Lecture title: Orthopedics & Fractures
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External Fixation:

Applied to the outside of the fractured bone, it is including:

1) **Cast**
2) **Splint**
3) **Sling**
4) **External Skeletal Fixators**

Casts

- Cast are circumferential external immobilizers used to treat bone fractures or temporarily immobilize a joint.
- Casts are used for only certain types of fractures, typically those that are simple, closed, and located below the elbow or stifle joints.

Types of cast:

1. **Plaster of Paris (POP) or called Gypsona.**
2. **Fiberglass Casts**

Gypsona or POP:

- Plaster of Paris is made up from calcium sulfate when mixed with water, produces a cement-like material.

Advantages of Plaster of Paris:

1) Cheap and easily available
2) Readily applied, molded and fashioned
3) Comfortable
4) Readily to stored
5) Fairly strong
6) Radio – translucent.

Disadvantages of Plaster of Paris:

1) Heavy and warm
2) May cause pressure problems lead to circulatory disturbances when improper applied.

3) Difficult to inspect the limb, so it may cause wound breakdown or sepsis
4) Not waterproof.
5) Inadequate immobilization of the humeral or femoral fractures.

Fiberglass casts

❖ Also called a synthetic cast, it's made of fiberglass and characterized by:

1) Light weight,
2) Longer wearing,
3) More breathable and
4) Resistance to water than POP

Splints

Indications for using a splint:

1) It's used for management of fractures or sprains (incomplete fracture or grade1 sprain).
2) Initial stabilization of unstable fractures before orthopedic intervention.
3) Splints can be used with or following internal fixation of a fracture with pins or bone plates
4) Splints are sometimes useful in correcting certain angular limb deformities in newborn foals and calves.
5) They are also useful in the correction of certain contracted flexor tendons "club foot" or "knuckling", especially those in newborn animals.
6) Splints can also be used after a cast has been removed to support a healing fracture

Types of Splints:

1) **Thomas splint**
2) **Custom Splint**
3) **Kimzey Leg Saver splint**

Thomas splint

- A metal splint for fractures of the fore or hind limbs that consists of a ring at one end to fit around the fore or hind limbs and two metal shafts extending down the sides of the limb in a long U with a crosspiece at the bottom where traction is applied.



Slings

1) Animal slings are specialized tools designed to provide support and mobility for pets or livestock.
2) They are commonly used for injured, disabled, or recovering animals to aid in walking, standing, or being transported safely.
3) Slings are reducing stress to the sound legs and the fixation appliance.
4) Common types include mobility slings for dogs, lifting slings for large animals like horses, and carrying slings for small pets like cats or puppies.

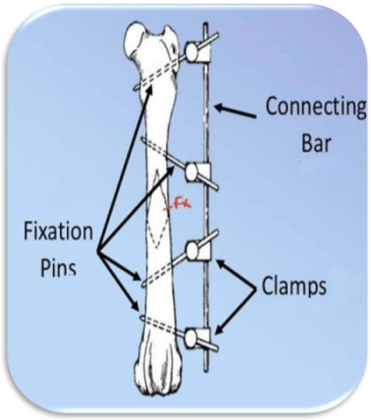
Types of slings

1) Velpeau sling: prevent weight bearing by the thoracic limbs in dogs.
2) Ehmer sling: prevent weight bearing by the pelvic limbs in dogs.
3) Robotic horse lifter: used in horse
4) Sheep sling: used in sheep.

External skeletal fixators (ESF)

Components of External skeletal fixators are:

1) Fixation pins
2) Connecting bars or rods
3) Clamps Pin or Clamp Connectors



Indications of ESF

1) Long bone fractures
2) Mandibular fractures
3) Spinal fractures

Types of ESF

1. Linear ESF
    a. Unilateral
    b. Bilateral
2. Ring ESF
3. Hybrid ESF.