miMind

Septic Arthritis

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How infection reaches joint?

1.hematogenous spread of organisms from a distant infected site. 2.Direct penetration joint (trauma or surgery)
3. osteomyelitis or soft tissues infection near from joint.

Risk factors

Risk factor
- Previously injured joints
- Immunosuppressed patients
-Rheumatologic disease
-Ulcer
-UTI
- Infective endocarditis
- Bacteremia

Pathogens

Gram-positive : most commareis staphylococcus aureus .
Gram-negative :immunosuppressed,catheters.
Tb:immunocompromised, chronic joint pain with negative gram stain, culture, need synovial biopsy
Fungal :immunocompromised

Gonococcal : young sexually active
Two ways of presentations:
1. Tenosynovitis, polyarthralgia, and dermatitis syndrome(papules or macule transform to pustule
2.Purulent gonococcal arthritis(one joint affected)

Findings

Pain with passive flexion, unable to bear wt
erythema , effusion, fever

monoarthritis & acute new pain & limited joint movement.

Synovial fluid

-Normal: volume <3.5ml , transparent clear,high visosity, ,wbc<200,pmn<25.

-Non-inflamatory(OA):>3.5 ml,trasnparent yellow, high visosity, wbc<2000,pmn <25.

-Inflamatory (RA,SLE):>3.5ml, opaque yellow,,low viscosity, wbc>2000,,pmn>50.

-Septic :>3.5ml, , opaque yellow, >20000,pmn >75, positive
culture.
- Hemorrhagic :>3.5 ml, bloody red,variable wbc, pmn> 50-75.

Investigations

-Arthrocentesis before antibiotics with Gram stain, polarized microscopy for crystals, cell count, and differential .
leukocyte count >50,000/µL
ESR &CRP(monitoring Therapeutic)
PCT
CBC(leukocytosis, thrombocytosis)
Ferritin(high in inflammation)

Blood C/S
Urine routine
Urine C/S

If gonococcus is suspected do NAATs on synovial fluid plus
Synovial fluid cultures not always positive in 50% so do culture from the pharynx, GU system, and rectum,
If recurrent gonococcal infection check terminal complement deficiency.

Imaging in early course is useless,
USS for effusion ,CT, MRI detect effusion, osteomylitis

Management

Aspiration plus IV ab
-serial aspiraion with needle, arthroscopic, surgery.
Treatment successful if wbc & bacteria numbers are decreasing in synovial fluid.
Star with empire treatment that covered both gram positive and negative:
vancomycin plus 3rd generation cephalosporin (ceftriaxone or cefotaxime,ceftizidime)

Then go to single agent after you have the result of gram stain & drugs sensitivity.
According to gram stain:
Gram positive cocci:vancomycin
Gram negaive rod: 3rd generation cephalosporin
Negative gram stain:
1. Immunocompromised: vancomycin
2, immunocompromised plus IVID: vancomycin plus pseudomonas cephalosporin
2. Traumatic: vancomycin plus 3rd gen cephalosporin

-NSAID
- orthopedic referral
- physiotherapy referral
- immobilization, splint

G negative rod

1st line 3rd generation cephalosporin :
Ceftriaxone 2g IV q24hr
Ceftazidime 2g IV q8hr
Cefotaxime 2g IV q8hr
Cefepime 2gr IV q8hr
2nd line
Meropenem 1g IV q8hr
Ertapenem 1g IV q24hr
Levofloxacin 750mg IV or PO
Ciprofloxacin 750 mg po q12,or Iv 400mg q12hr or q8hr if pseudomonas

MSSA :

NO 4hr
Nafcillin 2g IV q4hr
Oxacillin 2g IV q4hr
F 6 hr
Flucloxacillin 2g IV q6hr
C 8 hr
Cefazolin 2g IV q8hr

MRSA

1st line vancomycin
IV 15-20mg/kg q12

2nd line daptomycin; linezolid,clindamycin
Daptomycin 6-10mg/kg IV q24 hr
Linezolid 600 mg po or IV q12
Clindamycin 600 mg poor Iv q8hr

Pseudomonas aeruginosa

1st Ceftazidime; cefepime; piperacillin-tazobactam
2nd Carbapenems; aztreonam; fluoroquinolones

Duration :

If Septic arthritis plus bacteremia or osteomylitis = IV ab for 4 wk
If septic arthritis alone=IV ab for 2 wk followed by PO ab for 2 wk
oral agents
MSSA:
Dicloxacillin 500 mg q6hr
Flucloxacillin 500 mg q6hr
Cephalexin 500 mg q6hr
If Penicillin allergy
Clindamycin 600 mg q8hr
MRSA:
Clindamycin 600 mg q8hr
tmp-smx 2 double strength tablit twice daily
Doxycycline 100 mg q12
Linezolid po 600 mg q12