1.Osteomyelitis

Osteomyelitis – Key Points

Definition: Bone infection, usually bacterial

Causes:

Hematogenous spread (children)

Direct inoculation (trauma, surgery)

Contiguous spread (diabetes, ulcers)

Common organism: Staphylococcus aureus

Symptoms:

Fever, localized pain, swelling

Limited movement, erythema

Chronic: draining sinus

Diagnosis:

↑ WBC, ESR, CRP

Blood cultures

X-ray, MRI (best test), Bone biopsy

Treatment:

IV antibiotics (6 weeks)

Surgical debridement (if needed)

Chronic cases: bone graft, amputation (rare)

2.Duchenne Muscular Dystrophy (DMD)

X-linked recessive (DMD gene mutation)

Dystrophin deficiency → muscle degeneration

Onset: 2-5 years, affects males

Symptoms:

Proximal muscle weakness (pelvic & shoulder)

Gower's sign, waddling gait

Calf pseudohypertrophy

Frequent falls, delayed milestones

Cardiac (DCM) & respiratory failure

Diagnosis:

↑ CK levels, genetic testing

Muscle biopsy (absent dystrophin)

EMG, ECG, ECHO

Treatment:

Steroids (prednisolone/deflazacort)

Physiotherapy, bracing, wheelchair

Cardiac & respiratory support

Gene therapy (research phase)

Complications:

Loss of ambulation (by 12 years)

Respiratory & cardiac failure (~20-30 years)

Genetic counseling & prenatal testinghene muscular dystrophy

3.Basal cell carcinoma

Definition: Most common, slow-growing skin cancer

Risk Factors:

UV exposure, fair skin, chronic sun exposure

Immunosuppression, genetic predisposition

Common Sites: Face, nose, ears, neck

Appearance:

Pearly, translucent nodule with telangiectasia

Central ulceration (rodent ulcer)

Slow growth, rarely metastasizes

Diagnosis: Clinical + Biopsy

Treatment-

Surgical excision (gold standard)

Mohs micrographic surgery (for cosmetically sensitive areas)

Cryotherapy, radiotherapy (if surgery not possible)

4.Warts

Warts - Key Points

Definition: Benign skin growths caused by human papillomavirus (HPV)

Types:

Common warts (Verruca vulgaris) – rough, raised, on hands/fingers

Plantar warts – soles of feet, painful

Flat warts (Verruca plana) – smooth, face/hands

Genital warts (Condyloma acuminata) – sexually transmitted

Transmission: Direct contact, autoinoculation

Diagnosis: Clinical examination

Treatment:

Salicylic acid, cryotherapy (first-line)

Electrocautery, laser therapy, surgical removal

Immunotherapy (imiquimod, intralesional bleomycin) for resistant cases

Prevention: HPV vaccine, avoid direct contact

5.Laparoscopic and robotic surgery

Laparoscopic Surgery

Minimally invasive

Hand-held instruments, direct surgeon control

2D camera view

Limited dexterity & range of motion

Robotic Surgery

Advanced form of laparoscopy

Robotic arms controlled by the surgeon

3D HD visualization

Greater precision, flexibility, and dexterity

Less surgeon fatigue

6.Stevens-Johnson Syndrome (SJS) & Toxic Epidermal Necrolysis (TEN)

Severe mucocutaneous reactions (drug-induced)

SJS: <10% body surface area (BSA) detachment

TEN: >30% BSA detachment

Causes: Drugs (Sulfa, NSAIDs, Anticonvulsants, Antibiotics)

Symptoms: Fever, malaise → painful blisters, skin sloughing

Nikolsky sign: Positive

Treatment:

Stop offending drug immediately

ICU/burn unit care, IV fluids, wound care

IVIG, cyclosporine (severe cases)

No steroids in TEN

7. iron def anemia

Iron Deficiency Anemia (IDA) – Key Points

Cause: Low iron intake, blood loss, malabsorption

Common in: Women (menstruation, pregnancy), children, elderly

Symptoms: Fatigue, pallor, pica, glossitis, koilonychia (spoon nails)

Labs:

↓ Hemoglobin, ↓ MCV (microcytic anemia)

↓ Serum iron, ↓ Ferritin, ↑ TIBC

Treatment:

Oral iron (ferrous sulfate) + vitamin C

IV iron (if severe or malabsorption)

Treat underlying cause

8.Electrocautery

Definition: Use of heat from electrical current to cut, coagulate, or destroy tissue

Types:

Monopolar (needs grounding pad)

Bipolar (no grounding pad needed)

Uses:

Surgical hemostasis (control bleeding)

Tissue destruction (warts, tumors)

Incision & dissection

Advantages: Minimal blood loss, precise tissue control

Complications: Burns, thermal injury, smoke inhalation risks

9.Osteoarthritis (OA)

Definition: Degenerative joint disease with cartilage loss

Risk Factors: Age, obesity, joint overuse, trauma

Joints Affected: Knees, hips, hands (DIP, PIP), spine

Symptoms: Joint pain, stiffness (morning <30 min), crepitus

X-ray Findings: Joint space narrowing, osteophytes, subchondral sclerosis

Treatment:

Lifestyle: Weight loss, exercise, physiotherapy

Medications: NSAIDs, acetaminophen, intra-articular steroids

Advanced cases: Joint replacement surgery

10.Aplastic anemia

Definition: Bone marrow failure → pancytopenia

Causes:

Idiopathic (most common)

Drugs (NSAIDs, chemotherapy, antibiotics)

Toxins (benzene, radiation)

Viral infections (EBV, Hepatitis, HIV)

Autoimmune diseases

Symptoms: Fatigue, infections, bleeding/bruising

Labs: ↓ WBC, ↓ RBC, ↓ Platelets, hypocellular bone marrow

Treatment:

Supportive: Transfusions, infection control

Immunosuppressive therapy (ATG, cyclosporine)

Bone marrow transplant (severe cases)

11. Chronic Myeloid Leukemia (CML)

Definition: Clonal myeloproliferative disorder of granulocytes

Cause: Philadelphia chromosome (t[9;22], BCR-ABL fusion gene)

Phases:

Chronic (asymptomatic, leukocytosis)

Accelerated (worsening symptoms, blasts 10-19%)

Blast crisis (resembles acute leukemia, blasts ≥20%)

Symptoms: Fatigue, weight loss, splenomegaly, night sweats

Labs: ↑ WBC, ↓ LAP score, basophilia, anemia

Diagnosis: PCR/FISH for BCR-ABL, bone marrow biopsy

Treatment:

Tyrosine kinase inhibitors (Imatinib, Dasatinib, Nilotinib)

Bone marrow transplant (for resistant cases)

12. Malaria

Cause: Plasmodium spp. (P. falciparum, P. vivax, P. ovale, P. malariae)

Transmission: Anopheles mosquito bite

Symptoms: Fever, chills, sweating (cyclical), headache, anemia, splenomegaly

Severe Malaria (P. falciparum): Cerebral malaria, shock, multi-organ failure

Diagnosis: Peripheral blood smear (thick & thin), rapid antigen test

Treatment:

Uncomplicated: Chloroquine (if sensitive), Artemisinin-based therapy (ACT)

Severe: IV Artesunate, supportive care

Prevention: Mosquito control, bed nets, chemoprophylaxis (for travelers)

13. Enhanced Recovery After Surgery (ERAS) - Six Key Components

1. Preoperative Optimization – Patient education, smoking cessation, nutritional support

2. Preoperative Fasting & Carbohydrate Loading – Minimize fasting, clear fluids up to 2 hours before surgery

3. Minimally Invasive Surgery – Laparoscopic/robotic approach when possible

4. Multimodal Analgesia – Reduce opioids, use regional anesthesia/NSAIDs

5. Early Mobilization – Encourage movement soon after surgery

6. Early Oral Nutrition – Resume feeding as soon as tolerated

14. Thalassemia –

Definition: Genetic disorder causing defective hemoglobin synthesis

Types:

Alpha-thalassemia (↓ α-globin chain production)

Beta-thalassemia (↓ β-globin chain production)

Clinical Forms:

Minor (trait): Mild anemia, asymptomatic

Intermedia: Moderate anemia, splenomegaly

Major (Cooley's anemia): Severe anemia, transfusion-dependent, growth delay

Symptoms: Pallor, fatigue, hepatosplenomegaly, skeletal deformities

Diagnosis:

Microcytic hypochromic anemia

Hemoglobin electrophoresis (↑ HbA2, HbF in beta-thalassemia)

Genetic testing

Treatment:

Regular blood transfusions (major cases)

Iron chelation therapy (to prevent iron overload)

Splenectomy (if needed)

Bone marrow transplant (curative in severe cases)

15. Henoch-Schö nlein Purpura (HSP) - Key Points

Definition: IgA-mediated small vessel vasculitis

Common in: Children (3-10 years), post-infection

Triad:

Palpable purpura (buttocks, legs)

Arthritis/arthralgia (knees, ankles)

Abdominal pain (colicky, GI bleeding)

Renal Involvement: IgA nephropathy (hematuria, proteinuria)

Diagnosis: Clinical, ↑ IgA, kidney biopsy (if severe)

Treatment:

Supportive (hydration, NSAIDs for pain)

Steroids (for severe GI or renal involvement)

Monitor renal function

16. Acute Respiratory Distress Syndrome (ARDS)

Definition: Severe lung inflammation → non-cardiogenic pulmonary edema

Causes: Sepsis (most common), pneumonia, trauma, aspiration, pancreatitis

Symptoms: Severe dyspnea, hypoxia, respiratory failure

Diagnosis (Berlin Criteria):

Acute onset (<1 week of insult)

Bilateral lung opacities (CXR/CT)

PaO_2/FiO_2 ratio ⩽ 300 mmHg (hypoxemia severity)

Not due to heart failure (rule out cardiogenic edema)

Management:

Low tidal volume ventilation (lung-protective strategy

PEEP to improve oxygenation

Prone positioning (severe cases)

Treat underlying cause

Supportive care (fluids, vasopressors if needed)

17.DMARDS SIDE EFFECTS

Anti-Rheumatic Drugs

	Agents	Side Effects
1	**Methotrexate (MTX):** ▪ It is the best initial DMARD. ▪ It takes 1 – 2 months to take its effect. ▪ A 6 – month course should be given, before concluding that it has been ineffective ▪ Monitor= CBC& LFTs monthly, then every 3 mo. ▪ Supplement with folic acid (5 mg/week)	1. Mouth ulcers 2. Hepatotoxicity 3. Bone marrow suppression 4. Alopecia 5. Pulmonary fibrosis
2	**Anti-Tumor Necrosis Factor (TNF) Therapy:** ▪ Agents: Etanercept, Adalimumab, Infliximab ▪ These are the first-line biologic agents for RA. ▪ These agents are often used in combination with MTX to prevent disease progression. ▪ These agents can be used as monotherapy, except for infliximab, which must be prescribed with MTX (reduces the risk of developing neutralzing antibodies) ▪ Always screen for TB (PPD and Chest x-ray) prior to starting treatment.	1. Reactivation of latent TB 2. Reversible lupus-like syndrome 3. Injection site reactions 4. Heart failure 5. Demyelination 6. Increased risk of malignancy (basal cell carcinoma of skin)
3	**Sulfasalazine** ▪ It is a DMARD used in combination with MTX & other agents. ▪ Monitor = CBC & LFTs initially monthly, then every 3 months	1. Nausea & GI upset, Rash 2. Hepatitis 3. Neutropenia, Pancytopenia 4. Orange staining (urine, contact lenses)
4	**Hydroxychloroquine** ▪ It is a DMARD ▪ It can be used as monotherapy in seronegative & mild disease. ▪ It is also used in combination with other DMARDs. ▪ Monitor = visual acuity & fundoscopy before starting, then annually	1. Maculopapular rash 2. Retinal toxicity 3. Corneal deposits
5	**Penicillamine:** ▪ It is a DMARD ▪ It is less commonly used now. ▪ Monitor = CBC & Urine for protein	1. Mouth ulcer 2. Metallic taste 3. Proteinuria 4. Thrombocytopenia
6	**Gold:** ▪ It is a DMARD (sodium aurothiomalate) ▪ It is less commonly used now. ▪ Monitor = CBC & Urine for protein	1. Mouth ulcer 2. Alopecia 3. Proteinuria 4. Myelosuppression

18.Consent & Types of Consent

Definition: Legal & ethical permission for medical intervention

Key Elements: Capacity, Voluntariness, Information, Understanding

Types of Consent:

1. Informed Consent – Patient fully understands risks, benefits, and alternatives

2. Implied Consent – Assumed in routine procedures (e.g., taking blood)

3. Verbal Consent – Spoken agreement for minor procedures

4. Written Consent – Signed document for major procedures/surgeries

5. Express Consent – Directly given (verbal or written)

6. Proxy Consent – Given by legal guardian (children, incapacitated adults)

7. Advance Directive – Pre-stated consent (living will, DNR orders)

19. Tinea Versicolor - Diagnostic Tests

Clinical Diagnosis: Hypo/hyperpigmented macules with fine scaling

Wood's Lamp Examination: Yellow-green fluorescence

KOH Mount (Microscopy): "Spaghetti and meatballs" appearance (hyphae & spores)

Fungal Culture: Rarely needed but confirms Malassezia spp.

Dermoscopy: Fine scales with yellowish hue

20. Gibbus Deformity with Osteoporosis

Gibbus Deformity: Sharp, angular kyphotic deformity of the spine

Causes in Osteoporosis:

Vertebral compression fractures (due to weak bones)

Multiple wedge fractures leading to kyphosis

Senile osteoporosis, postmenopausal osteoporosis

Symptoms: Back pain, height loss, hunched posture

Diagnosis: X-ray (wedge fractures), DEXA scan (↓ bone density)

Treatment:

Bisphosphonates, calcium, vitamin D

Pain management, physiotherapy

Bracing (if needed), surgical correction (severe cases)