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Trauma to the Head and Teeth

Amanda Bergren, DVM, DACVS-LA

Disclaimer

- In any case of head trauma, don’t forget
  - Neurologic exam
  - Ophthalmic exam

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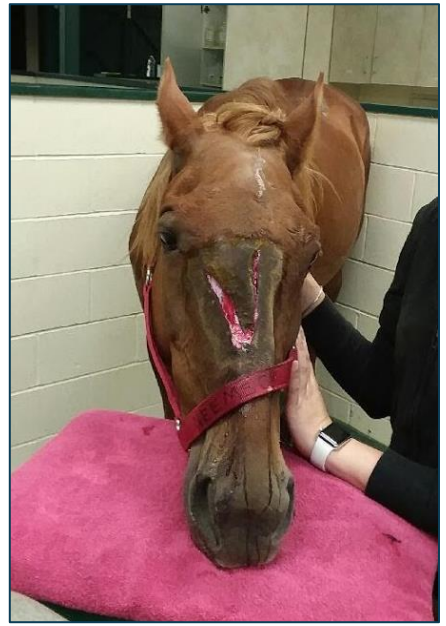
Lacerations

Lacerations of the head

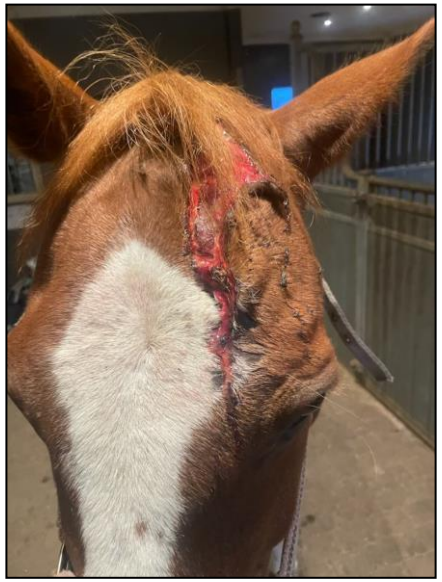
- Usually present acutely
  - Highly visible

- More successfully treated with suturing than limbs
  - Good vascularity
  - Less contaminated

Facial lacerations



- Generally heal very well
- Pay close attention to exposed bone
  - Lavage and curette if periosteum denuded
- Minimal dead space
  - Rarely need drains
- Start by placing V-portion of flap in position if possible



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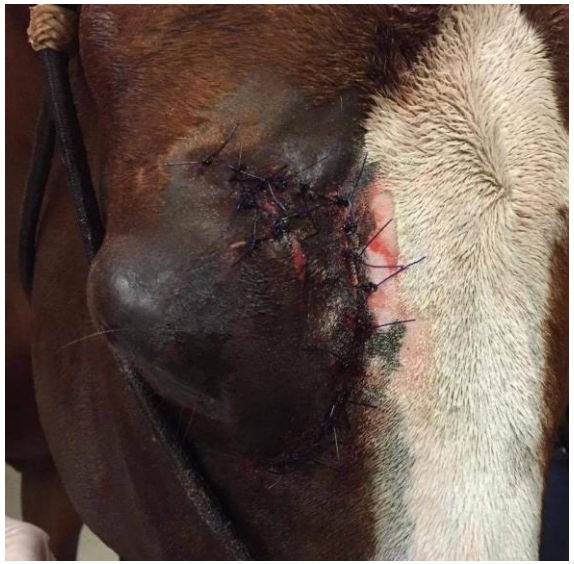
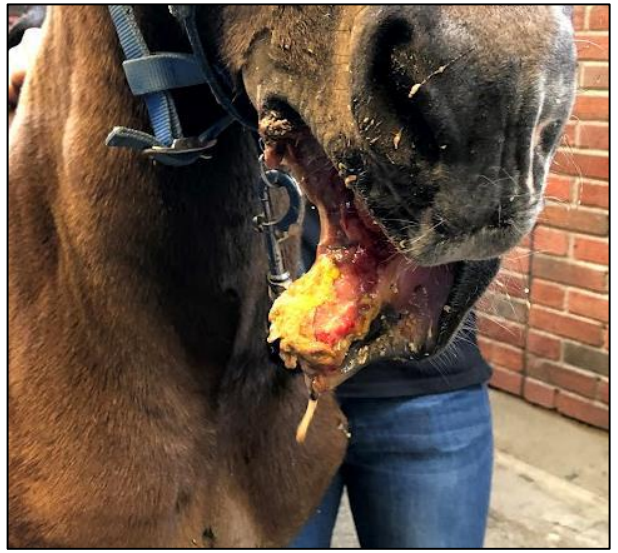
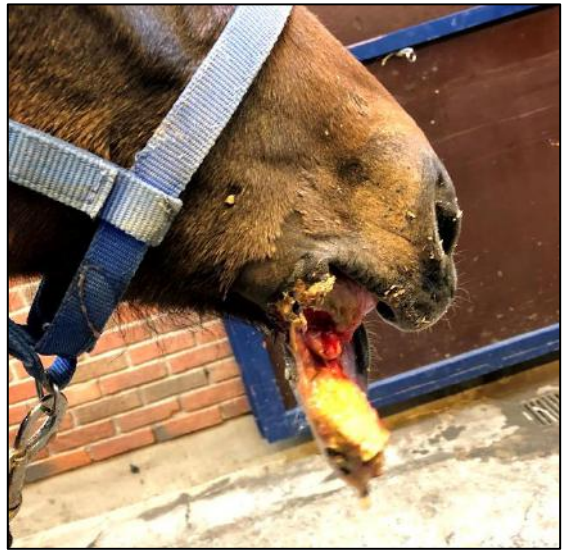


Lip/muzzle

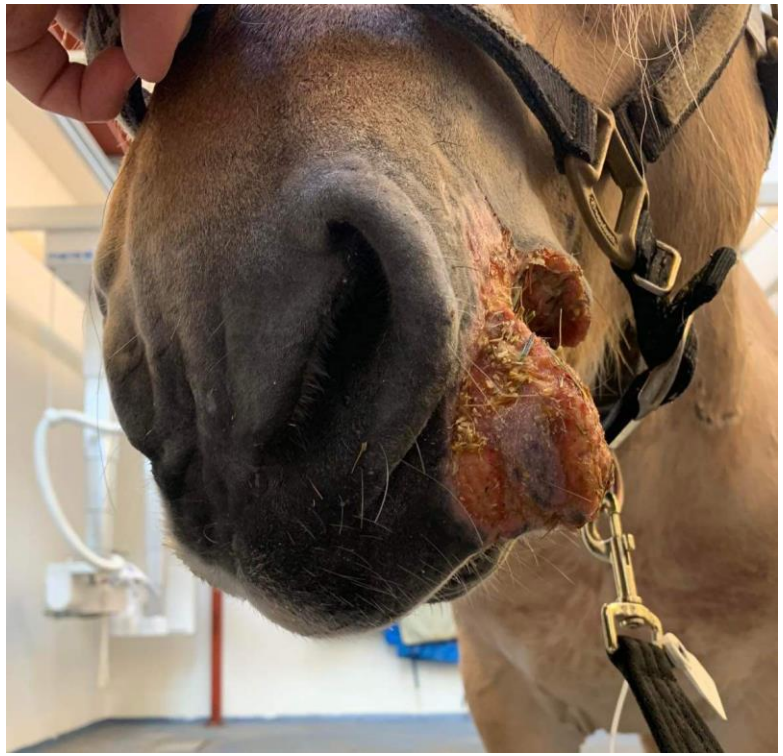
- Usually caused by sharp, protruding object
- Partial thickness – can be closed or left to heal by second intention
- Full thickness – require closure
  - Compromise buccal seal
    - Drooling, feed dropping





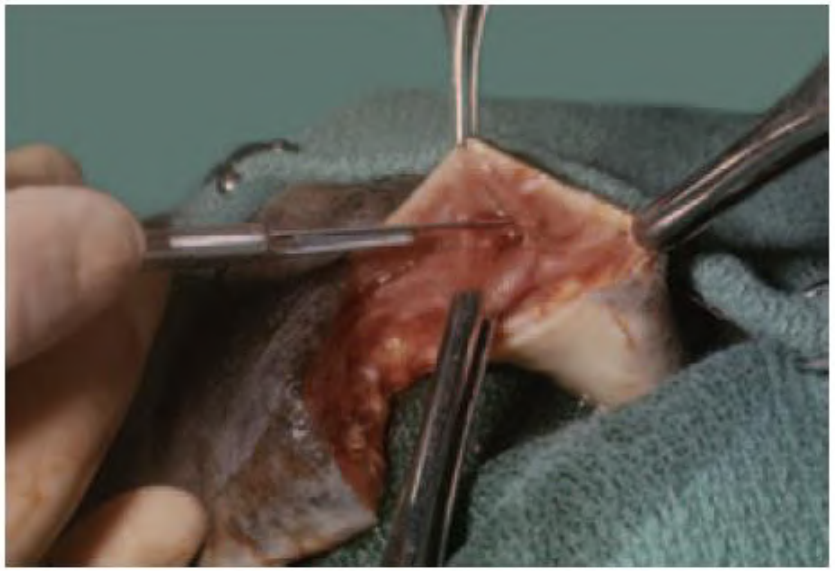
Lip/muzzle

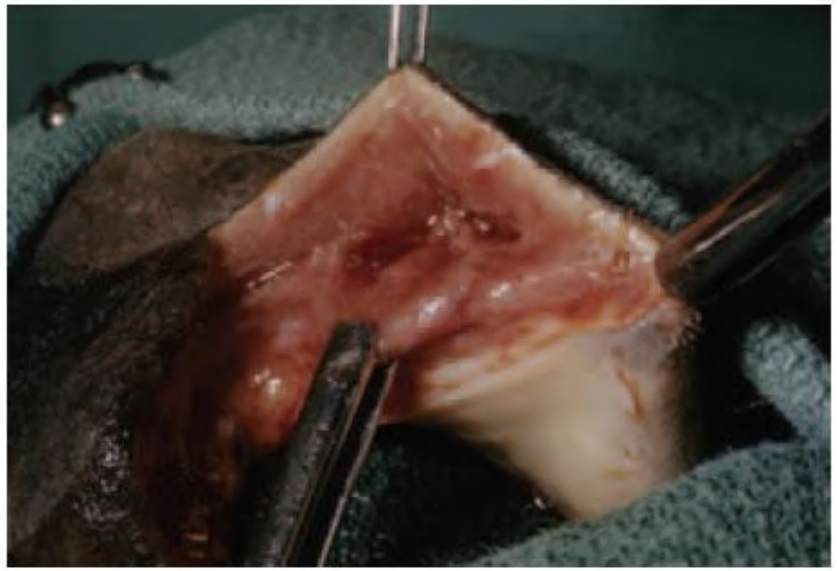
- Dehiscence common!
  - Excessive motion – muscle and skin closely associated



Lip/muzzle

- **Technique:**
  - Sharply separate skin/mucosa from muscle

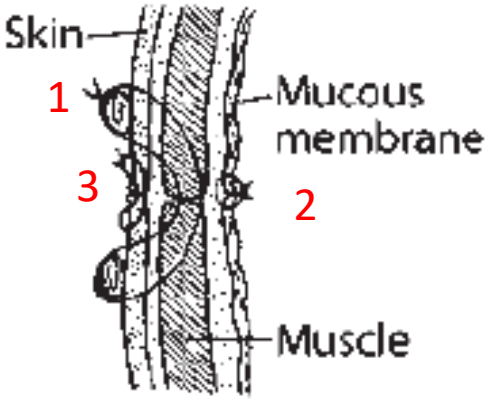


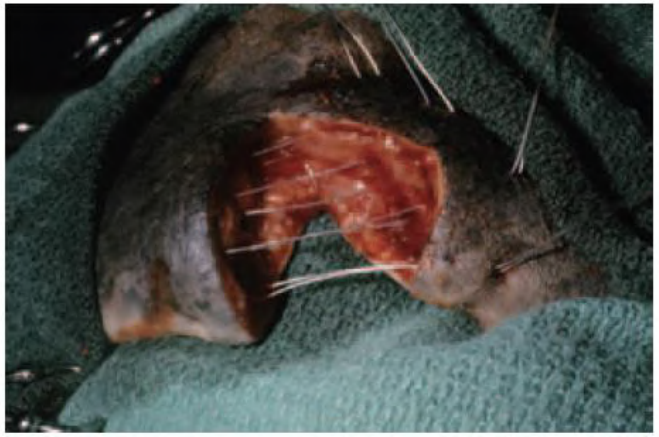


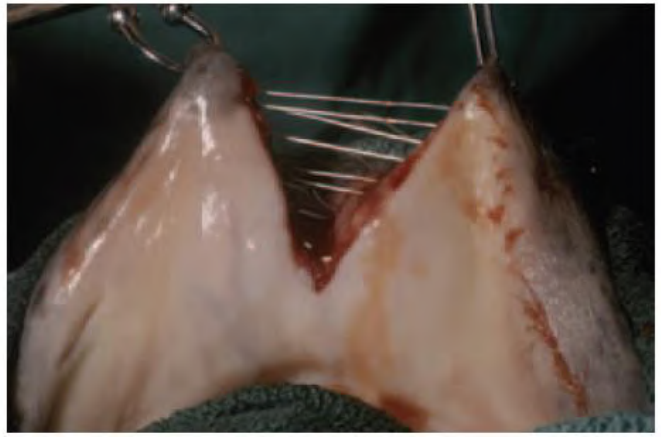
Equine Wound Management

Lip/muzzle

- **Technique:**
  - Sharply separate skin/mucosa from muscle
  - Multi-layer closure
    - Tension relieving pattern







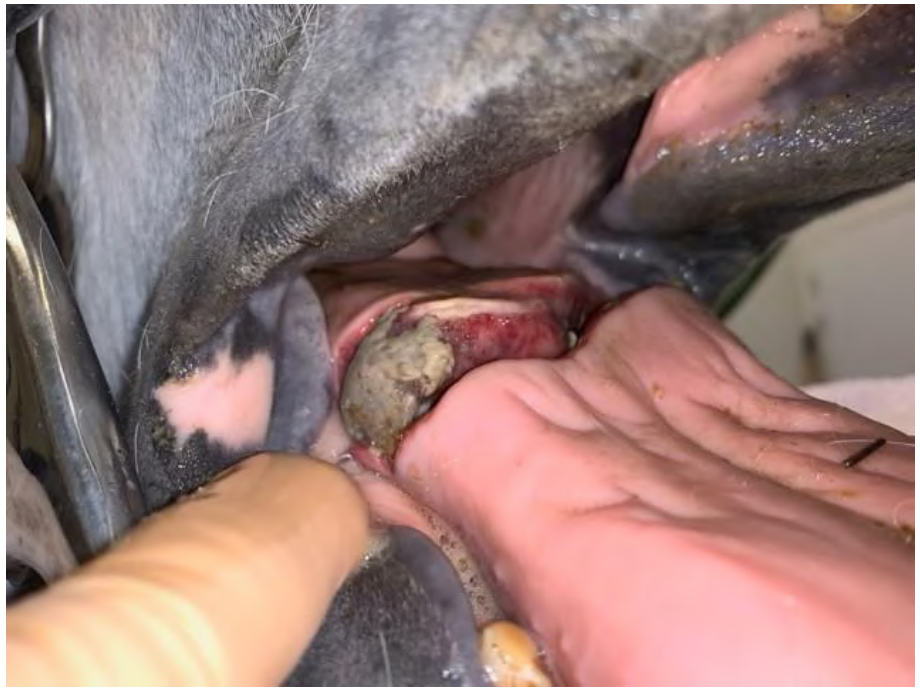
Equine Wound Management

Lip/muzzle

- **Technique:**
  - Sharply separate skin/mucosa from muscle
  - Multi-layer closure
    - Tension relieving pattern + stenting

Tongue lacerations

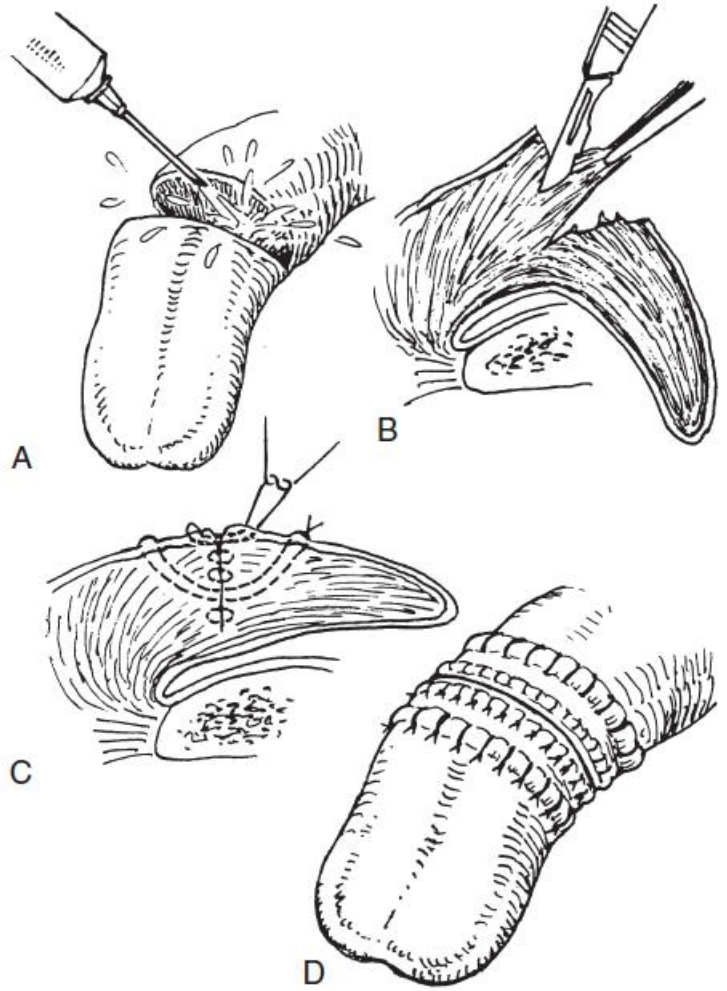
- Usually transversely oriented
- Extend variable distance into musculature
  - If >30% depth injured, should be sutured
- Second intention healing → defect in surface
  - Prone to re-injury



Tongue lacerations

- Small lacerations at tip can be repaired standing
- Deeper or more caudal lacerations best with GA

- **Technique:**
  - Gauze loop for traction on tongue
  - Absorbable suture
    - 2-0 to 0 in muscle and lingual mucosa
    - 0 or 1 for large mattress sutures



Tongue lacerations

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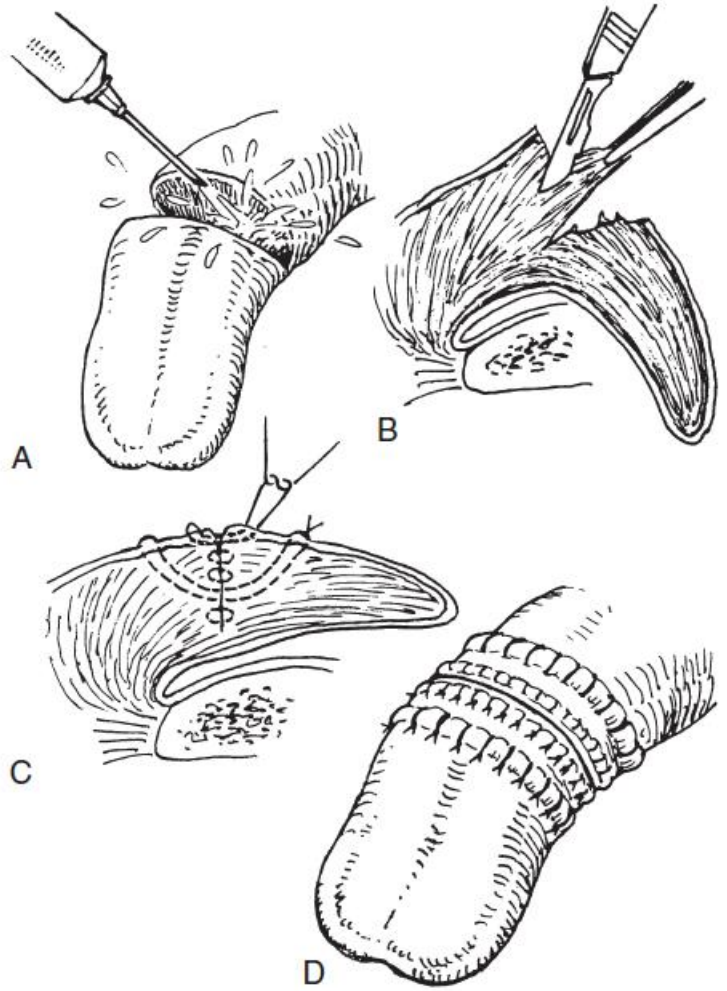
- Deeper or more caudal lacerations best with GA

- **Technique:**
  - Multiple layers in muscle
    - Pre-place large vertical mattress in muscle
    - 2-3 layers simple interrupted sutures in muscle
    - Tighten pre-placed sutures
  - Vertical mattress in surface layer



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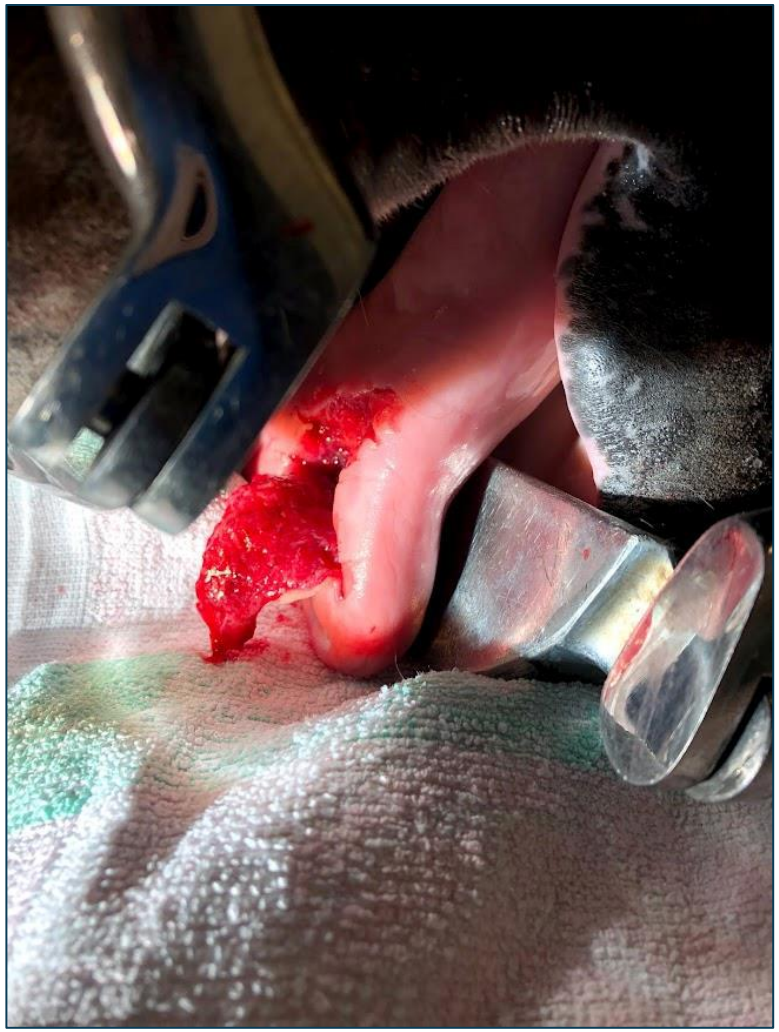
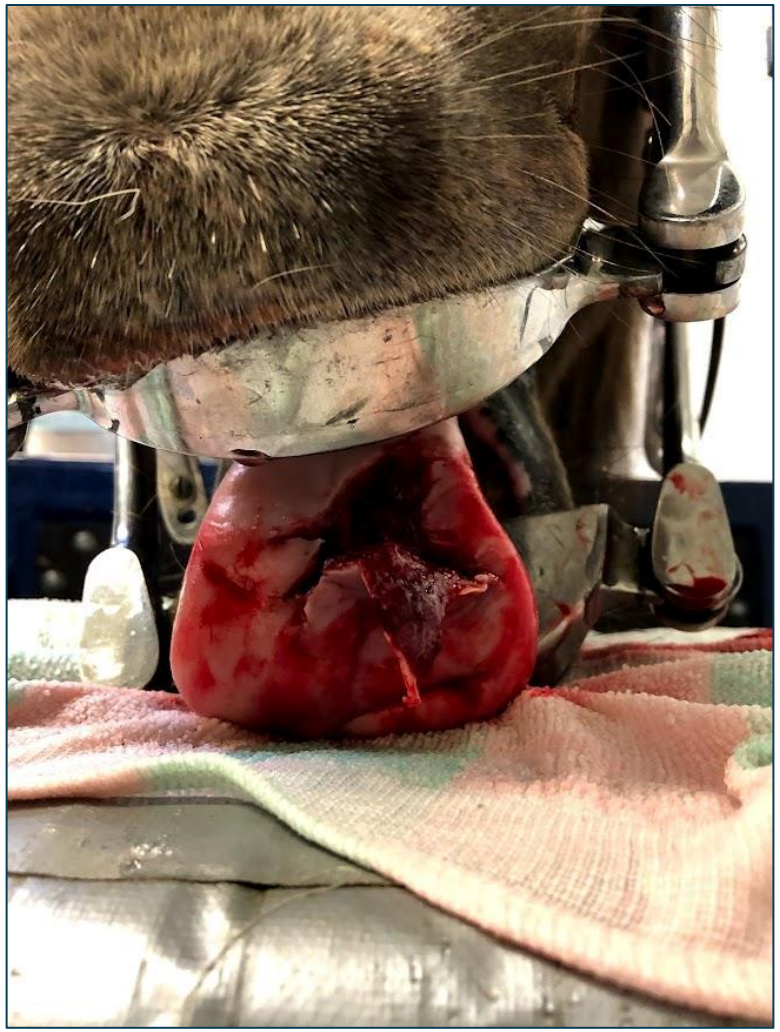
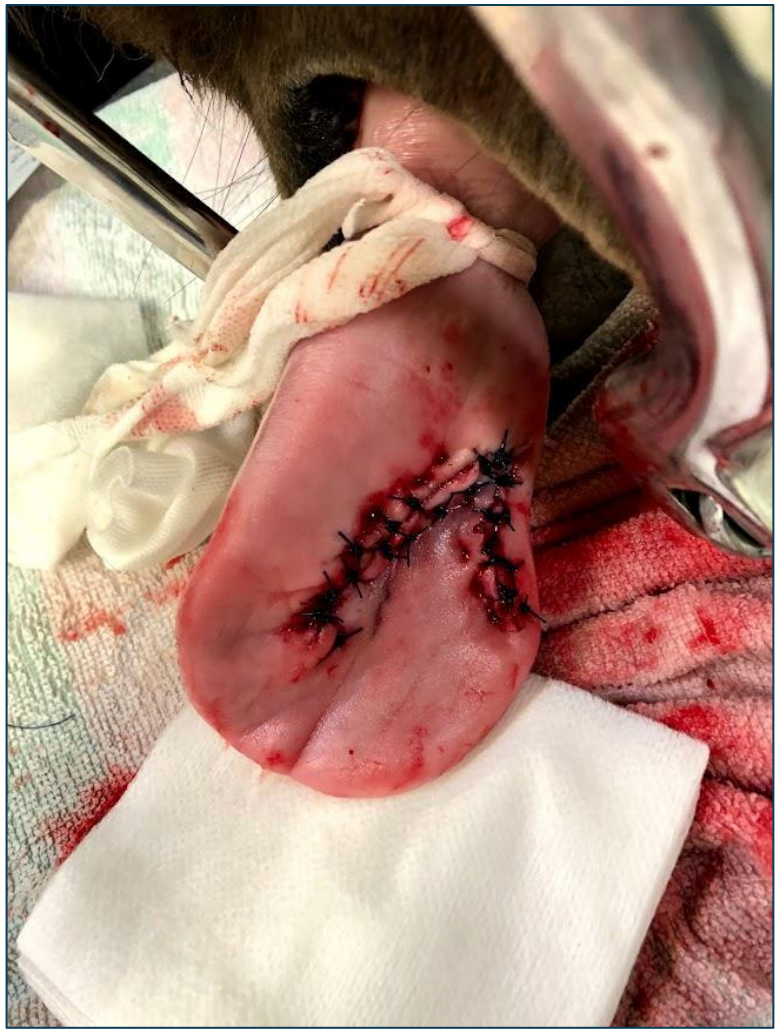
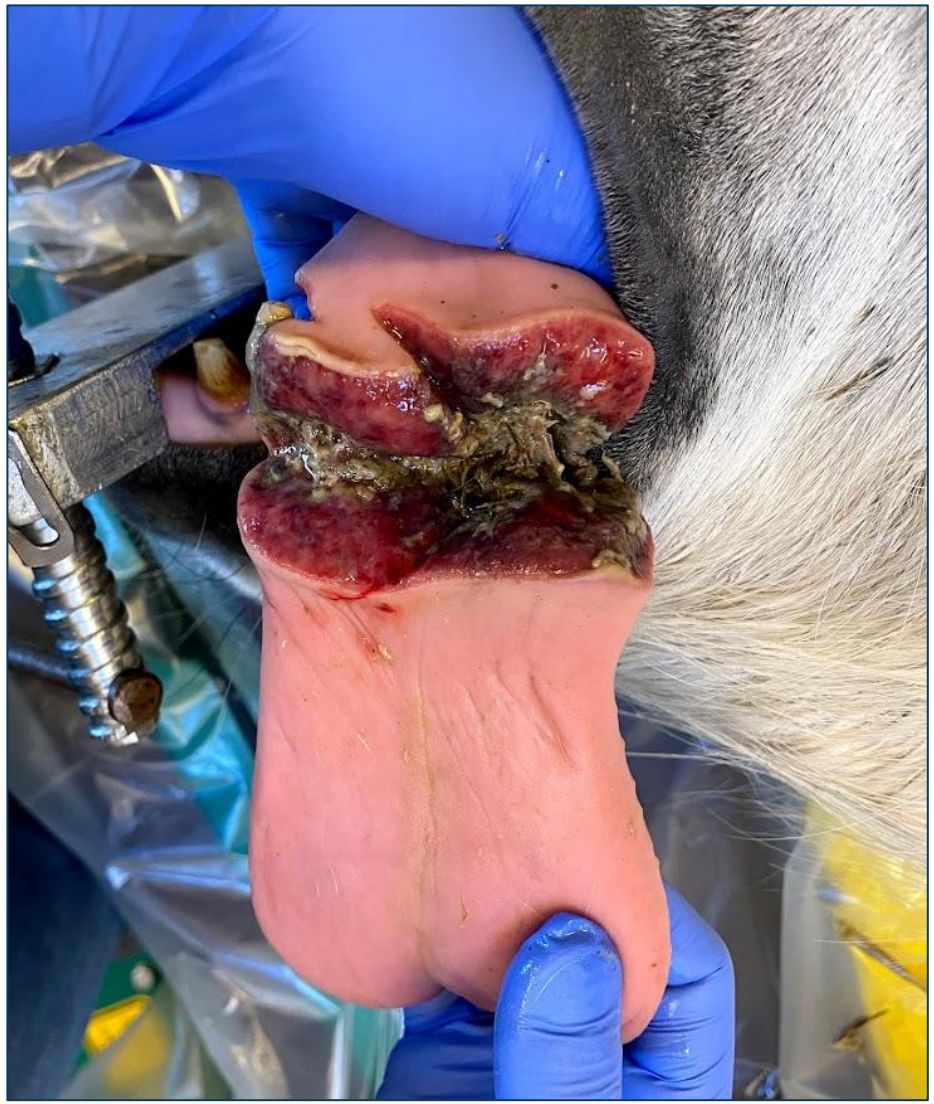
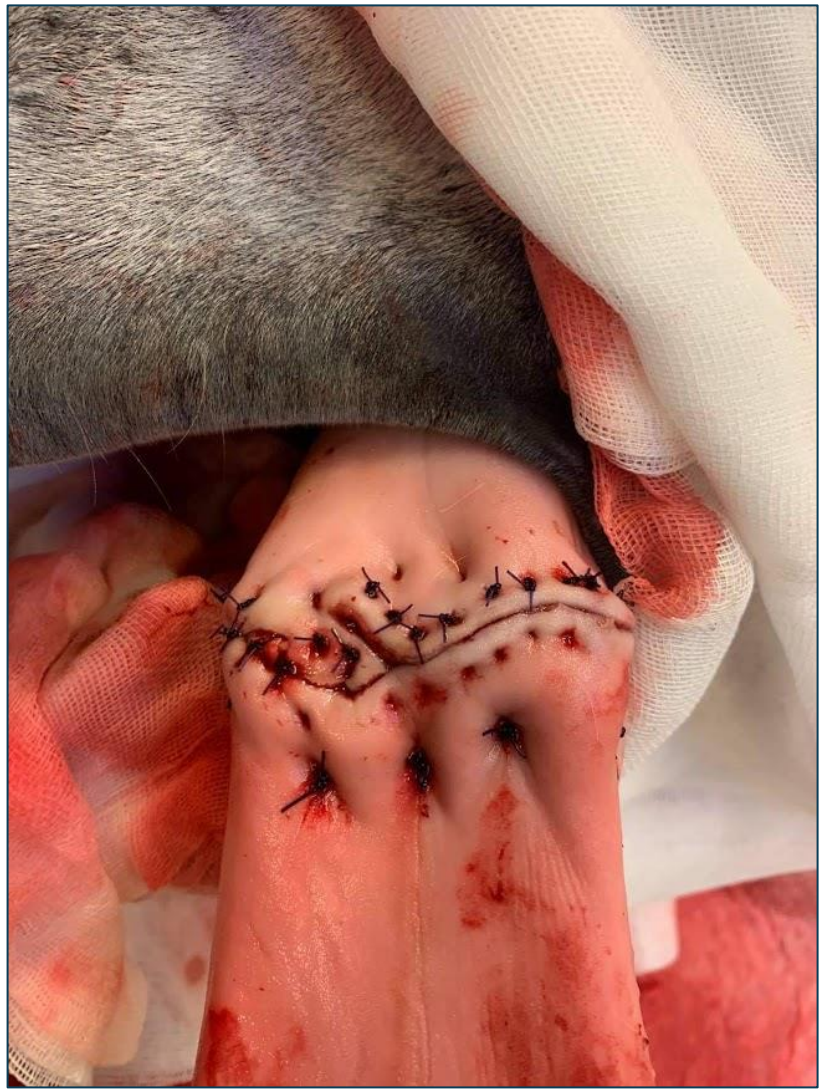






Tongue lacerations



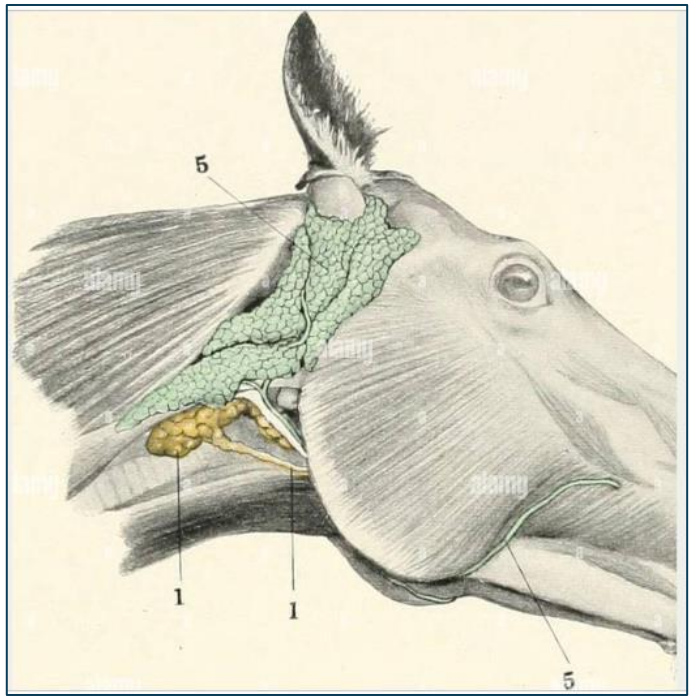


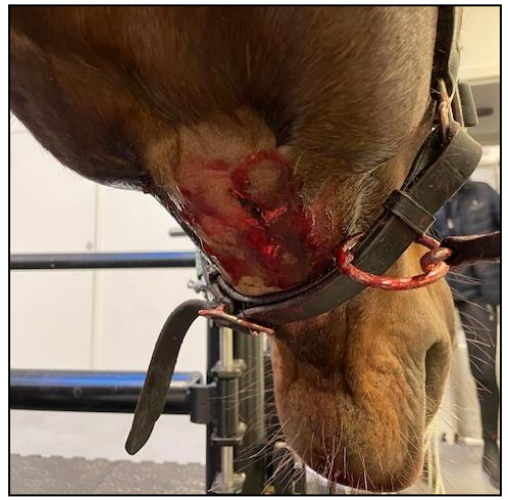
Salivary gland lacerations

- Trauma to salivary glands uncommon
  - Parotid most common

- **Hallmark sign**: flow of saliva from wound
  - Induce by offering feed

- Can confirm duct disruption via catheterization
  - Contrast sialography



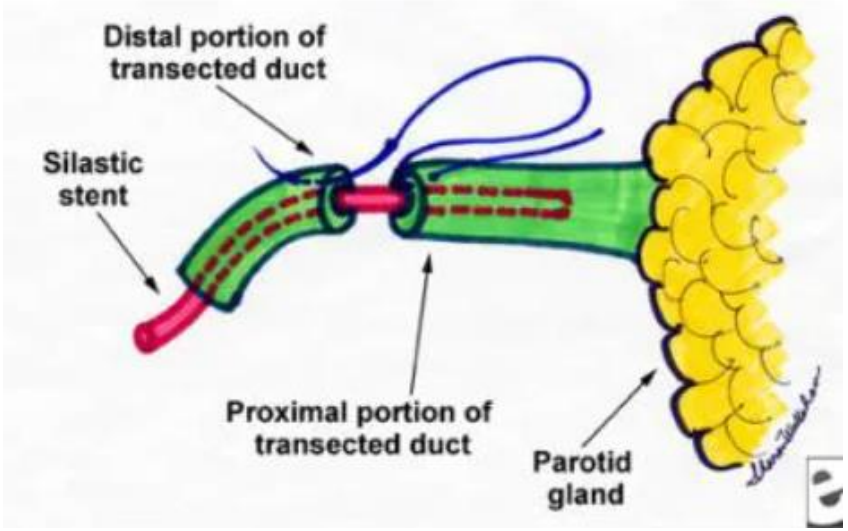


Salivary gland lacerations

- **Salivary gland:**
  - If fresh, can be closed with multi-layer closure
    - Begin with capsule of gland

Salivary gland lacerations

- **Parotid duct:**
  - Acute cases
    - Refer if possible
    - Can attempt repair – end to end anastomosis with indwelling stent



Salivary gland lacerations

- **Parotid duct:**
  - Acute cases
  - Older cases
    - Most salivary fistulas spontaneously close within 3 weeks
    - If fistula remains, refer if possible
      - Can attempt duct repair or gland ablation
  - Gland ablation via duct ligation
    - Catheterize duct from fistula retrograde into gland
    - Ligate duct directly adjacent to parotid gland
      - 2-3 heavy gauge non-absorbable sutures

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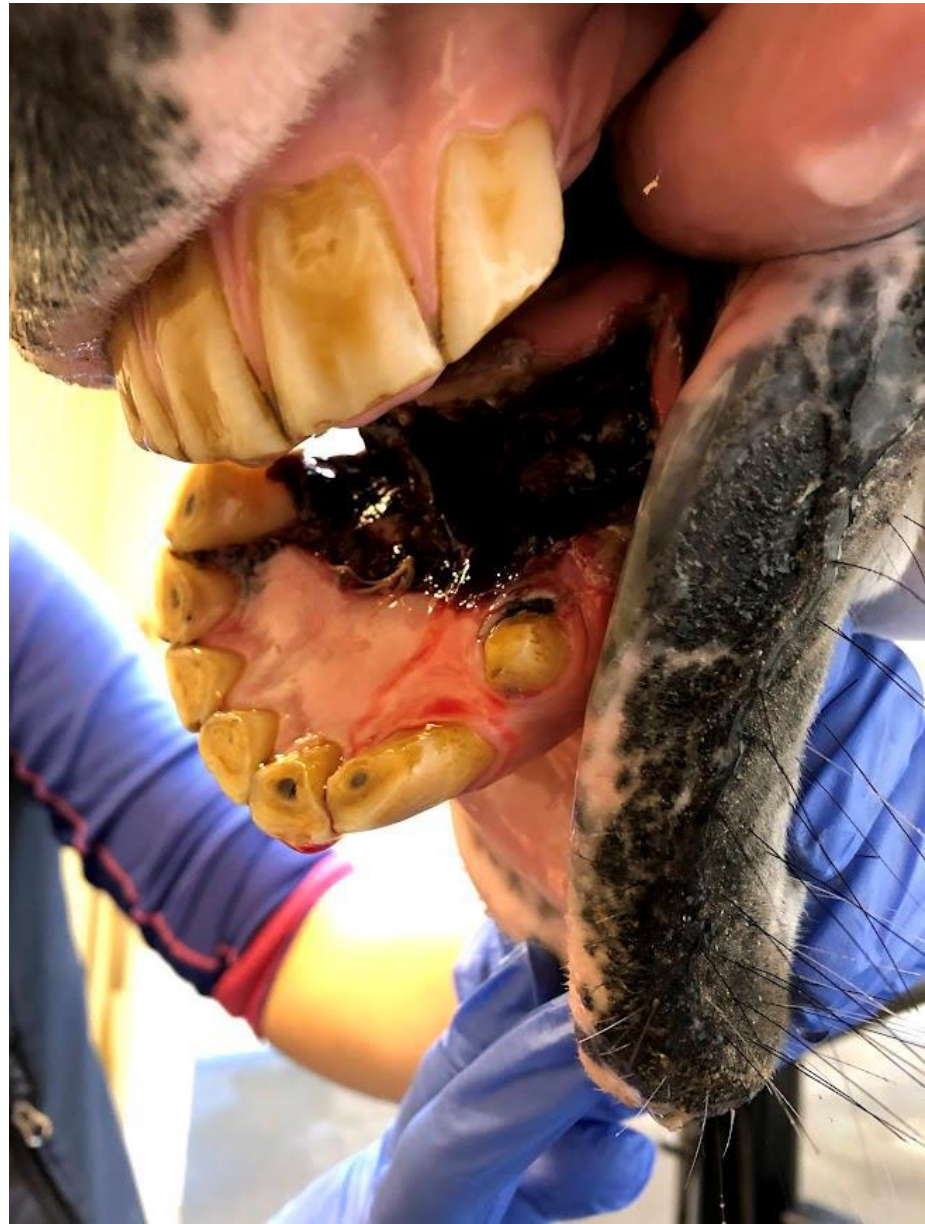
Fractures

Fractures of the rostral mandible and premaxilla

- Common, esp. in young horses

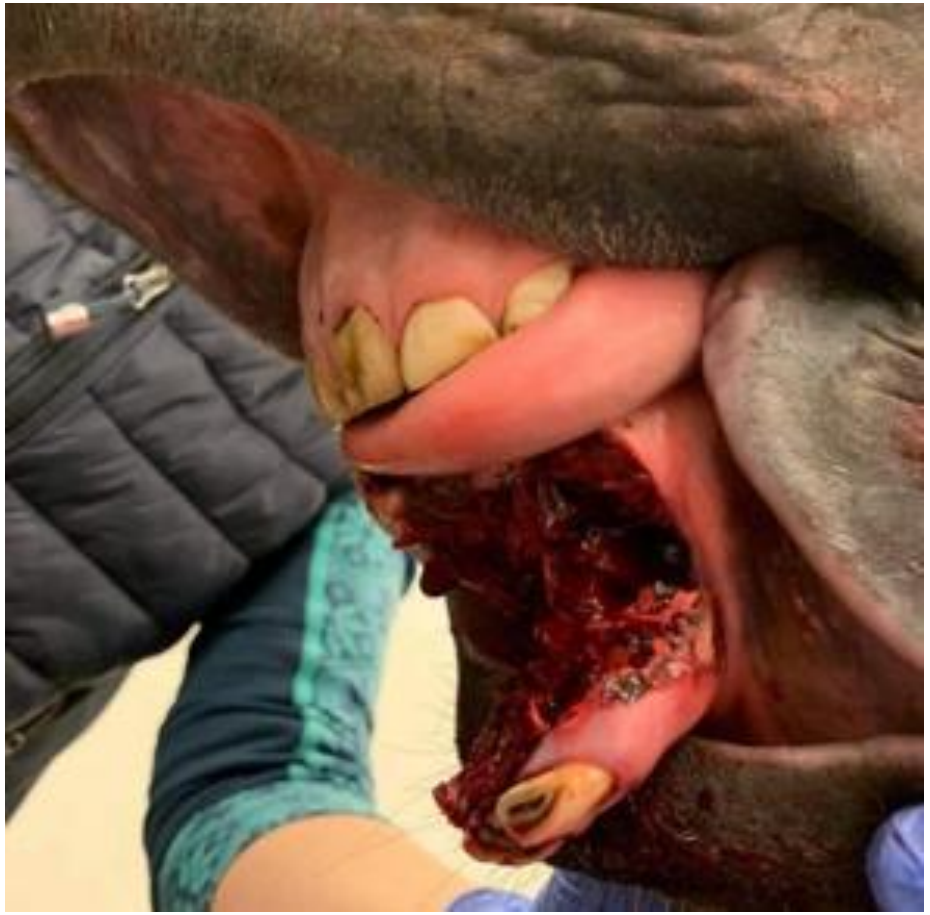
- **Clinical signs:**
  - Excessive drooling
  - Inappetance

- **Treatment:**
  - Conservative – stable, non-displaced
  - Intra-oral wiring – unstable, displaced



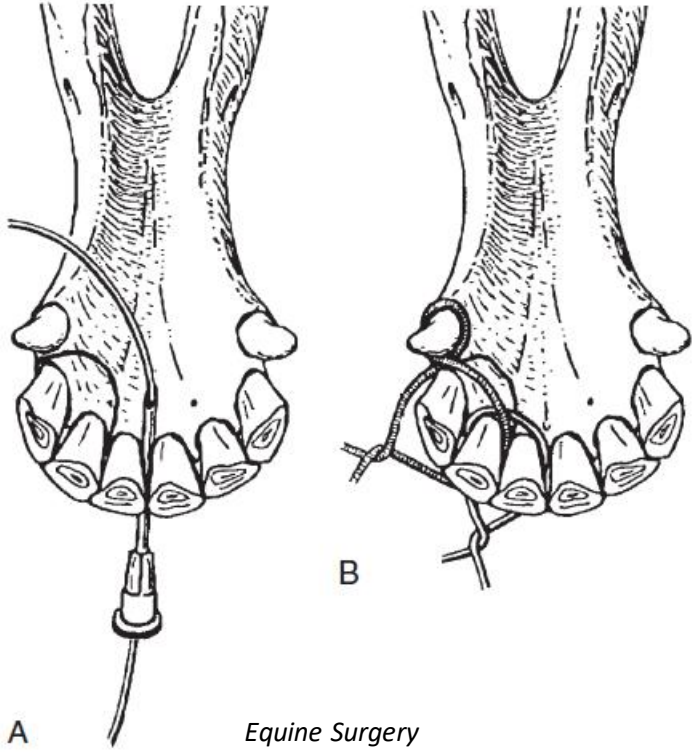
Fractures of the rostral mandible and premaxilla

- **Intra-oral wiring**
  - Sedation + nerve block
  - Clean fracture line
  - Manually reduce fracture



Fractures of the rostral mandible and premaxilla

- **Intra-oral wiring**
  - Cerclage wire fixation
    - 14g needle passed between incisors
    - Simple loops to attach to healthy, intact incisors



Equine Surgery

Fractures of the rostral mandible and premaxilla

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  - Corner fractures require caudal anchor
    - Canine tooth
    - Premolar (06)

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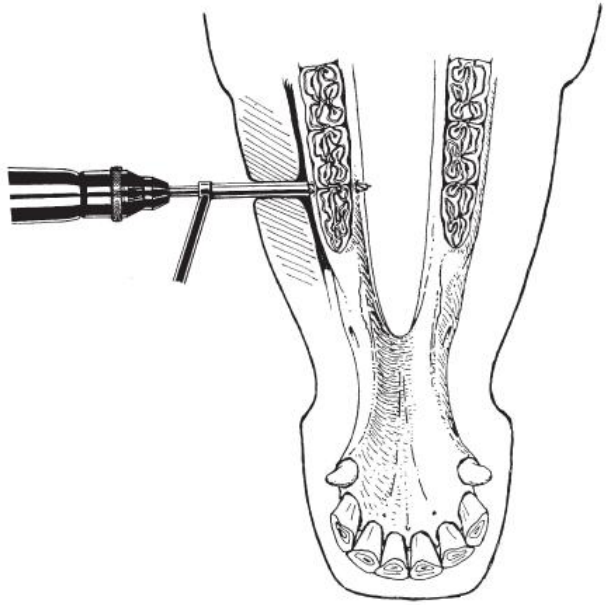

Equine Surgery

Fractures of the rostral mandible and premaxilla

- **Intra-oral wiring**
  - Aftercare
    - Daily inspection
    - Rinse mouth daily if able
    - Rads + wire removal in 4-6 weeks

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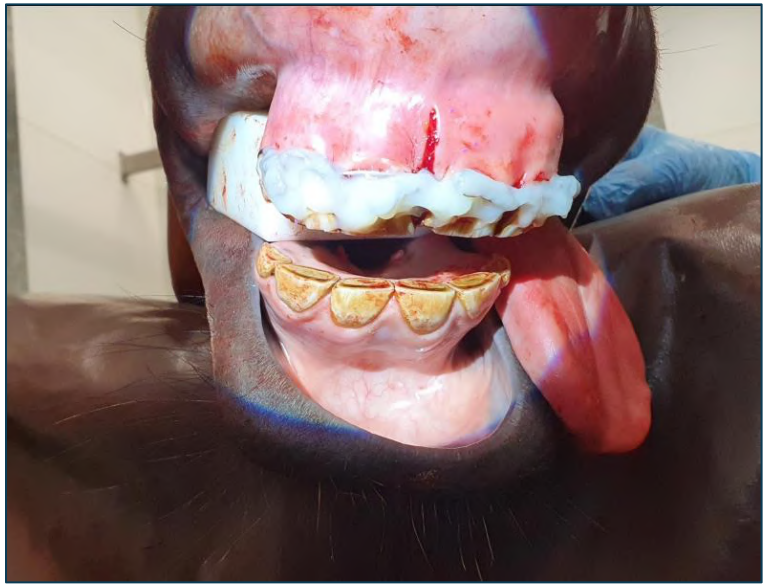


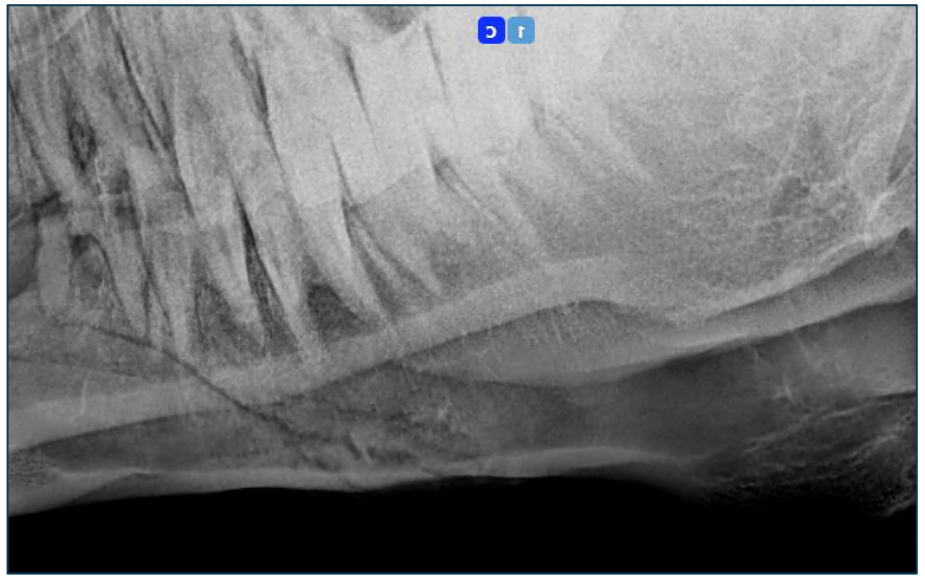
Photo: J. Schneider

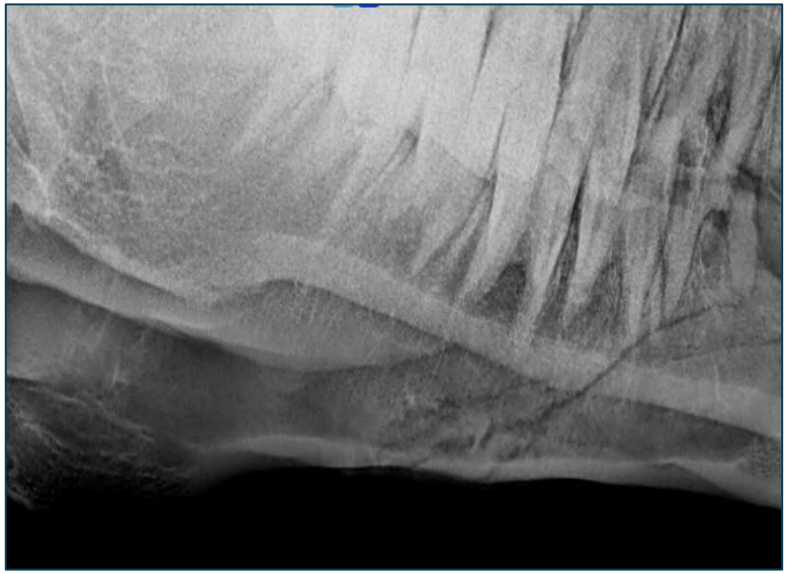
Fractures of the mandibular ramus

- Horizontal ramus
  – Some stability from intact opposite side
- Vertical ramus
  – Stabilized by overlying muscle
  – Most likely to be stable

- Initial pain phase
  – Typically 1-3 days
  – NSAIDs, +/- opioids, +/- paracetamol?

- Often open into oral cavity
  – Antibiotics





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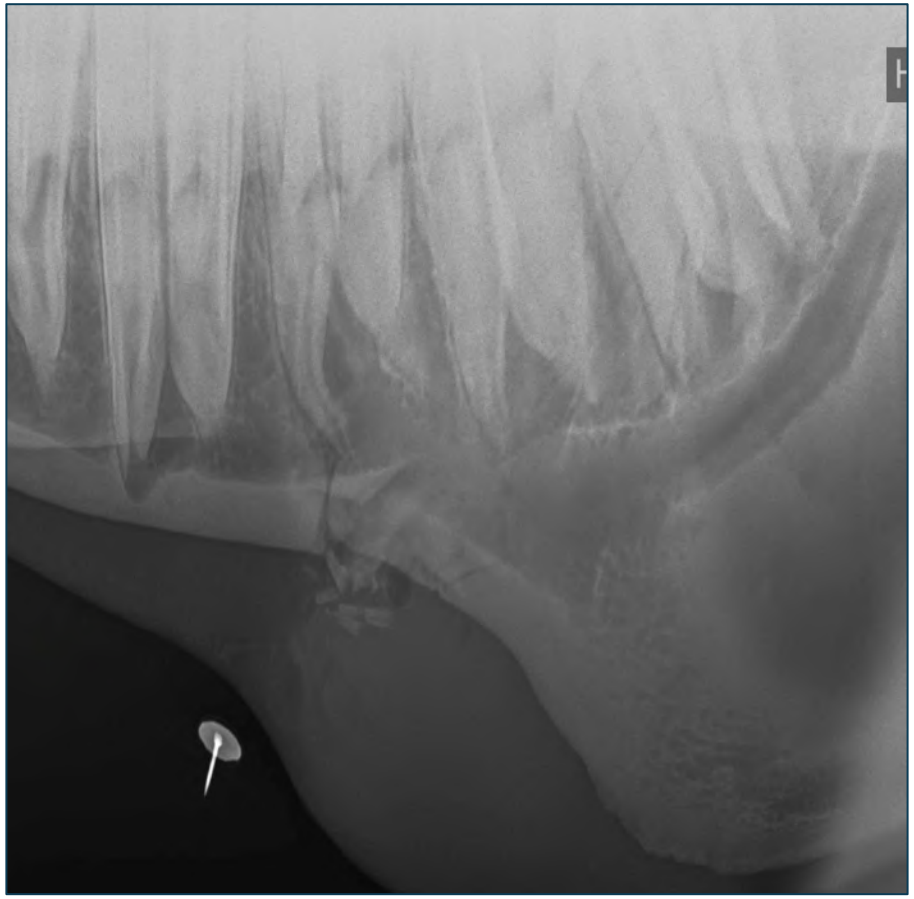
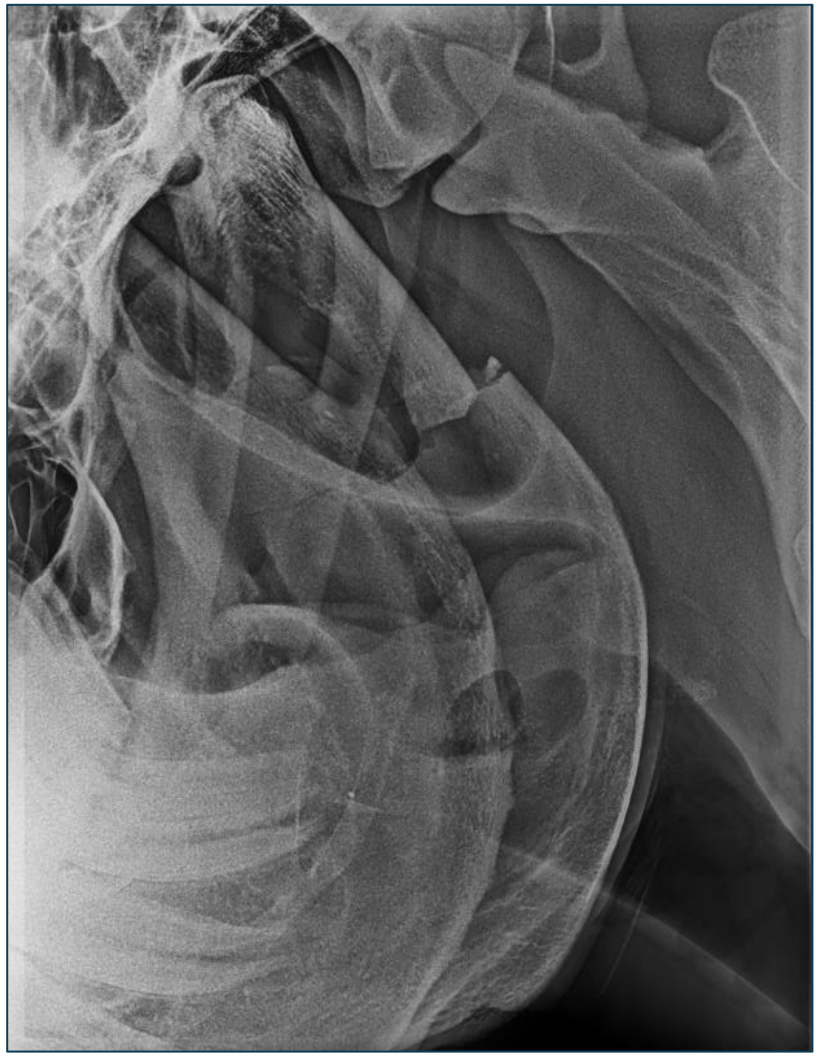


Photo: J. Schneider

Fractures of the mandibular ramus

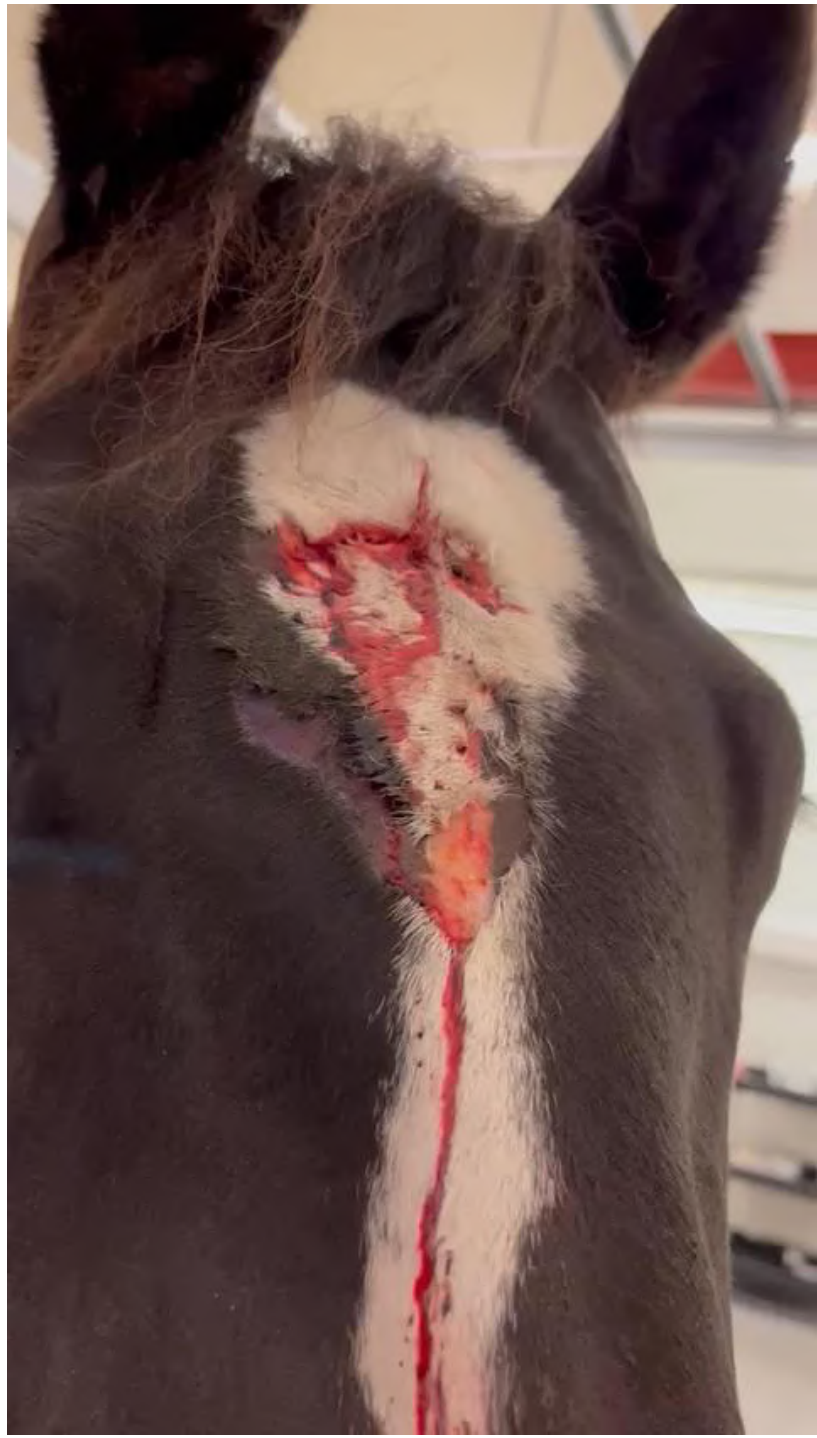
- **Indications for repair/referral**
  - Instability
  - Bilateral fractures
  - Malocclusion of teeth
  - Ongoing pain



Fractures of the facial bones

- Flat bones easily fractured
  - Variety of configurations
  - Range from simple to challenging to repair

- **Variable clinical signs**
  - Swelling
  - Crepitus
  - Subcutaneous emphysema
  - Visible asymmetry
    - May be obscured by swelling



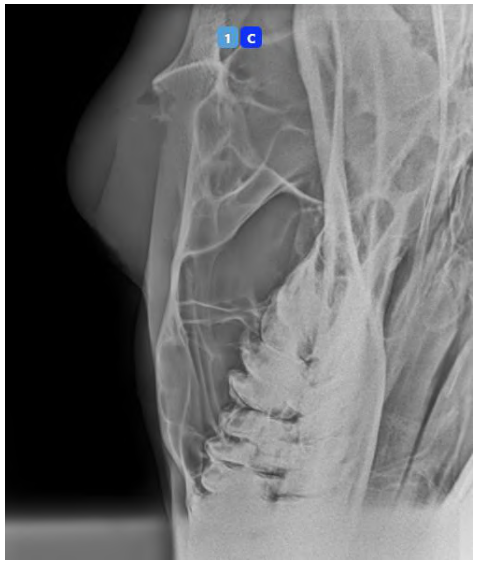
Fractures of the facial bones

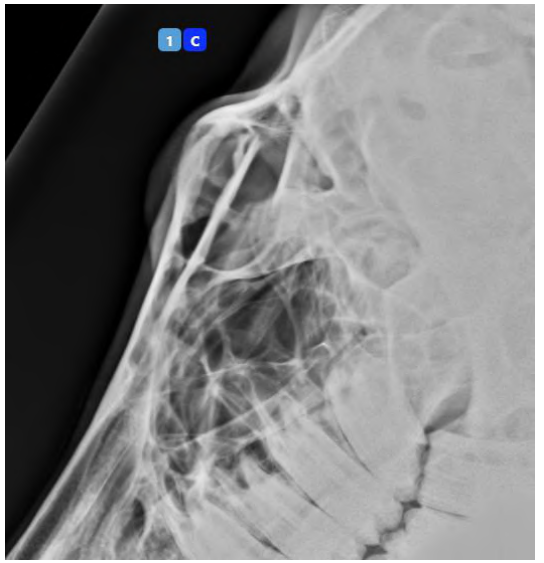
- Flat bones easily fractured
  - Variety of configurations
  - Range from simple to challenging to repair

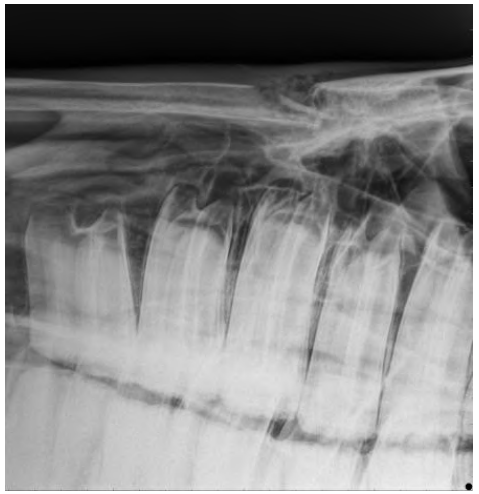
- **Variable clinical signs**
  - Abrasion/laceration
  - Epistaxis
  - Blepharospasm
  - Protrusion of eye from orbit

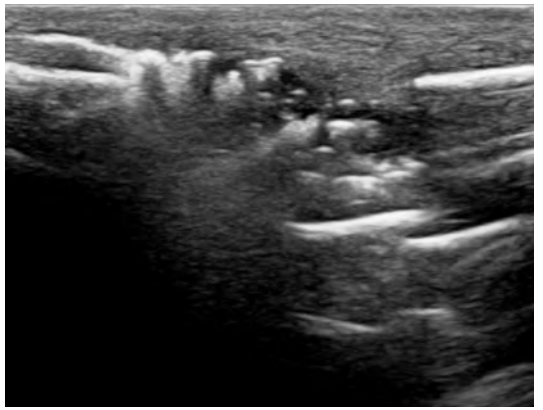
Fractures of the facial bones

- **Imaging:**
  - Radiographs
    - Can be difficult to interpret
    - Multiple obliques
  - Ultrasound
    - Useful for identifying fx lines



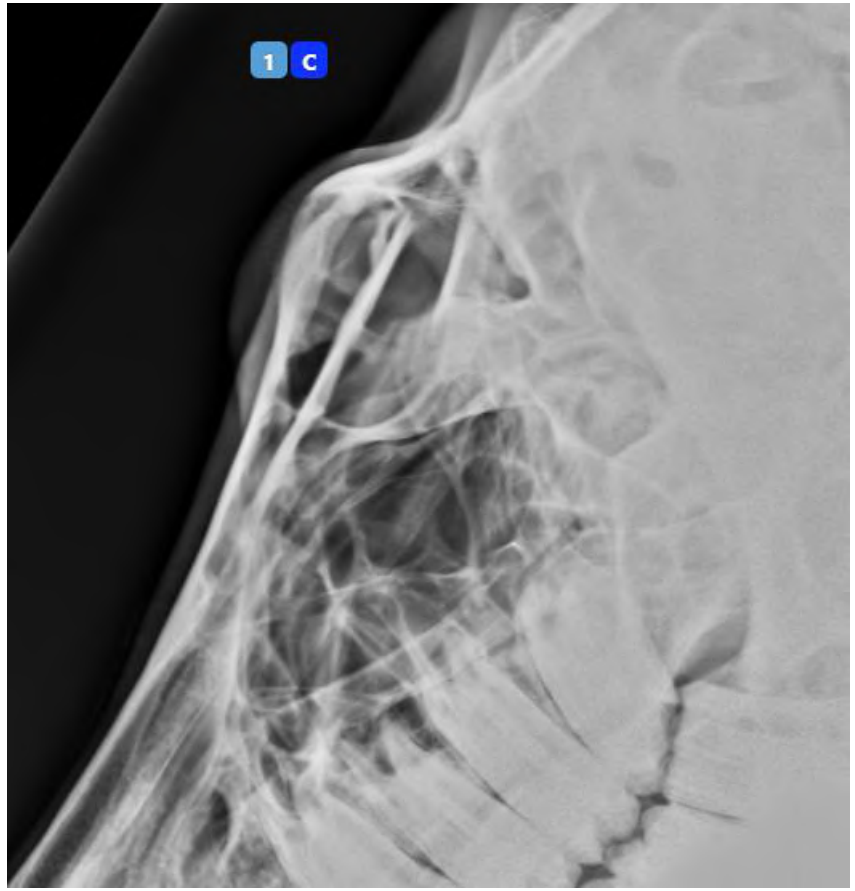






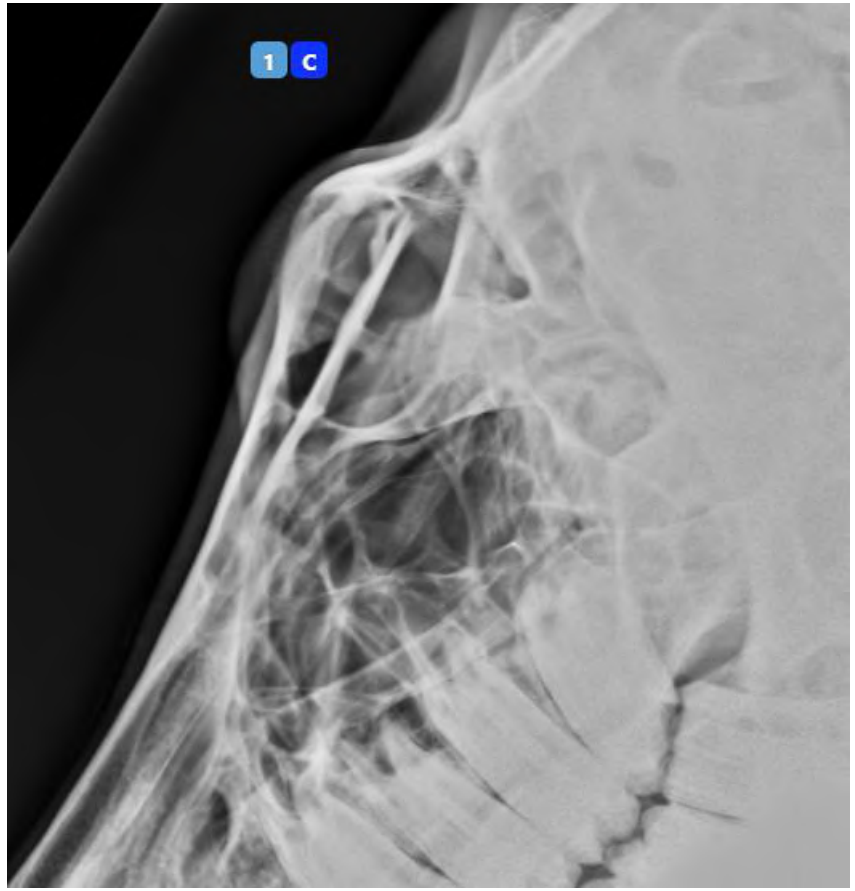
Fractures of the facial bones

- **Treatment:**
  - Abx
  - NSAIDs
  - Immediate repair of lacerations



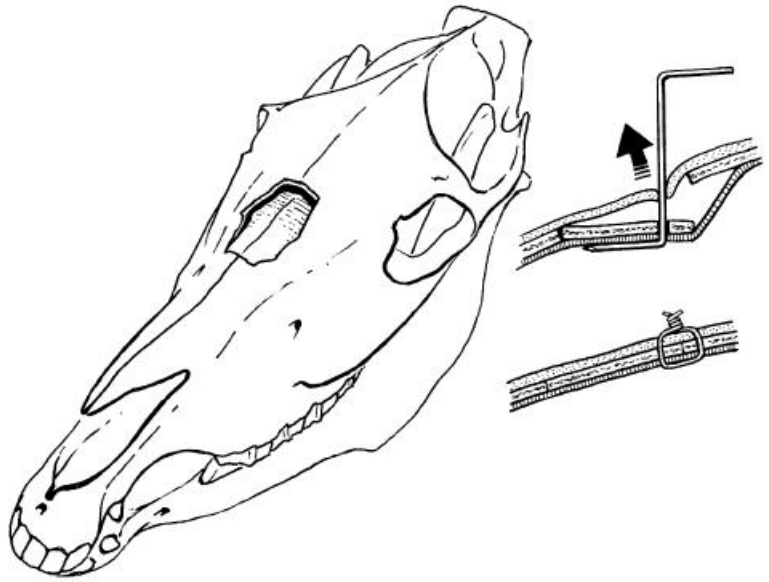
Fractures of the facial bones

- **Treatment:**
  - Fracture reduction?
    - Most fractures will heal without treatment
    - Necessary if compromises airway, eye, etc.
    - Can be delayed
      - Reduce swelling
      - More difficult if longer than 2-3 days



Fractures of the facial bones

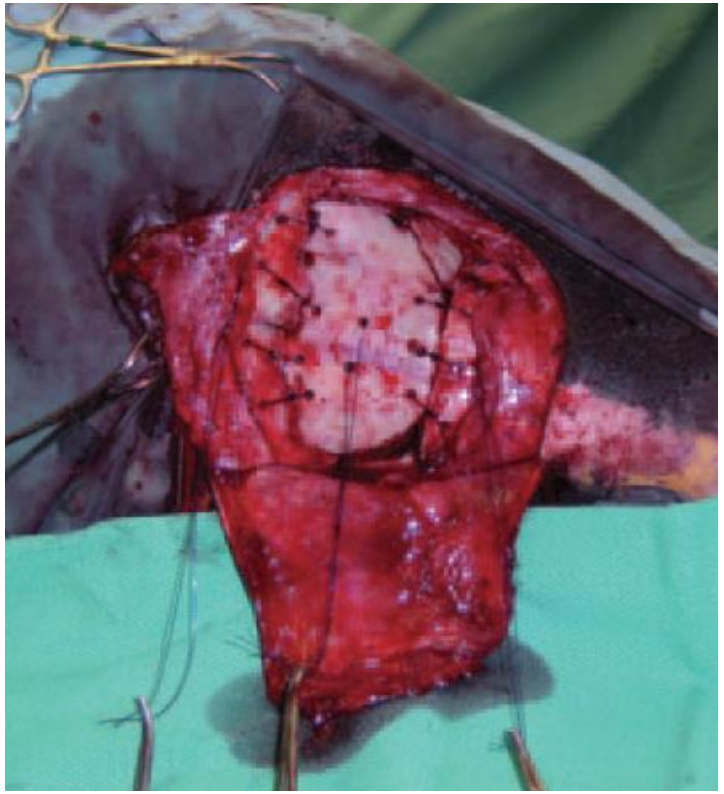
- **Fracture reduction**
  - Incomplete, depressed fractures
    - Elevate into position
    - Typically stable without further stabilization



Equine Surgery

Fractures of the facial bones

- **Fracture reduction**
  - Complete depressed fractures
    - Require stabilization
    - Heavy suture or thin cerclage wire



Equine Wound Management

Basisphenoid fracture

- Trauma to the poll during rearing or falling over backwards

- **Clinical signs**:
  - Epistaxis – can be severe
  - Swelling of retropharyngeal region
    - Can cause respiratory signs
      - Increased noise to acute respiratory distress
  - Mild to severe neurological compromise
    - Depression, ataxia, blindness, loss of PLRs, seizures, recumbency

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Thomas, *Vet Record* 2020

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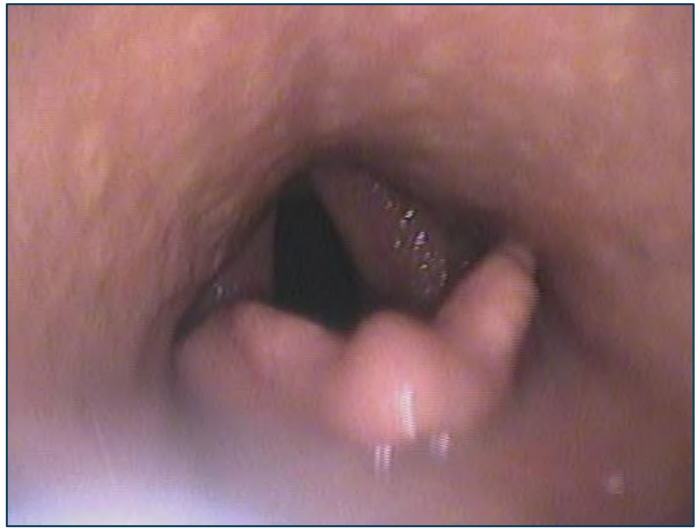
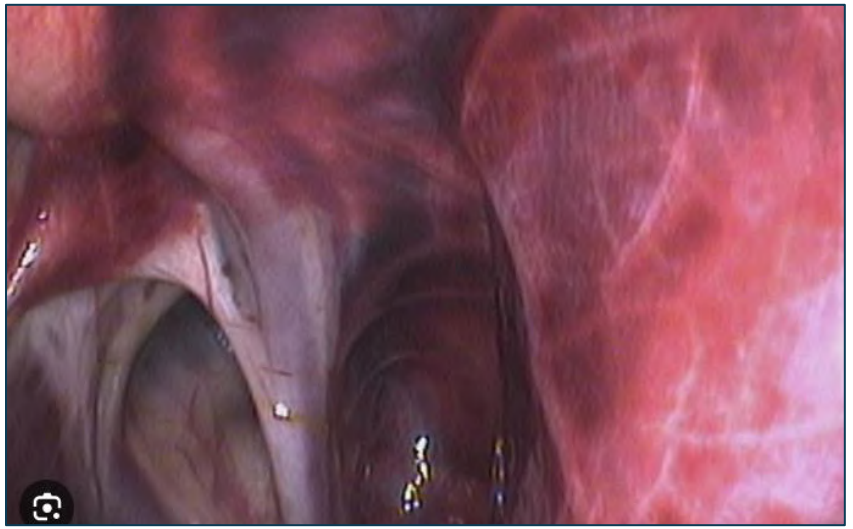
Basisphenoid fracture

- **Diagnostics:**
  - Endoscopy
    - Retropharyngeal swelling
    - Hemorrhage in guttural pouches
    - Rarely see displaced bone fragments in guttural pouch



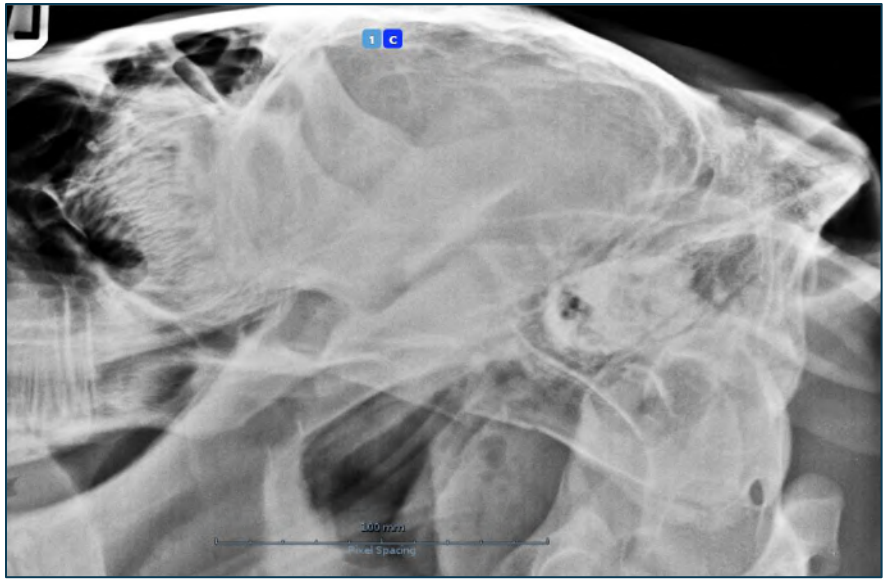
Vet Record 2020



Vet Record 2020

Basisphenoid fracture

- **Diagnostics:**
  - Radiographs
    - Fracture of basilar region of skull
      - Difficult to interpret in young horses
        - Suture line open until 5 y.o.
    - Increased opacity in guttural pouches



Basisphenoid fracture

- **Prognosis:**
  - Generally considered poor

- **Treatment:**
  - NSAIDs
  - Steroids??
  - Antibiotics
  - Rest – avoid manipulation of head and neck

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