

	Definition	Pathogenesis (Risk factors and etiology)	Diagnosis	Treatment	Epidemiology
Acute osteomyelitis	It is an acute infectious process of the bone and bone marrow. Found in the Metaphysis of long bones	They could be affected by: <ul style="list-style-type: none"> - Hematogenous route - Contiguous soft tissue focus: <ul style="list-style-type: none"> • Postoperative (after surgery) • Infection. • Contaminated open fracture. • Soft tissue infection. • Puncture wounds. - Peripheral vascular disease: <ul style="list-style-type: none"> • Diabetes mellitus. • Severe atherosclerosis. • Vasculitis. 	Could be done by: <ol style="list-style-type: none"> 1. Blood culture. 2. Aspiration. 	<ul style="list-style-type: none"> ➤ MSSA: <ul style="list-style-type: none"> - Cloxacillin - Clindamycin. ➤ MRSA: <ul style="list-style-type: none"> - Vancomycin - Clindamycin, - Linezolid - TMP-SMX. ➤ Polymicrobial infection: <ul style="list-style-type: none"> - Piperacillin-Tazobactam - Quinolone with Metronidazole. 	Primary hematogenous is most common in infants & children. But in adults, hematogenous cases less common, but may occur due to reactivation of a inactive infection from infancy or childhood. Most cases are due to <i>S.aureus</i> .
Chronic osteomyelitis	It is a chronic infection of the bone and bone marrow usually: <ul style="list-style-type: none"> - Secondary to inadequately treated - Relapse of acute osteomyelitis. 	They could be affected by: <ul style="list-style-type: none"> - S.aureus is the most common pathogen, other microorganisms: <ul style="list-style-type: none"> • S.epidermidis • Enterococci • Streptococci - Polymicrobial infection - Mycobacteria and fungi - TB & Brucella - Hematogenous osteomyelitis - Hematological spread “rare” 	Could be done by: <ol style="list-style-type: none"> 1. Blood culture “not helpful” 2. Or: <ul style="list-style-type: none"> • WBC “normal” • ESR “not specific” • Radiologic “good” • MRI “the best” 	<ul style="list-style-type: none"> ➤ Surgical: <ul style="list-style-type: none"> - With antibiotic therapy ➤ Long life antibiotic ➤ MSSA: Cloxacillin ➤ MRSA & S.epidermidis: <ul style="list-style-type: none"> - Vancomycin then oral Clindamycin - TMP-SMX ➤ Other bacteria: treat as acute osteomyelitis ➤ MTB: 4 drugs: <ul style="list-style-type: none"> - INH + RIF & Pyrazinamide + Ethambutol - RIF + INH ➤ Brucella is treated with: <ul style="list-style-type: none"> Tetracycline + Rifampicin 	It’s may not completely cured, and may recur many years or decades. Also some cases common with other diseases like: <ul style="list-style-type: none"> - Decubitus ulcers - Diabetic foot infections - Immunosuppressed Most cases are due to <i>S.aureus</i>.

Arthritis	Inflammation of the joint space secondary to infection.	<p>Etiology:</p> <ul style="list-style-type: none"> • Staphylococcus aureus (most common cause.) • Direct traumas. • Procedures. (Arthroscopy.) • Contiguous soft tissue infection. • Streptococci and aerobic gram -ve bacilli. • Lyme disease in endemic areas. • Salmonella (in sickle cell patients.) • MTB or fungi. (Mostly causes chronic arthritis. • Neisseria gonorrhoeae. (Common cause of gonococcal arthritis in young people and sexually active adults.) • Bacteremia or fungemia. (Causes nongonococcal arthritis in older adults.) <p>Risk factors:</p> <ul style="list-style-type: none"> • Age. • Rheumatoid arthritis. • Particular joint involvement. • Virulent pathogens. • Delayed response to therapy. 	<ul style="list-style-type: none"> • History examination (to exclude systemic illness.) • Arthrocentesis. • Blood cultures indications. • Specimen from cervix, urethra, rectum and pharynx for culture DNA testing for N.gonorrhoeae. (only if gonococcal infection is suspected.) 	<ul style="list-style-type: none"> • Arthrocentesis, (with drainage of infected synovial fluid.) • Repeated therapeutic arthrocentesis. • Arthroscopic or surgical drainage. • Antimicrobial therapy for gonococcal and nongonococcal arthritis. 	<p>Gonococcal arthritis: Excellent outcome.</p> <p>Nongonococcal arthritis: -Scarring. -Limitation of movement. -Ambulation is affected (in 50% of the cases.)</p>
Infections of Prosthetic arthritis	Infections that occur after joint replacement	<p>Etiology</p> <ul style="list-style-type: none"> • 5 years of joint replacement • Skin flora <p>Risk factors (Not mentioned in the slides)</p> <ul style="list-style-type: none"> • Diabetes mellitus • Obesity • The incidence of infection following arthroplasty revision surgery is higher than that in primary implantation 	<ul style="list-style-type: none"> • Aspiration & surgical exploration to obtain specimen for culture, sensitivity testing & histopathology. • Skin flora regarded as pathogens if isolated from multiple deep tissue cultures. • Plain X-ray may not be helpful. • Arthrography may help define sinus tracts. • Bone scan-not specific for infection. • ESR and C-reactive protein 	<ul style="list-style-type: none"> • Surgical debridement and prolonged antimicrobial therapy • Surgery: removal of prosthesis • Antibiotic • Antimicrobial for 6 weeks: • Begin empiric IV antibiotic to cover MRSA and Gram negative rods (Vancomycin+ Cefepime, Ciprofloxacin, or Aminoglycoside) • Chronic therapy with oral drug if removal of prosthesis not possible. 	<ul style="list-style-type: none"> • Occurs in 1 - 5 % of total joint replacement. • Result in significant morbidity and health care costs. • Successful outcomes result from multidisciplinary approach.

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