CONNECTIVE TISSUE DISEASES & RHEUMATOLOGY

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- Disorders of the musculoskeletal system affect all ages & ethnic groups.
- These disorders may arise from processes affecting bones, joints, muscles or connective tissues such as skin & tendon.
- The principle manifestations are pain & impairment of locomotor function , as musculoskeletal system is responsible for movement of the body , & provides framework to protect the internal organ .
- Musculoskeletal system also act as reservoir for calcium & phosphate storage & regulation of their homeostasis.
- The main component of musculoskeletal system are:
- 1- The bone . Of 2 types , flat as skull & long bones, as in femur , which usually end with growth plate.
- 2-Joints : of 3 main types , fibrous , fibrocartilaginous & synovial joints. Most body movement occur in synovial J.
- 3- Skeletal muscles .

CLINICAL MANIFESTATION OF MUSCULOSKELETAL DISEASES

- On examining a patient presenting with musculoskeletal disease , it is important to perform through medical , after taking full history. We have to ask about (manifestation) :
- 1- Pain . 2- restricted movement & number of joint involved 3- rash . 4- fever .5- preceding diarrhea , burning micturition , skin rash, 6- duration of the illness. These manifestations could occur alone or in combination with other body system involvement (GIT, RENAL , RESPIRATORY, OPHLALMOLOGIC , CV , CNS , GENITOURINARY).
- The examination should include :
- 1-Body surface , especially the extensor surfaces for , rheumatoid nodules, swollen bursa, skin rash (psoriasis).
- 2-Hands : for any swelling deformity, nail changes , tophi & Raynaud's.
- 3- Face : for rash , alopecia , mouth ulcer, with eye examination.
- 4- Trunk : for kyphosis , scoliosis , tender spots (in fibromyalgia) .
- 5- Legs & feet : for deformity , swelling (acute gout) , restricted movement , redness .
- After general examination ., full musculoskeletal examination of each joint in the body should be carried out.

RHEUMATIC DISEASES

- 1- Sero-positive rheumatic disease. (rheumatoid arthritis) .
- 2- Sero-negative rheumatic disease. (Ankylosing spondylitis).
- 3-Connective tissue disease (Systemic lupus erythematosus).
- 4-Vasculitis. (Giant cell arteritis).
- 5-Crystal deposit arthritis . (Gout & Pseudo-gout).
- 6- Infective arthritis . (Septic arthritis, meningococcal A. , TB. arthritis).
- 7- Rheumatic fever .

VASCULITIS

- 1- Large vessel vasculitis : Takayasu‘s arteritis , temporal arteritis.
- 2- Medium vessel vasculitis : Polyarteritis nodosa.
- 3- Small vessel vasculitis : Henoch-Schonlein purpura.
- The clinical manifestations depends on the size of vessel involved , the organ it supplies , & the associated signs with the age of the patient.

RHEUMATIC FEVER

- Occurs in children after group A β-hemolytic streptococcal infection of the tonsils & pharynx, & is usually presents after 2-3 weeks from the onset of the infection.
- ASO titer is usually used to confirm the preceding streptococcal infection & a titer ≥ 300 I.U in children & ≥200 I.U in adult is diagnostic of recent infection.
- The diagnosis of the disease depends on the Major & Minor criteria . Two major or 1 major & 2 minor is diagnostic in a patient with recent streptococcal infection. The major criteria are:
- 1-Arthritis. 2- Carditis. 3- Rheumatic nodules. 4- Erythema marginatuem.
- 5-Sydenhams chorea.

1-INVESTIGATIONS OF MUSCULOSKELETA DISEASES

- To confirm the diagnosis of musculoskeletal disease , tests needed to be performed as all these disorders present with almost same presentation (pain , limitation of movement , systemic symptoms with or without skin rash).
- These tests aim to limit the differential diagnosis , & sometimes need to be repeated for diagnosis & follow up during treatment .
- 1- Blood tests : A- hematology with (FBC) ,for WBC & differential , Hb. Level , Platelet count, direct antiglobulin test for hemolysis, lupus anticoagulant (RV venom test).

2- INVESTIGATIONS OF M.SKELETAL DISEASE

- B- Blood biochemistry : Renal function tests & liver function tests are important especially in patient taking treatment . S.uric acid is needed in patients presenting with acute joint inflammation. C-reactive protein & ESR in useful for diagnosis of SLE , in which C-RP is normal with high ESR .
- C- Immunology : these Antibodies are widely used in the diagnosis of rheumatic diseases. e.g. of these test are : Rheumatoid factor & anti-citrullinated peptide antibodies , which is more specific to RA & have prognostic implications. Antinuclear and antiphospholipid antibodies in SLE. Anticytoplasmic Abs. Such as (ANCA) for diagnosis & monitoring systemic vasculitis (p-ANCA & MPO).
- D- Complement : low complement C3 occur in active SLE, low C4 is less specific . High C3 is non-specific marker of inflammation .

3- INVESTIGATIONS IN M.SKELETAL DISEASES

- Imaging studies : Joint X ray is initial imaging test in M.Skeletal diseases , it detects any abnormal calcification in or surrounding the bone or joint & for any body defect or hypercalcified spots in cases of metastatic invasion of the bone , being osteoclastic or osteoblastic , respectively .It also gives a rough idea about the bone density . Other imaging tests are MRI, US, CT scan , Dual X-ray absorptiometry (DXA scan) , bone isotope scan .
- E-Joint aspiration & tissue biopsy : some times needed , especially the joint aspiration in crystal deposit arthropathy (gout , pseudogout) , & also in suspected bacterial infection (pyogenic or TB.) for culture & sensitivity . It is also used in cases of intraarticular injections such as intraarticular steroid. Joint biopsy is sometime performed in cases of monoarthritis to diagnose or exclude TB. as a cause.

4- INVESTIGATIONS IN M.SKELETAL DISEASES

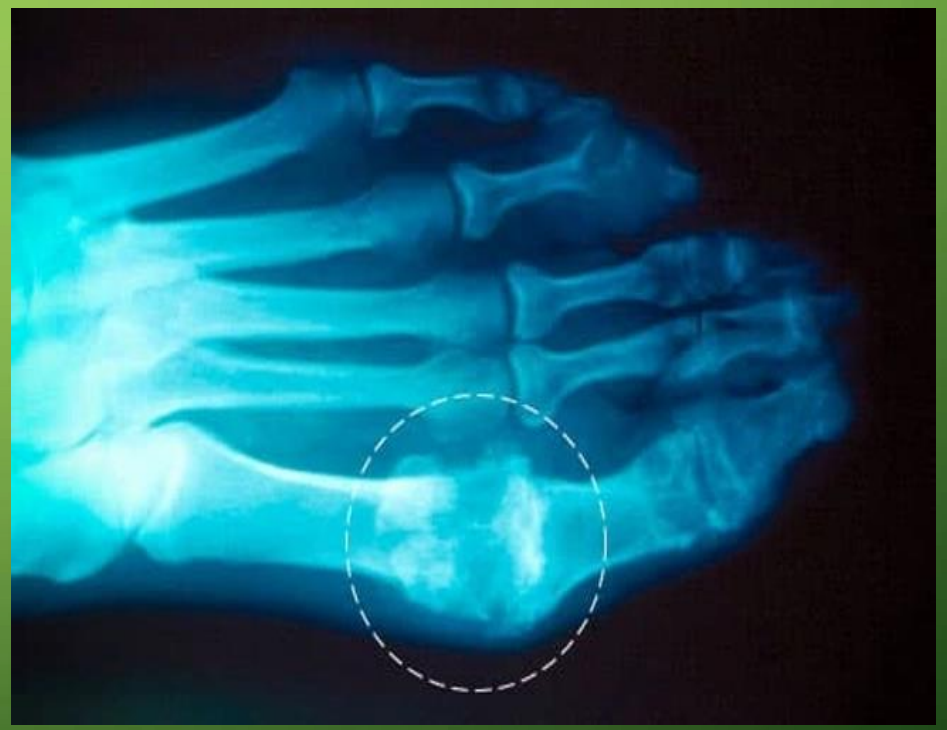
- F – Electromyography : it is of value in the investigation of suspected myopathy and inflammatory myositis, when it shows the diagnostic triad of:
- 1- spontaneous fibrillation.
- 2- polyphasic action potential of short duration.
- 3- repetitive bouts of high- voltage in diseased muscle.
- Sometimes the rheumatologic diseases could over lap in presentation & diagnosis (overlap syndrome) , & long time follow up can settle the diagnosis.
- Malignant disease can present with musculoskeletal manifestation , which can be long time before the clinical picture gives a clue to the initial causative for these presentations (polymyositis & myopathies) .

RHEUMATOID ARTHRITIS

SYSTEMIC LUPUS ERYTHEMATOSUS

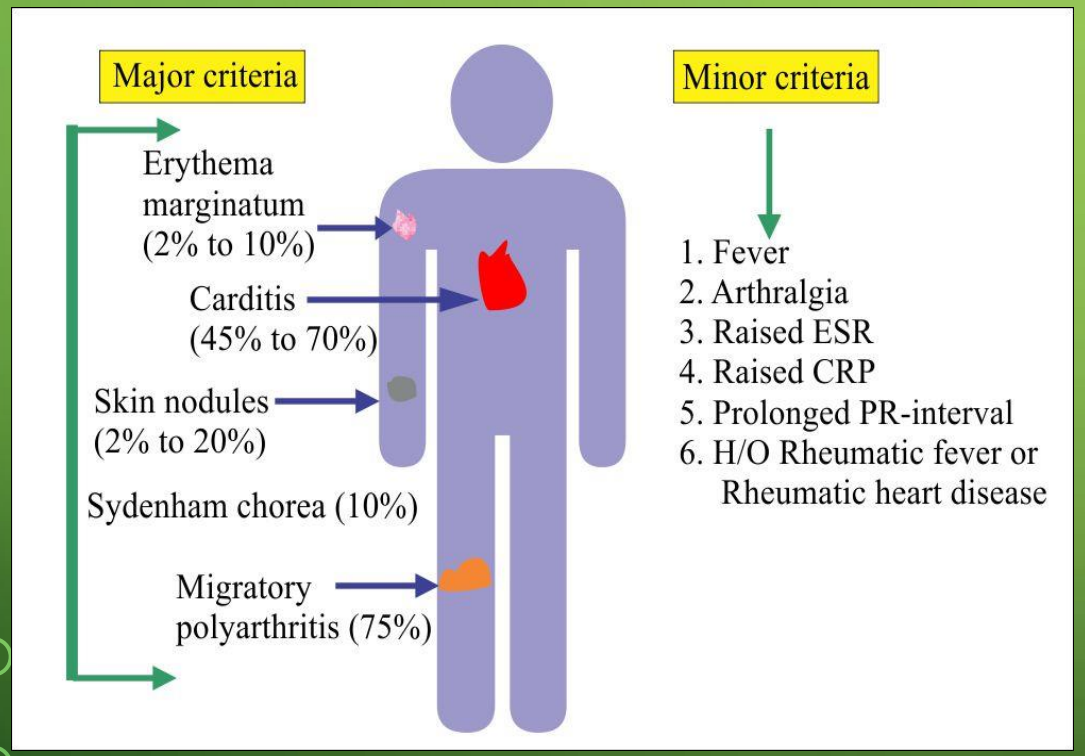
PSORIATIC ARTHRITIS

GOUTY ARTHRITIS



GOUT

RHEUMATIC FEVER



ANKYLOSING SPONDYLITIS

HENOCH- SCHOENLEIN PURPURA

SEPTIC ARTHRITIS