6-MP) + Methotrexate
    - Intermittent Vincristine + Steroid
- CNS prophylaxis (very important MCQ)
    - Intrathecal Methotrexate
    - ± Cytarabine ± Steroid
    - Cranial irradiation → ONLY in high-risk
- Special points
    - t(9;22) / BCR-ABL positive ALL → add Imatinib
    - Allogeneic HSCT → high-risk / relapse
    - Tumor lysis prophylaxis: Hydration + Allopurinol / Rasburicase

ACUTE MYELOID LEUKEMIA (AML) – Management

- Standard induction (MOST COMMON MCQ)
    - 👉 "7 + 3 regimen"
    - Cytarabine – 7 days
    - Anthracycline (Daunorubicin/Idarubicin) – 3 days
- Post-remission (Consolidation)
    - High-dose Cytarabine
    - ± Allogeneic HSCT (poor cytogenetics)

APL (M3 AML) – VERY HIGH-YIELD

- ATRA (All-trans retinoic acid) + Arsenic trioxide
- NO standard chemo initially
- DIC common → give platelets + FFP
- 📌 APL is medical emergency

CHRONIC MYELOID LEUKEMIA (CML) – Management

- Drug of choice (ALL PHASES)
    - 👉 Tyrosine Kinase Inhibitors (TKIs)
- First-line
    - Imatinib
- If resistant/intolerant
    - Dasatinib
    - Nilotinib
    - Bosutinib
- Blast crisis
    - TKI + Acute leukemia-type chemotherapy

    - Consider Allogeneic HSCT
- Monitoring (MCQ favorite)
    - BCR-ABL transcript by PCR
- Special points
    - Hydroxyurea → initial cytoreduction only
    - HSCT → only curative option but rarely needed now

CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) – Management

- NOT treated if asymptomatic
- Treat only if:
    - B symptoms
    - Progressive anemia / thrombocytopenia
    - Massive splenomegaly / lymphadenopathy
- First-line therapy
    - FCR regimen
    - 👉 Fludarabine + Cyclophosphamide + Rituximab
- Elderly / frail patients
    - Chlorambucil + Anti-CD20 (Rituximab/Obinutuzumab)

HODGKIN LYMPHOMA (HL) – MANAGEMENT

- ⭐ Drug of choice (MOST COMMON MCQ)
    - ABVD regimen
    - Adriamycin (Doxorubicin)
    - Bleomycin
    - Vinblastine
    - Dacarbazine
    - 👉 Used in all stages (I–IV)

NON-HODGKIN LYMPHOMA (NHL) – MANAGEMENT

- Treatment of choice for DLBCL - Diffuse large B-cell lymphoma
    - R-CHOP regimen (for B-cell NHL)
    - Rituximab (anti-CD20)
    - Cyclophosphamide
    - Hydroxydaunorubicin (Doxorubicin)
    - Oncovin (Vincristine)
    - Prednisone
- Special situations (MCQ favorites)
    - Primary CNS lymphoma → High-dose Methotrexate
    - Gastric MALT lymphoma → H. pylori eradication
    - Mantle cell lymphoma → Poor prognosis, aggressive therapy
- ONE-LINE EXAM GOLD
    - Hodgkin DOC → ABVD
    - NHL DOC → R-CHOP
    - HL relapse → Autologous HSCT

    - CD20 positive lymphoma → Rituximab
    - Indolent NHL, asymptomatic → Observe
    - Burkitt lymphoma → Intensive chemotherapy
    - Best prognosis lymphoma → Hodgkin

ANTIBODIES

- Anti-dsDNA: Highly specific, associated with Renal involvement/Disease Activity.
- Anti-Smith: Highly specific for SLE.
- Anti-Histone: Drug-Induced Lupus (e.g., Procainamide, Hydralazine).
- Anti-Ro/SSA: Neonatal Lupus / Sjogren's.
- Anti-Jo-1 - Dermatomyositis
- Periodic Acid Schiff (PAS) positive - Acute Lymphoblastic Leukemia (ALL)

Juvenile Rheumatoid Arthritis (JRA) / Juvenile Idiopathic Arthritis (JIA)

- Chronic arthritis of unknown etiology in children <16 years, lasting ≥6 weeks.
- Autoimmune, systemic or oligoarticular inflammatory disorder affecting joints and extra-articular tissues
- Labs
    - CBC: anemia of chronic disease, leukocytosis (systemic JIA)
    - ESR / CRP: raised (non-specific)
    - RF: positive in ~5–10% (polyarticular, worse prognosis)
    - ANA: positive in ~40% oligoarticular → risk of chronic anterior uveitis
    - HLA-B27: in enthesitis-related arthritis

Classification (ILAR Classification)

- Oligoarticular (≤4 joints in first 6 months) - Most common type (~50%)
- Polyarticular (>4 joints in first 6 months)
    - RF negative (more common, often in girls <10 years)
    - RF positive (resembles adult RA, worse prognosis)
- Systemic JIA (Still’s disease)
    - Fever, rash, hepatosplenomegaly, serositis
    - “Salmon-colored” evanescent rash
- Enthesitis-related arthritis (ERA)
    - Males >6 years, associated with HLA-B27
    - Peripheral arthritis + enthesitis, sacroiliitis
- Psoriatic arthritis
    - Arthritis + psoriasis, or arthritis + 2 features: dactylitis, nail changes, family history