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Surgical Arthrodesis of the Fetlock Joint

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Indications, when there are no other better options

• Functional Crippling of the Fetlock Joint
  – Degenerative arthritis
  – Permanent/non-responsive flexor contraction

• Anatomic Disruption of the Fetlock Joint
  – Ruptured suspensory apparatus
  – Fracture

Contra-indications

• Avascularity

• Pre-existing Serious Infection

• Lack of a second career

• Pre-existing Laminitis?

• What do you do if you can’t tell?
• Palmar wounds are common, it’s a matter of judgement
• Not for athletic careers
• Can be an indication

Voluntary Splinting of the Fetlock Joint is impossible in the fetlock joint
• Motion can not be voluntarily limited to:
  – Reduce pain
  – Aid healing

Arthritis
+ Joint Motion
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= PAIN

If you stop the motion you stop the pain

Lack of fetlock joint surface injury discourages ankylosis with a ruptured suspensory apparatus

Suspensory apparatus can’t heal, the joint must ankylose

Results of Conservative Therapy

Fetlock Arthrodesis is for salvage only
Kimzey “Leg Saver” is a Premier First Aid Device but an Inferior Treatment

Plate must be placed on the wrong side of the limb if you want to avoid the soft tissue injury

Indications
Ruptured Suspensory Ligament
Usually Not, but if other foot begins to fatigue, yes
With intact distal sesamoidean ligaments use the sesamoids to form a tension band

Fetlock Arthrodesis is nearly pain free immediately

Pastern Support Helps Prevent Subluxation and Improves Comfort

Functional Crippling Due to Pain
• Degenerative arthritis can become so painful the horse chooses not to use the limb
• There is no way the horse can protect the fetlock voluntarily during weight bearing
Pain Relief does not equal healing
Surgical Technique
Approach

• Dorso-lateral
• Tendon splitting
• Elevate all soft tissue as an envelope
  – Extensor tendon
  – Periosteum
  – Joint capsule
  – Sub-q
  – Skin

Plate attachment
5 (4) screws below the joint
-attach below the joint before joint disruption
-assure alignment with cannon bone
Angle of the fused Fetlock needs to be functional but practical

• 15 - 20 degrees of dorsal angulation results in about 30 degrees of limb angulation
Access to the Joint

• Iatrogenic condylar fracture
  – Pre-place the screw
  – Quick to reconstruct
• Cut the collateral ligament and capsule
  – Quicker to expose
  – Longer to reconstruct
    Intra-articular manipulation

• Remove the cartilage
• Forrage the joint surface
• Place the tension band, if needed
• Drill glide hole for lag screws

If you have the option, use the sesamoids
The superficial distal sesamoidean ligament supports the pastern joint
Loss of the ligament increases the instability and decreases the comfort post-op

Reduce the Joint and Reattach the Plate
• Place the joint in slight flexion
  – Tighten the wire
  Or
  – Lag Screw the sesamoids
    Place the plate in tension
• Pre-load the posterior support (which is placed in slight flexion)
• Add tension with a tension device
  Fill the screw holes
• 4.5 screws in most holes
• 5.5 screws in certain locations
  – Both sides of the joint
  – Distal screw
• Last lag screw across the joint if possible
  – Through the plate
  – Across the joint from P-1
• Place a drain
• Add antibiotic beads
• Bone Graft?

Closure

• Tendon
• Subcutaneous tissue
• Skin
• If very swollen use tension relieving incisions
Post-op

- Cast with foot in cast for 2 weeks
- Cast with foot out for 2 weeks
- Stall for 60 days, then radiograph

Lesions Initiated by a Condylar Fracture

Condylar Fracture, P-1 Fracture
Ruptured Suspensory Apparatus

Complications
Primary Fusion is very dependable
The secondary injury problems are tough

Loss of pastern support is tolerable if it is gradual and you care for the foot

You must keep the limb from overextending after injury
The vessels are not cut they are stretched
Poor first aid results in vascular damage
The loss of skin vascularity is consistent with ruptured suspensory apparatus
Skin Loss alone is tolerable
A vascular foot loss is nearly painless

Expected Results
first 52 cases, ACVS

• 41 Suspensory apparatus rupture
• 5 Degenerative arthritis
• 4 Anatomic deformity
• 1 Comminuted multiple fracture
• 1 Infectious arthritis

• Breed
  - 43 Thoroughbreds
  - 3 Racing Quarterhorses
  - 3 Arabians
  - 2 Standardbreds
  - 1 Saddlebred
Results

- 34 Unrestricted activity
- 2 restricted activity
- 16 euthanized
- Primary Therapy
  - 21 Successes
  - 2 Limited Success
  - 7 Failures
- Last Resort Therapy
  - 13 successes
  - 9 failures

Presentation Data

- All horses non-weight bearing on the injured limb
- Sex
  - 30 females
  - 22 males
- Age
  - 3 < 1 year
  - 3 1 year
  - 46 adults
Complications and Failures

• Principle complications
  - Laminitis
  - Economics (there is not someone to feed every horse that we can save if there is no second career for the horse)
  - Familiarity with the technique

• Failures
  - 3 laminitis
  - 4 avascularity
  - 2 fatal diarrhea (4)
  - 2 infectious arthritis, pastern
  - 1 massive Sequestrum
  - 2 fractures elsewhere (Mc III, Radius, chronic osteopenia)
  - 3 ruptured SDF tendon
  - 1 ruptured cecum

Healed arthrodeses are treated normally