



Tikrit University  
College of Veterinary Medicine

# Lecture Title

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Subject name: **Lameness**

Subject year: **surgery \ 4<sup>th</sup> stage**

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Lecturers link

# Lameness

**Lameness:-**It is a signs of disease in which the animals try to hold the affected limb or bear part of weight on affected limb. It is indicating of any structural or functional disturbance of one limb or more, appear during movement or rest. It occur due to trauma, infection, metabolic disturbance, congenital deformity, disturbance of circulation & disturbance of neurology.

## **Etiology:-**

### **1-predisposing factors:-**

- a-immaturity & weakness.
- b-bad conformation of bony structure.
- c-defect in shoeing.

### **2-exciting factors:-**

- a-trauma.
- b-congenital or acquired defect.
- c-infection.
- d-circulatory disturbance (iliac thrombosis).
- e-nervous disturbance.
- f-muscular in coordination (due to fatigue).

## **Classification of lameness:-**

**1-supporting leg lameness:-**(weight supporting or limb is landing) occur when the animal putting the lame limb on the ground, is seen in animals suffering from affection of joint, ligament, bones, motor nerves or feet.

**2-swinging leg lameness:-** this type of lameness appear more clear during motion, it occur with the affection of joint capsule, muscle & tendons.

**3-mixid lameness:-**occur during motion & when supporting of limb accompanied with both affection.

**4-complementary lameness:-**lameness occur in the sound limb, due to uneven distribution of weight on another limb or limbs.

### **Another classification:-**

**1-cold lameness:-** occur during rest & disappear in exercise such as in spavin disease.

**2-hot lameness:-** occur during exercise & disappear in rest.

### **Diagnosis of lameness:-**

Diagnosis is difficult & requires careful & prolonged observation of sound & lame horse during rest & during motion. It is necessary to reach 3 factors

1-which limb is lame.

2-the site of lameness.

3-the nature of the lesion.

### **The procedure of diagnosis include:-**

1-taking of history.

2-inspection & examination.

3-palpation.

4-percussion.

5-nerve block.

6-radiography.

7-ultrasonography.

8-MRI.

9-thermography.

10-nuclear scintigraphy.

11-synovial fluid analysis.

12-arthroscopy.

### **The site of lameness can be diagnosed by:-**

1-inspection of the limb.

2-palpation to know the nature of lameness or type of swelling.

3-passive movement of the joint(including extension, flexion, adduction, abduction & rotation) if they cause pain, such as **spavin test**- in which we flex the hock joint forcibly for several minutes & then send the horse on at a trot, when the animal become lame (increased lameness) that mean the joint affected.

4-injection of local anesthesia over certain nerves(nerve block), as in diagnosis of navicular disease.

5-radiography & ultrasonography.

6-make a special & thorough examination of the foot.

(a-inspection b-palpation c-percussion d-compression e-paring f-measuring hoof by caliper g-nerve block h-radiography to know the nature of the lesion & the extension (extent of lameness)).

### **Affection of hoof in horse:-**

#### **1-sand crack:-**

Fissure in the wall of the hoof, usually parallel to the horny tubules.

#### **Classification:-**

-it may be complete / or incomplete, simple / or complicated, superficial / or deep.

-it may be at the toe, quarters, or heels.

-it may be false when start from the ground border or true when start from the coronary border.

#### **Causes:-**

1-trauma.

2-false shoeing.

3-severe extension of hoof joint.

4-laminitis.

5-use of animal in sandy ground for long time.

6-over loading of animal.

#### **Symptoms:-**

1-presence of crack.

2-lameness only in complicated cases ( when the crack reach to the sensitive tissue).

#### **Treatment:-**

The aim of treatment is the immobilization of the lips of the crack & promote the secretion of new horn to fill the crack.

1-the hoof wall at the bearing surface should be lowered about 1 inch on either side of the crack.

2-when the crack not reach to the coronary border, make an curve incision or an triangular incision in the wall of the hoof by hoof knife or by burning to limit the upward progress of fissure.

3-The crack should be thoroughly cleaned, apply Tr. Iodine & bandage.

4-another method of treatment by drilling on both side of crack & sutured with stainless-steel wire in addition to cleaning & bandage.

5-or by using special type of shoe in case of quarter crack.



## **2-Corn:-**

Is a contusion of the sensitive tissue at the heel in the angle between the wall & the bar, the structure affected being the sensitive tissue of the sole, wall, or bar. The condition is most common in horses working in cities.

## **Etiology:-**

1-is very rare in un-shoed feet.

2-any defect in shoeing.

3-a stone accidentally fixed between the heel of the shoe & the frog may cause a bruise in this situation.

## **Symptoms:-**

1-local symptom of a contusion with more or less acute inflammation.

2-lameness in different degree.

**Diagnosis:-**

Made from the symptom.

**Treatment:-**

1-remove the cause.

2-paring the horn over the corn.

3-when suppuration has extended beneath the sole its advisable to remove a portion of the sole over the suppuration to ensure the escape of pus.

**3- Seedy toe:-**

One of the disease of hoof characterized by separation of the wall from the sub corneal tissue, & the formation in the interspaced of crumbly pumice-stone like horn secreted by the sensitive lamina. This abnormal horn does not completely fill the space beneath the wall, which is consequently more or less hollow. Or defined as separation of the wall from the sensitive lamina at the toe & degeneration in the sensitive lamina.

**Etiology:-**

Unknown (not clear) but may due to chronic local laminitis.



**Symptom:-**

- 1-presence of cavity & separation of the wall.
- 2-lameness when its complicated.

**Treatment:-**

- 1-rest.
- 2-remove the shoe.
- 3-paring of the wall.
- 4-use of hot application to promote secretion of wall.
- 5-remove the new formation of horn & fill the space by tar.
- 6-put the animal in soft ground.

**4-Thrush:-**

Is an degenerative condition of the frog characterized by an offensive grayish discharge(black discharge) from the central lacuna, & sometimes from the lateral lacunae, with more or less disintegration of the horny tissue.

**Etiology:-**

Constant moisture of the frog ( prolong standing on dirty wet litter).

**Symptoms:-**

- 1-local inflammation & discharge.
- 2-lameness.

**Diagnosis:-**

By the symptoms.

**Treatment:-**

- 1-cleaning the area.
- 2-apply carbolic acid.
- 3-use of copper sulfate.
- 4-use of antibiotic.

**5-Canker:-**

Is a chronic hypertrophy of the horn producing tissue of the foot, often affect the hind feet of draft horse.



**Causes:-**

Unhygienic conditions in stable, like long standing in mud, or wet dirty stable (soaked with urine & feces).

**Signs:-**

- 1-Foetid odor & ragged appearance of the frog.
- 2-Horn tissue of the frog loosen easily reveal a foul smelling when removed.
- 3-Swollen of the corium covered with a caseous white exudates, the corium show chronic vegetative growth, the lesion may extend to the sole or wall. The lesion bleed easily & has little tendency to heal.

**Diagnosis:-**

- 1-By the history.
- 2-clinical signs.
- 3-appearance of the foot & the offensive odor, & must be differentiate from the thrush.

**Treatment:- (Ineffective)**

- 1-keep the animal in clean dry place.
- 2-remove the affected tissue & apply antiseptic & astringent.
- 3- ( 5%) picric acid solution under the bandage.
- 4-caustic agent such as mixture of copper sulfate & zinc sulfate crystals.
- 5-use of systemic antibiotics (IM) such as penicillin.
- 6-duration of treatment 10 days to 6 weeks.

Thrush = Generally restricted to the clefts of the frog, central sulci, or puncture wounds.

Canker = Invades the horn of the frog anywhere throughout the structure.

Thrush = Damaged tissue turns dark black.

Canker = Damaged tissue turns a pale white or yellow.

Thrush = Loss of tissue.

Canker = Rapid increase of tissue.



### **6-Quittor:-**

It is chronic purulent inflammation of the collateral cartilage of the hoof, characterized by necrosis of the cartilage & sinus formation discharging pus at the level of the coronary band.

### **Etiology:-**

- 1-injury & infection.
- 2-necrosis of the skin.
- 3-suppurative corn or sand crack.

### **Symptoms:-**

Acute lameness of the affected foot, swelling at the coronate, then formation of sinus, usually have only one orifice, discharging pus.

### **Treatment:-**

- 1-injection of an antiseptic solution.
- 2-injection of a caustic liquid such as silver nitrate.
- 3-currating.
- 4-thermocautary of the sinus.
- 5-surgical removal of the affected cartilage.



**7-Navicular disease:-** (Navicular bursitis, Podotrochleitis)

It is chronic osteitis of the navicular bone, begins as bursitis of the navicular bursa between the deep flexor tendon & the navicular bone as the disease progresses, degeneration & erosive lesion of the fibrocartilage begin on the tendinous surface of the bone.

**Etiology:-**

- 1-inheritable disease.
- 2-defect in shoeing.
- 3-picked up nail.

**Symptoms:-**

- 1-intermittent lameness appear when hard get.
- 2-the horse stand with the affected foot pointed on the toe.
- 3-examination with hoof tester pointed the pain at the center third of the frog.
- 4-radiographic examination reveal changes in the navicular bone.

**Diagnosis:-**

- 1-by clinical signs.
- 2-by radiography.
- 3-blocking of the posterior digital nerve can be an aid in diagnosis (low volar/ or planter nerve block).

**Treatment:-**

- 1-injection of navicular bursa with corticosteroids.
- 2-bilateral posterior digital neurectomy.

**Prognosis:-**  
Unfavorable.



**8-Laminitis (Founder):-**

Inflammation of the sensitive lamina of hoof occur in all the four feet or in both fore or both hind feet or in one foot, but never in only two diagonal or two lateral feet.it may be infectious or non-infectious, it is characterized by passive congestion of the lamina with blood, with severe cases acute laminar degeneration lead to separation of the horny materials of the hoof from the sensitive lamina, & rotation (sink)of the distal phalanx due to the pulling force of the deep digital flexor tendon. Even slough of the hoof may occur.

**Etiology:-**

**1-predisposing factors:-**

The disease occur associated with many pathological conditiona such as :

- heavy body weight.
- unfit condition.
- hot weather.
- error in diet(taking large quantities of grain).
- over work .
- excessive weight on foot.
- taking of grass in some time of year (spring & fall).
- toxaemia.
- gastroenteritis.
- retained placenta.

- excessive trimming of hoof.
- training on hard ground.

## **2-Many theories for explaining the real causes:-**

- a-Endotoxine induced micro thrombosis.
- b-Shunting through arteriovenous anastomosis.
- c-Vasoconstriction & perivascular edema.
- d-Activated enzymes destruction of the basement membrane.

### **Classification:-**

#### ***\*In related to the cause:-***

- Grain founder.
- water founder.
- post parturient laminitis.
- grass founder.
- road founder.....etc.

#### ***\*In related to the severity :-***

##### **a-Acute laminitis:-**

- subacute (mild form).
- acute (severe form)- rotation of coffin bone.
- refractory (unresponsive).

##### **b-Chronic laminitis:-**

- early chronic.
- active chronic.
- stable chronic.

### **Symptoms:-**

- 1-increase digital pulse.
- 2-heat in the feet.
- 3-lameness.

The horse unable to walk (show reluctance to move) (walking on eggs).

**If the front feet** are affected , the horse putting the hind limb under the mid of the body, & the front limbs stretched out in front of the body with the weight on the heel of the foot.

**If all the four feet** are affected , horse tends to lie down for long time,& when standing put all the feet near others under the body.

**If only one limb** is affected, the animal tend to supporting weight on the sound limbs & make shifting of weight.

**Diagnosis:-**

Depends on the clinical sings, & radiography ( show the rotation of the third phalanx within 3 days of the disease & protrusion of the sole in 10 days).

**Prognosis:-**

Guarded.

**Treatment:-**

1-low dose of heparin 40IU/kg.

2-use of nitroglycerine ointment on the foot 10-15mg/foot.

3-cryotherapy, put the foot in cold water 4C°.

4-when the sings of acute stage appear, put the animal in sling, or allow the animal to recumbent for long period ( to decrease the pressure).

5-give Dimethyl sulfoxide (DMSO) in ( 20-100mg/kg) IV reduce the edema.

6-give acepromazine (0.01mg/kg) every (4hrs) to make vasodilatation & reduce the vasoconstriction.

7-give flunixin meglumine or phenylbutazone as anti-inflammitory & analgesic.

8-high dose of broad spectrum systemic antibiotic.

9-physical therapy by use frog of Styrofoam, put wet sand in the stable 10 cm thickness, or heavy layer of polyurethane.

10-elevation of heel 15-20° by plastic pad.

11-trimming & shoeing with shoe with pad, or reverse heart bare shoe.

Or

1-icing the feet no longer than 72hrs.

2-drug administration like:-

a-Phenylbutazone 4.4 mg/kg on day 1, 2.2mg/kg for 4 days. As non-steroidal anti- inflammatory of the laminae & provide pain for the horse.



b-Dimethyl sulfoxide (DMSO) can be administered by nasogastric tube or IV injection of a 40% solution of DMSO in lactate Ringers solution for a total of three injections.(1gm/kg B.W 10%).

c-Acepromazine (0.02-0.1mg/kg B.W.) IV or IM.

d-Lidocaine, Topical nitroglycerin, to dilate the blood vessels in the foot.

3-corrective shoeing to support the frog.

4-give rest to the animal.



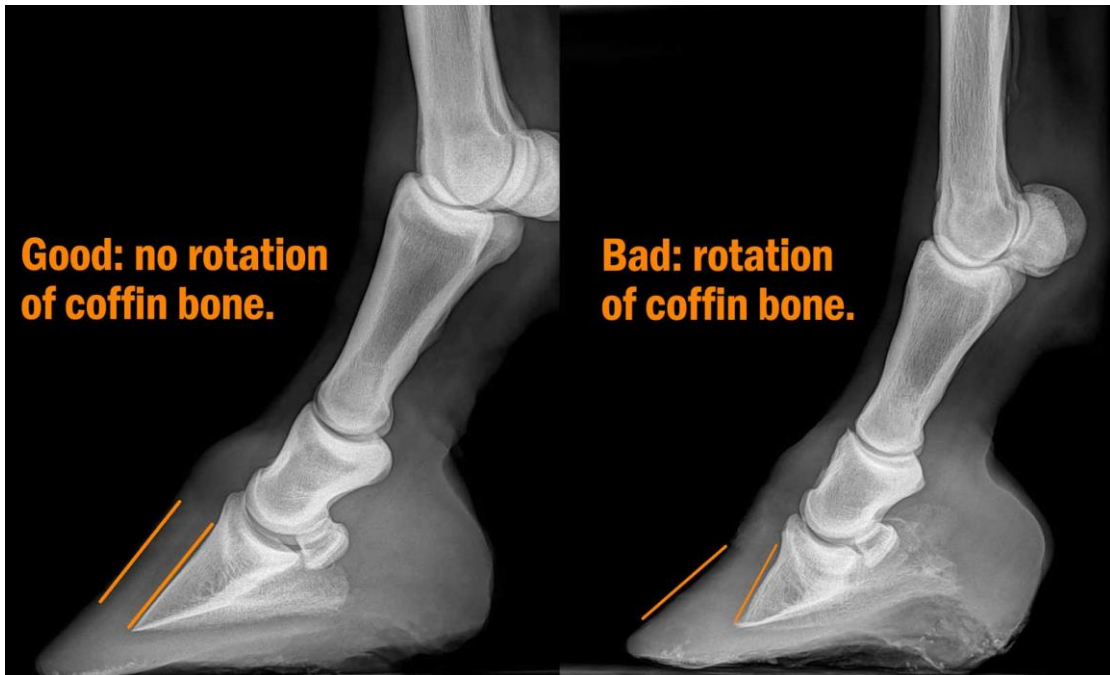
Laminitis affected front limbs



Laminitis affected all feet



Laminitis affected one limb



Laminitis

## **Arthritis**

### ***Arthritis:-***

Are inflammation of the joint.

Inflammation of one or all the component of the joint which include the bone forming the joint (the articular surface of the bone), articular cartilage, the joint capsule, & the associated ligaments of the joint (periarticular & collateral ligaments).

### **Classification of arthritis:-**

#### ***-Depend on activity:-***

Acute & Chronic arthritis.

#### ***-By the type or by the cause:-***

- 1-Serous arthritis (traumatic arthritis).
- 2-Osteoarthritis (degenerative arthritis).
- 3-Infectious arthritis (suppurative arthritis).
- 4-Ankylosing arthritis (adhesive arthritis).
- 5-Metabolic bone disease (Rickets).
- 6-Arthritis due to neoplasia of joint.
- 7-Villos arthritis.

#### **1-Serous arthritis:-**

Is a mild type of acute inflammation of the joint caused by trauma, & characterized by inflammation of the synovial membrane with increased synovia causing swelling & increase capsular pressure without any irreversible changes in the joint.

#### **Causes:-**

Trauma to the joint (use, age, excessive weight, during exercise, strain, sprain, etc.).

#### ***Signs:-***

- 1-swelling.
- 2-hotness.
- 3-angulation & disuse of the joint.
- 4-lameness.



**Diagnosis:-**

By the 1-history 2-clinical signs. 3-clinical examination. 4-Radiography.  
5-examination of synovial fluid. 6-MRI.

**Treatment:-*****In acute case:-***

1-rest & immobilization by using bandaging (pressure bandage & bandage support), & immobilization by casting (plaster of paris).

2-physiotherapy like (Hydrotherapy, cold hydrotherapy like application of ice immediately to reduce inflammation. Hot hydrotherapy after 48hrs. to relieve pain & reduce tension. Swimming, electromagnetic therapy, electro stimulation, use of low laser therapy. Diathermia & ultrasound also used.

3-Liniments & massage like applications of antiphlogestic such as Denver mud (for relieve of inflammation).

4-Use of dimethyl sulfoxide (DMSO)alone or mixed with corticosteroid to reduce soft tissue swelling & inflammation resulting from acute trauma, it is specific anti-inflammatory & local analgesic drug, also reduce edema, anti-arthritis effect & increase penetration of percutaneous steroid.

5-rest the animal (1-6 months).

6-Systemic analgesics & anti-inflammatory drugs [steroids] & NSAID such as phenylbutazone, pentosan sulfate, ketoprofen, meclofenamate, aspirin, naproxen, carprofen, meloxicam, piroxicam.

7-used of polysulfated glycosaminoglycan (chondroprotective drug) when cartilage damage is considered to be present.

**Prognosis:-**

Is good.



## **2-Osteoarthritis (OA):- Degenerative joint disease (DJD).**

It is chronic disease of the joint characterized by progressive deterioration (fragmentation) of the articular cartilage accompanied by changes in the bone & soft tissue of the joint. Synovitis & joint effusion are often present.

### **Causes:-**

- 1-Continuous trauma (use trauma).
- 2-Use of a horse with serous arthritis.
- 3-Ageing.
- 4-Nutritional deficiencies & inheritance.

### **Signs:-**

The clinical signs vary with the type & degree of the OA.

#### ***In high motion joint :-***

- 1-lameness.
- 2-heat .
- 3-swelling of the joint ( synovial effusion).
- 4-pain on flexion.

#### ***In more chronic cases:-***

- 1-joint enlargement with fibrous tissue deposition.
- 2-bony enlargement may also present.
- 3-there is decrease in motion.

***In low motion joint:-***

- 1-there is joint entargment.
- 2-increase of lameness with flexion.

**Diagnosis:-** by the

- 1-history.
- 2-clinical signs & physical examination.
- 3-Radigraphy to see the radiographic changes which include (narrowing or loss of joint space, subcondral bone sclerosis, marginal osteophyte formation & periosteal boneproliferation, finally ankylosis may develop).
- 4-Examination of synovial fluif.
- 5-MRI.
- 6-Arthroscopy & Arthrotomy.

**Treatment:-**

Depends on the stage of the disease. The treatment directed toward the resolution of cartilage degeneration & limitation of proliferative bony changes.

- 1-treatment of the primary cause.
- 2-Treat the soft tissue contributing to articular degeneration including, Rest (discontinuation of hard work with daily walking & passive joint manipulation), physical therapy, anti-inflammatory drugs, joint lavage, sodium hyaluronan, DMSO, & synovectomy ( removal of fibrotic non-productive synovial membrane).
- 3-treatmentof articular cartilage degeneration such as articular cartilage curettage, osteophyte removal, subcondral drilling, mivropicking & surgical arthrodesis.
- 4-the old type of treatment like use of counterirritant, like rubefacients( braces & paints), vesicants (blisters), & thermocautery (firing).

**Prognosis:-**

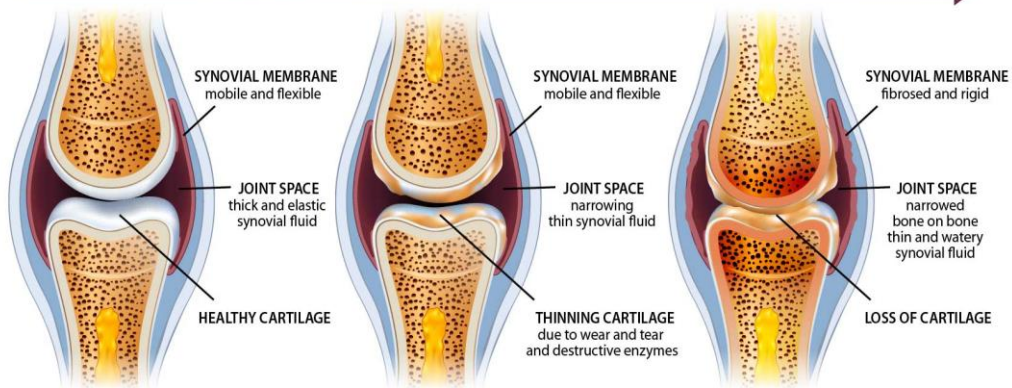
Guarded to unfavorable.



# EQUINE OSTEOARTHRITIS

NORMAL JOINT

DESTRUCTION OF CARTILAGE DUE TO WEAR & TEAR AND/OR TRAUMA



Joint Performance ... **the solution for healthy joints** throughout your horse's lifecycle



In high motion joint



In low motion joint

### **3-Infectious arthritis:-**

Pyogenic or non-pyogenic inflammation of the joint caused by pyogenic or non-pyogenic bacteria, due to open joint (direct trauma on joint) & needle injection, or by blood born infection.

#### **Signs:-**

- 1-Acute lameness.
- 2-Distention of the joint capsule with pus or infected fluid, with abnormal synovia on aspiration (may contain pus).
- 3-Heat & pain of joint.
- 4-Fever.

#### **Treatment:-**

- 1-systemic antibiotic after culture & sensitivity test.
- 2-inject the joint directly with antibiotics after aspiration of the synovial fluid.
- 3-immobilize the joint by bandaging during treatment.

4-if the joint distended with pus, should be drained by needle & flush the joint with antibiotic solution, saline (twice daily for 10-14 days), by using two needle the upper for injection & the lower for drain.

**Prognosis:-**  
Guarded.



#### **4-Ankylosing arthritis:-**

Characterized by destruction of the articular cartilage, erosion of the joint surface, flattening of the bone, & bridging of the joint by new bone growth. It is the end result of severe osteoarthritis.

#### **Spavin**

##### ***Spavin:-***

Is the distention of the hock joint in horses.

##### **Classification of spavin:-**

1-Bone spavin (True spavin):- there are 2 types:

a-Jack spavin (bone spavin in large area of joint).

b-High spavin (bone spavin located higher on the hock joint).

2-Bog spavin.

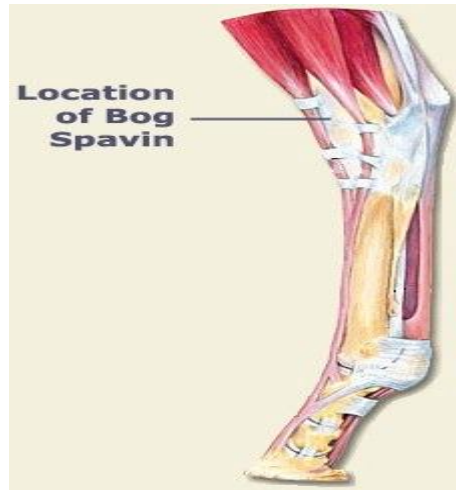
3-Occult spavin (blind spavin).

4-Blood spavin (distention of the recurrent tarsal vein over the joint).

##### **Bog spavin:-**

Is chronic distention of the tibiotarsal joint capsule of the hock causing of a fluctuating swelling of the anteromedial aspect of the hock joint.





**Occult spavin (blind spavin):-**

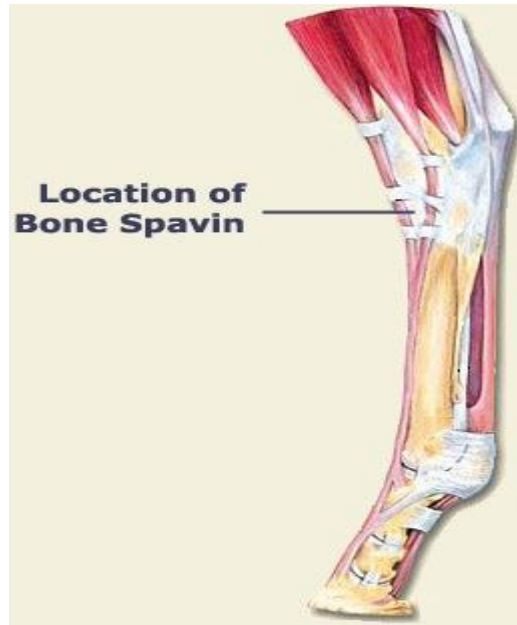
Is the disease of the hock joint cause typical spavin lameness with no palpable or radiological changes in the joint.

**Bone spavin:-**

Is an progressive osteoarthritis of the medial aspect of the proximal end of the 3<sup>rd</sup> metatarsal bone & the medial aspect of the 3<sup>rd</sup> & central tarsal bones usually causing cold lameness & results in an ankylosing arthritis.

**Or** ...progressing osteoarthritis of the distal intertarsal & tarsometatarsal joints usually results in an ankylosing arthritis.





### **Causes:-**

- 1-poor conformation (lick sickle hock, & cow hock).
- 2-trauma, lick quick stops during roping.
- 3-mineral imbalance & rickets.

### **Signs:-**

- 1-lameness ( cold lameness), lameness occur after rest & disappear during work.
- 2-enlargement of variable size on the inner aspect of the hock.
- 3-pain when flexes the hock of the horse.
- 4-react positively to the spavin test ( flexing the hock for one to two minutes, & release the joint, then putting the horse in a trot. In the first few steps, when the lameness is increased more than before the rest, that mean the test is positive [ positive reaction]).
- 5-the foot lands on the toe,& over time the toe become short & the heel too high.
- 6-the horse tend to drag the toe causing wear on its dorsal edge.

### **Diagnosis:-**

From the signs, spavin test, blocking of the posterior tibial & deep peritoneal nerves & radiography.

### **Treatment:-**

- 1-Cannon tenectomy.
- 2-Firing & blistering.



- 3-Neurectomy of the posterior tibial & deep peritoneal nerves.
- 4-Corrective shoeing, open medial toe shoe with two heel calks & two additional calks.
- 5-surgical arthrodesis.

## **Tendonitis**

### **Tendonitis:-**

Inflammation of the tendon only, when the tendon have no sheath.

### **Tenosynovitis ( Tenovaginitis):-**

Inflammation of the synovium surrounding the tendon.

### **Causes:-**

Strain, resulting from over use or direct blow, or infection.

### **Mechanisms:-**

The avascular synovium invade by blood vessels & inflammatory cells, increase secretion of synovial fluid, development of fibrin causing adhesion between the tendon & synovium.

### **Signs:-**

Depends on the tendon involved; *the early signs include:-*  
Pain & distention of the sheath.

### ***Later signs:-***

Adherence between the tendon & synovium , & finally complete inability of gliding of tendon within its sheath.

### **Treatment:-**

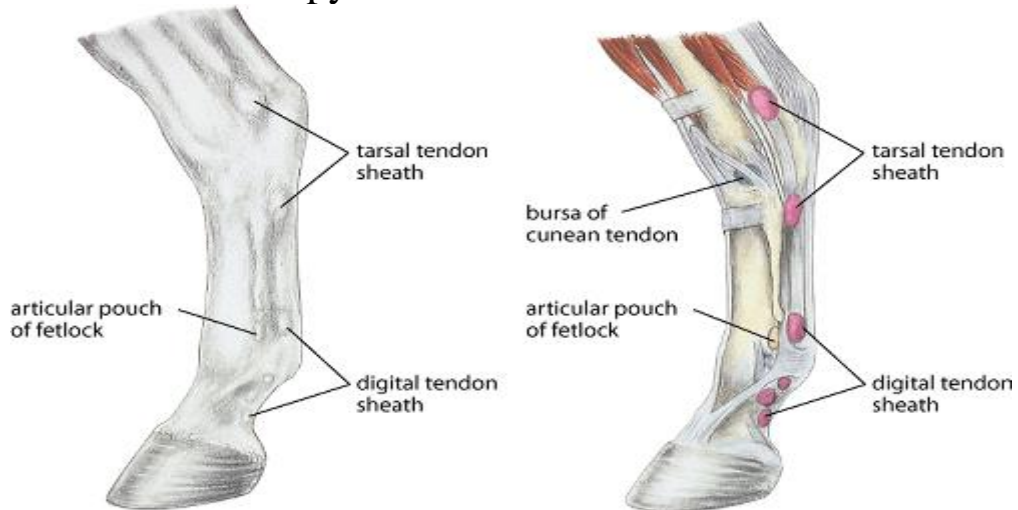
Directed to reverse the pathological changes; & depend on the severity, it include:-

- 1-rest.
- 2-cold applications.

3-systemic analgesics & anti-inflammatory drugs.

4-injection of corticosteroids.

5-in later use of local heat like infra-red, microwaves, ultrasound, & shock wave therapy .



**Desmitis:-**

Inflammation of ligaments (e.g) suspensory ligament.

**Sprain:-**

Injury to a ligament resulting from overstress.

**Strain:-**

Damage or injury to the tendon or muscle caused by overuse or overstress.

### **Thoroughpin:-**

Tenosynovitis of the tarsal sheath enclose the deep digital flexor tendon of the hind limb, characterized by formation of swelling in the area of the hock joint from the posterior part.

### **Bowed tendon (Tendosynovitis/Tendovaginitis):-**

Inflammation of the tendons & its synovial sheath of the deep & superficial flexor tendons in the area above the fetlock joint result from an injury to the superficial & deep flexor tendons & them sheaths & may be with the other ligaments such as annular ligament & check ligaments, making fibrous adhesion & swelling on the volar aspect of the metacarpal or metatarsal area.

It may be **High** (below the carpus), **Middle** (in the middle of cannon bone [3<sup>rd</sup> metacarpal/metatarsal bone] ), or **Low** (in the distal third of cannon bone including the volar annular ligament).



### **Causes:-**

Severe strain to the flexor tendons due to, malformation, muscular fatigue, improper shoeing, muddy tracks, & heavy breed.

### **Signs:-**

#### ***Acute cases:-***

- 1-lameness occur soon after injury.
- 2-heat, pain, & swelling over the area.
- 3-animal stand with the heel elevated.

***Chronic cases:-***

1-fibrosis & hard swelling on the palmer or planter aspect of the cannon bone & fetlock joint.

2-intermittent lameness.(normal while walking or trotting, lame under hard training).

**Diagnosis:-**

By history, clinical signs, clinical examinations, radiography, & ultrasonography.

**Treatment:-**

***Acute cases:-***

1-rest, massage, cold fomentation ( ice application), & cold hydrotherapy (ice water).

2-systemic anti-inflammatory for 10days (NSAIDs, corticoids, DMSO).

3-Plaster cast for 2 weeks.

4-supporting bandage for 30 days.

5-rest for 1 year.

6-corrective shoeing to support the damaged tendon (shoe with raised heel for 10 weeks).

***Chronic cases:-***

1-rest, massage, hot fomentation, counter irritant.

2-blistering.

3-radiation therapy, infra-red, microwaves, shock wave therapy, ultrasound.

4-injection of irritant.

5-firing (needle point, superficial line, deep).

**Prognosis:-**

Unfavorable.



Pictured above, one leg is bowed while one is normal. Can you notice the difference





## **Bursitis**

### ***Bursitis:-***

Inflammatory reaction within a bursa. It is vary from mild synovitis to suppurative bursitis with abscess formation.

### **It can be classified into:-**

**True :-** when bursa normally present & inflamed.

**Acquired :-**when natural bursa normally not present, like (Carpal hygroma).

### **Treatment:-**

- 1-Aspiration of fluid.
- 2-Local injection with Corticoids.
- 3-Application of pressure bandage.
- 4-In chronic case surgical removal of bursa.





**Capped elbow:-** (Olecranon bursitis) Shoe boil  
Is bursitis over the Olecranon process of the ulna ( inflammation of the Olecranon bursa).



**Causes:-**

Trauma caused by shoe of the foot, during motion or when the horse lying down.



### **Signs:-**

- 1-Prominent swelling over the point of the elbow, the swelling contain fluid in acute case & fibrous tissue in chronic case.
- 2-Mild lameness.

### **Treatment:-**

#### **In acute case:-**

- 1-Remove the cause.
- 2-Injection with Corticoids 2-3 times weekly.

#### **In chronic case:-**

Surgical removal of the fibrous tissue.

#### **Capped hock:-** (Bursitis of the hock)

Bursitis over the hock joint.



### **Causes:-**

Trauma to the point of the hock.

### **Signs:-**

- 1-Firm swelling at the point of the hock, may accompanied **curb** (enlargement at the posterior aspect of the fibular tarsal bone due to inflammation & thickening of the planter ligament).
- 2-Mild lameness.

**Treatment:-**

- 1-Remove the cause.
- 2-Injection of the Corticoids, after evacuation of synovia.
- 3-Pressure bandage.

**Bicipital bursitis:-**

Inflammation of the bicipital bursa, which found between the biceps brachii tendon & the bicipital groove of the humerus.

**Causes:-**

Trauma at the shoulder joint.

**Signs:-**

- 1-Shoulder lameness.
- 2-Swelling of the bursa at the point of the shoulder.

**Treatment:-**

Injection of Corticoids.

**Hygroma:-**

Is an acquired bursitis of the anterior surface of the carpus. (synovial swelling over the anterior surface of the carpal joint).



**Causes:-**

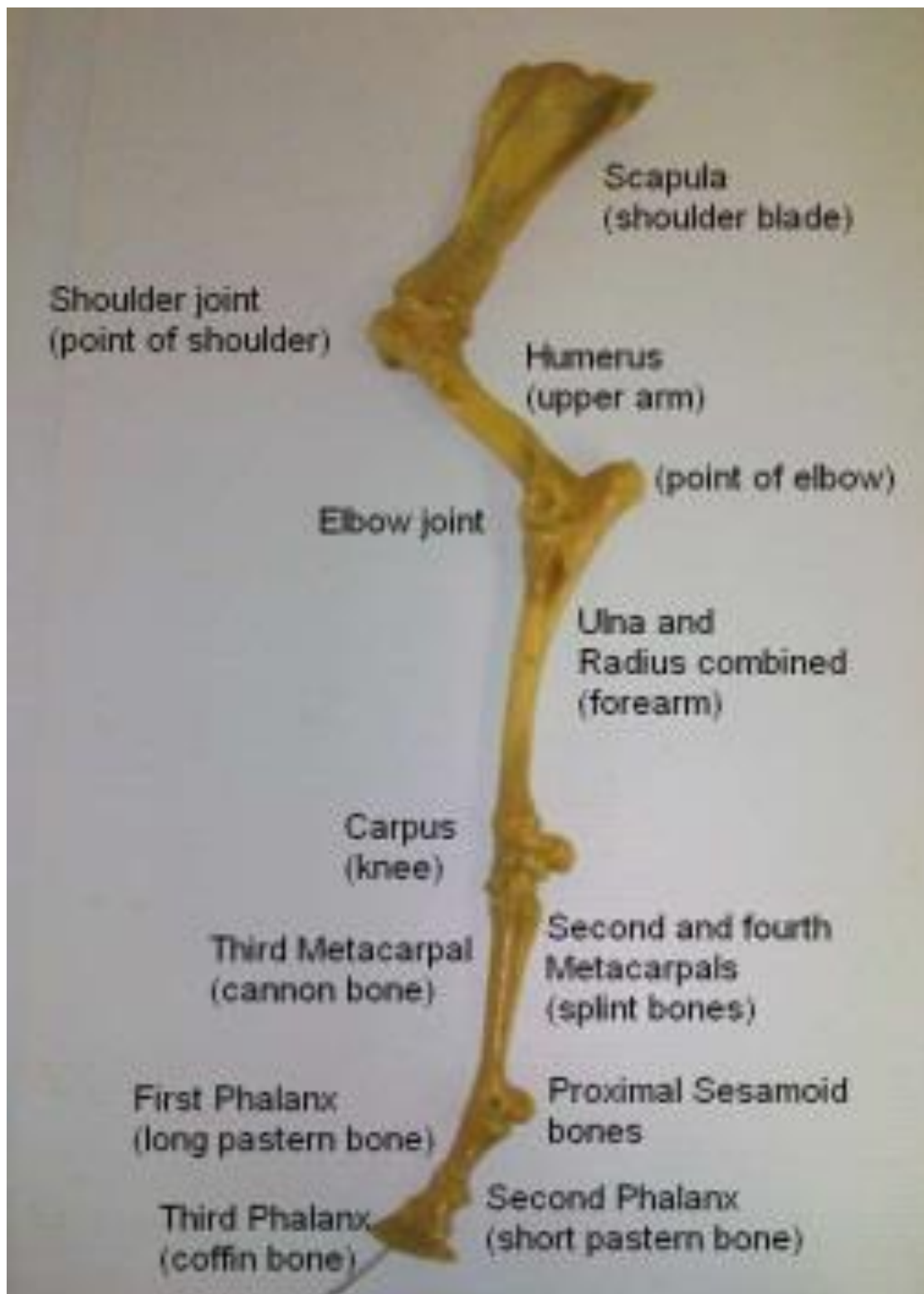
Trauma.

**Signs:-**

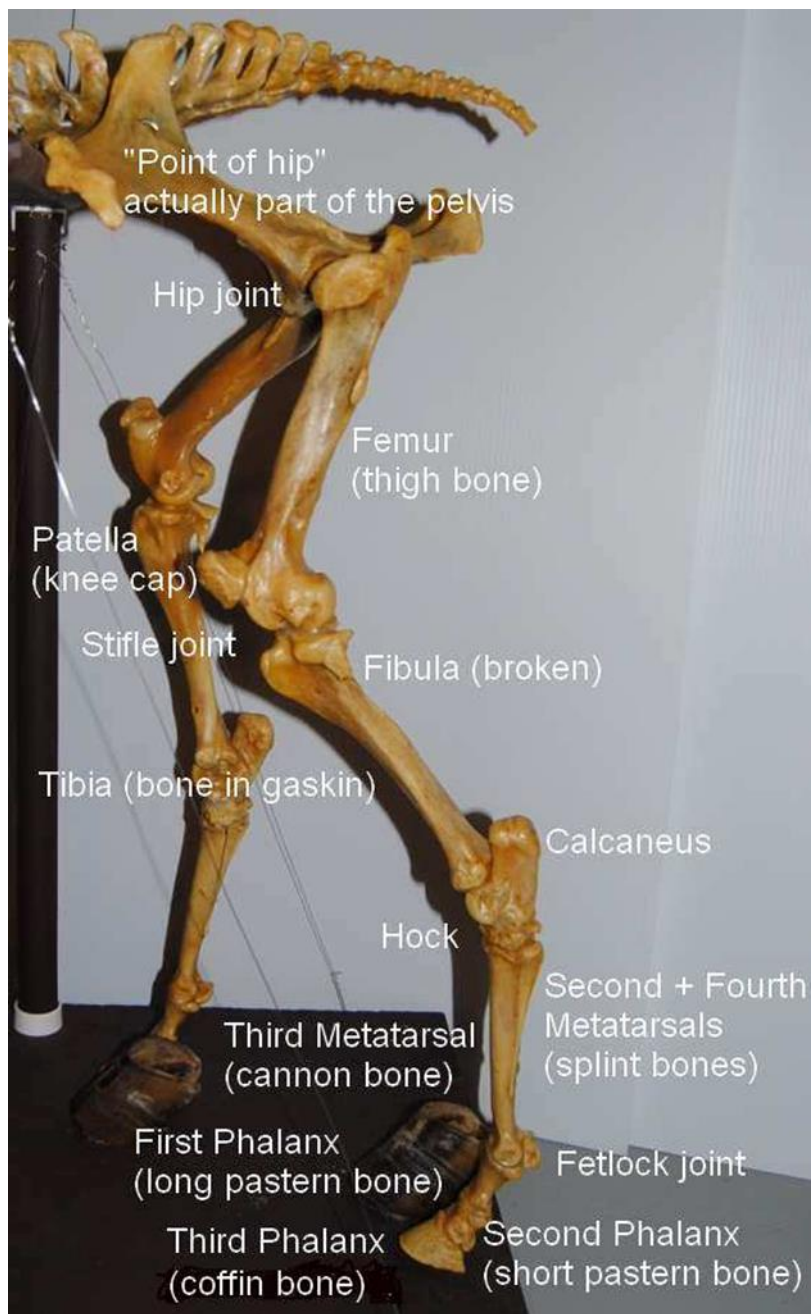
Synovial swelling over the anterior surface of the carpus.

**Treatment:-**

- 1-Injection of Corticoids.
- 2-Pressure bandage.
- 3-Drain the hygroma.



Bones & joints of fore limb



**Bone & Joint of hind limb**



