Diseases of joints

Arthropathy(Osteoarthropathy,Degenerative joint disease)

It is non inflammatory lesions of the articular surfaces of joints characterized by Degeneration and erosion of articular cartilage and sub chondral bones, with hypertrophy of bone surrounding the articular cartilage resulting in notch formation at the joint margins.

Etiology…it may occur due to
1- conformational defects resulting in excessive joint laxity طراوه
2- acute traumatic injury of a joint
3-the normal aging process and
4-nutritional deficiencies
5- Chronic zinc poisoning
6- The intra-articular injection or prolonged parenteral administration of corticosteroids
7- Growth rate, body size, and genetic predisposition

Pathogenesis…
1- The initial lesions occur in the superficial layers of the articular cartilages with loss of the normal resilience مرونهof the cartilage,with lowering of the chondroitin sulfate content and reduction in the permeability of the cartilaginous matrix, which results in progressive degeneration of the articular cartilage.
2- There is grooving of the articular cartilage,damage of subchondral bone and secondary hypertrophy of marginal cartilage and bone, with the formation of pearl-like osteophytes And finally increased synovial effusion with synovitis and capsulitis .
3- As a result of the inflammatory response, leukocytes,prostaglandins, lysosomal enzymes and hyaluronidase enter the synovial fluid,which becomes less viscous and affects the nutrition of the cartilage.

Cinical findings…
1- The major clinical characteristic is a chronic lameness that becomes progressively worse over a long period of time and does not usually respond to treatment.
2-A common clinical history is that the affected animal becomes progreSSively more lame over a period of weeks and months and prefers long periods of recumbency.
3-Young breeding bulls in the early stages of coxofemoral arthropathy may be reluctant to perform the breeding act and yet appear to have sufficient libido.
4-There is usually difficulty in flexing affected joints normally, which results in a stiff gait.
5-shifting of weight from limb to limb
6-as the lesions become more painful, there is a decline in appetite and milk production, prolonged recumbency and considerable difficulty in rising from the recumbent state.
7-Distension of the joint capsule is not a characteristic, as it is in an infectious or suppurative arthritis. The joint capsule of palpable joints is usually not painful on palpation.
8-creptiation is most common in the large movable joints, such as the stifle,

Treatment
1-Correction of the primary cause
2-Te use of Nonsteroidal anti-inflammatory agents such as phenylbutazone,flunixin meglumine, ketoprofen.
3-Intra-articular steroids such as methylprednisolone acetate, betametasone,and triamcinolone .
4-Chond roprotective agents such as hyaluronic acid, polysulfated glycosaminoglycan,and oral glucosamine chondroitin sulphate

Arthritis and Synovitis

Inflammation of the synovial membrane and articular surfaces as a result of infection occurs commonly in farm animals, It characterized by varying degrees of lameness and a warm and swollen painful joint with abnormal synovial fluid containing an increased leukocyte and the pathogens. arthritis may be severe enough to cause systemic illness, and in some cases a draining sinus tract may occur.

Etiology ….
1-Specific bacterial infections of the joints are most common in newborn farm animals, in which localization of infection occurs in joints following bacteremia or septicemia..specilly when ingestion of colostrums were delay for at least 4 h.
2-In all animals Nonspecific joint-ill from omphalophlebitis associated with fusobacterium necrophorum,E.coli, Staphylococcus sp,Erysipelothrix ,Salmonella dublin, Salmonella typhimurium, Salmonella abortivoequina ,Mycoplasma bovis. Actinobacillus equuli, Corynebacterium pseudotuberculosis
3-Traumatic perforation of the joint capsule.
4-Spread from surrounding tissues, e.g.footrot
5-Hematogenous spread from suppurative lesions commonly in udder, uterus, diaphragmatic abscess, infected navel or tail and castration wounds.

Pathogenesis…
1- infectious arthritis that is hematogenous in origin there is usually a synovitis initially, followed by changes in the articular cartilages and sometimes bone with localization of the infectious agents in the synovial membrane and joint cavity.
2-The synovial membrane is inflamed and edematous, and there are varying degrees of villous hypertrophy and deposition of fibrin. Bacteria colonize in synovial membranes, which makes treatment difficult.
3-The synovitis causes distension of the joint capsule with fluid and the joint is painful and warm.
4-progressive infectious synovitis commonly results in pannus formation between articular surfaces with erosion of articular cartilage.
5-In the chronic stages there is extensive granulation tissue formation,chronic synovitis and degenerative joint disease with osteophyte formation, and ankylosis is possible

Clinical findings…
1-Inflammation of thesynOvial membrane causes pain and lameness in the affected limb, sometimes to the point that the animal will not put it to the ground. Pain and heat are usually detectable on palpation and passive movement of the joint is resented.
2- The joint may be swollen but the degree will depend on the type of infection.as Pyogenic bacteria cause the greatest degree of swelling and may result in rupture of the joint capsule
3-Fever, inappetence to anorexia, endotoxemia, loss of body weight and discomfort may occur in animals with only one severely affected joint or when several joints affected.
4-In neonatal infections arthritis may accompanying by omphalophlebitis and evidence of lesions in other organs, particularly the liver,endocardium and meninges.
5-The joints most commonly involved are the hock, stifle and knee but infection of the fetlock, interphalangeal and intervertebral joints is less common.
6-In chronic cases there may by physical impairment of joint movement because of fibrous thickening of the joint capsule,periarticular ossification and rarely ankylosis of the joints. Crepitation may be detectable in joints where much erosion has occurred.
7-The prognosis in cases of advanced septic arthritis is poor. Neglected animals may die or have to be destroyed because of open joints or pressure sores.

Clinical pathology…it done by
1-Arthrocentesis,Aspiration of joint fluid for culture and analysis
2-Analysis of joint fluid…Total and differential cell count, total protein concentration and specific gravity are determined
3-Culture of joint fluid…..Joint fluid must be cultured for aerobic and anaerobic bacteria
4-Serology of joint fluid…Serological tests may be of value in determining the presence of specific infections with mycobacterium mycoides,Salmonella spp., Brucella spp., and others
5-Radiography,ultrasonography and arthroscopy .

Treatment…
1-Parentral antimicrobial therapy as penicillins, tetracycline, trimethoprim ,sulfonamides, neomycin,gentamicin, and kanamycin are commonly used for several days .
Failure to respond to conservative therapy will occur some times due to…

- Inadequate concentrations of antimicrobials achieved in the joint cavity
- Presence of excessive amounts of exudate and fibrin in the joint making the infectious agent inaccessible to the antimicrobial
- Drug-resistant
- The development of rheumatoid-like arthritis, which is chronic and progressive.

2-Intra-articular antimicrobials
3-Lavage of joint by Drainage
4-Physical therapy by applying hot fomentation in chronic inflammation and cold one in acute inflammation to reduce the swelling and relief the pain
5-the use of steroids and non steroids anti inflammatory agents .

Congenital fixation of joints

It is congenital articular rigidity occur in new born animals due to
1-Hereditary congenital articular rigidity
2-Inherited arthrogryposis
3-Inherited multiple tendon contracture
4-Inherited multiple ankylosis
5- Intrauterine infection with Akabane virus
6- Dietary deficiency of manganese
7- Poisonous plants