Diseases of the guttural pouches

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GUTTURAL POUCHES

- Air-filled, mucosa lined outpouchings of the auditory tubes connecting the nasopharynx to the middle ear
- Function??
- Present in a few species
  - Equidae
  - Tapirs
  - Hyracoidea
  - Some micrchiropterans
  - The South American forest mouse
  - +/- rhinocerous & cetaceans

GUTTURAL POUCHES: Normal anatomy & physiology

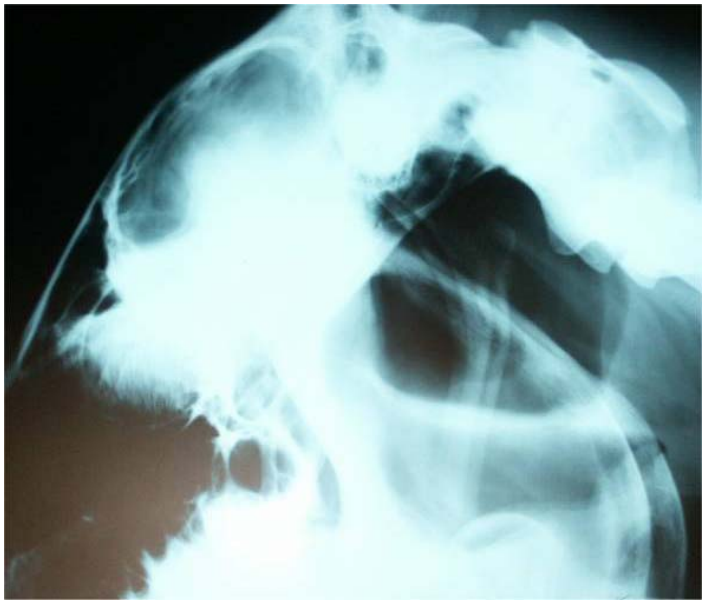
- Paired
- Approximately 350ml in volume
- Bordered by a number of structures:

Dorsal:
- Base of skull & 1st cervical vertebra
- Tympanic bulla & auditory meatus

Medial:
- Median septum, rectus & longus capitis muscles

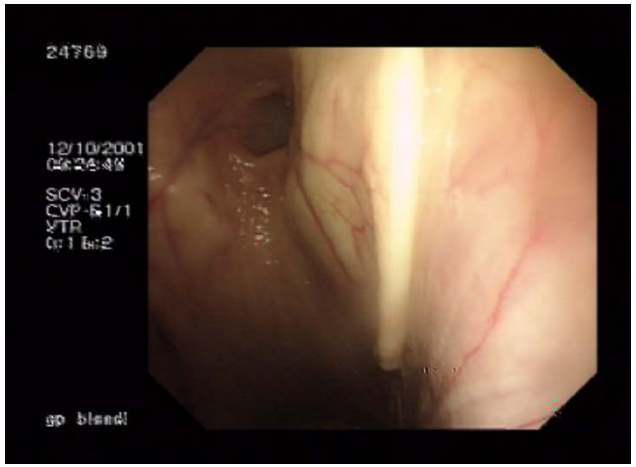
Ventral:
- Retropharyngeal lymph nodes & nasopharynx

Lateral:
- Parotid & mandibular salivary glands, pterygoid muscles

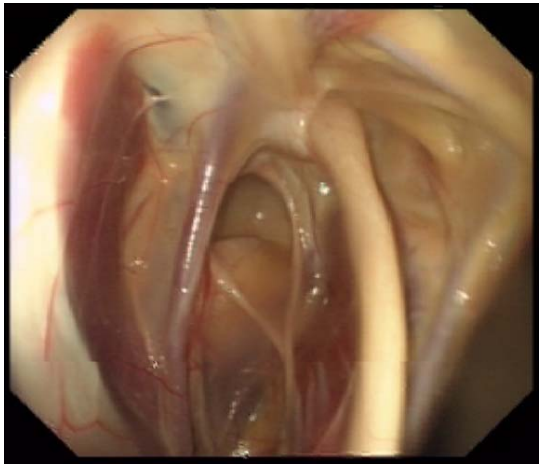


GUTTURAL POUCHES: Normal anatomy & physiology

- Each pouch connects with the nasopharynx via a funnel shaped pharyngeal orifice that has a fibrocartilage flap

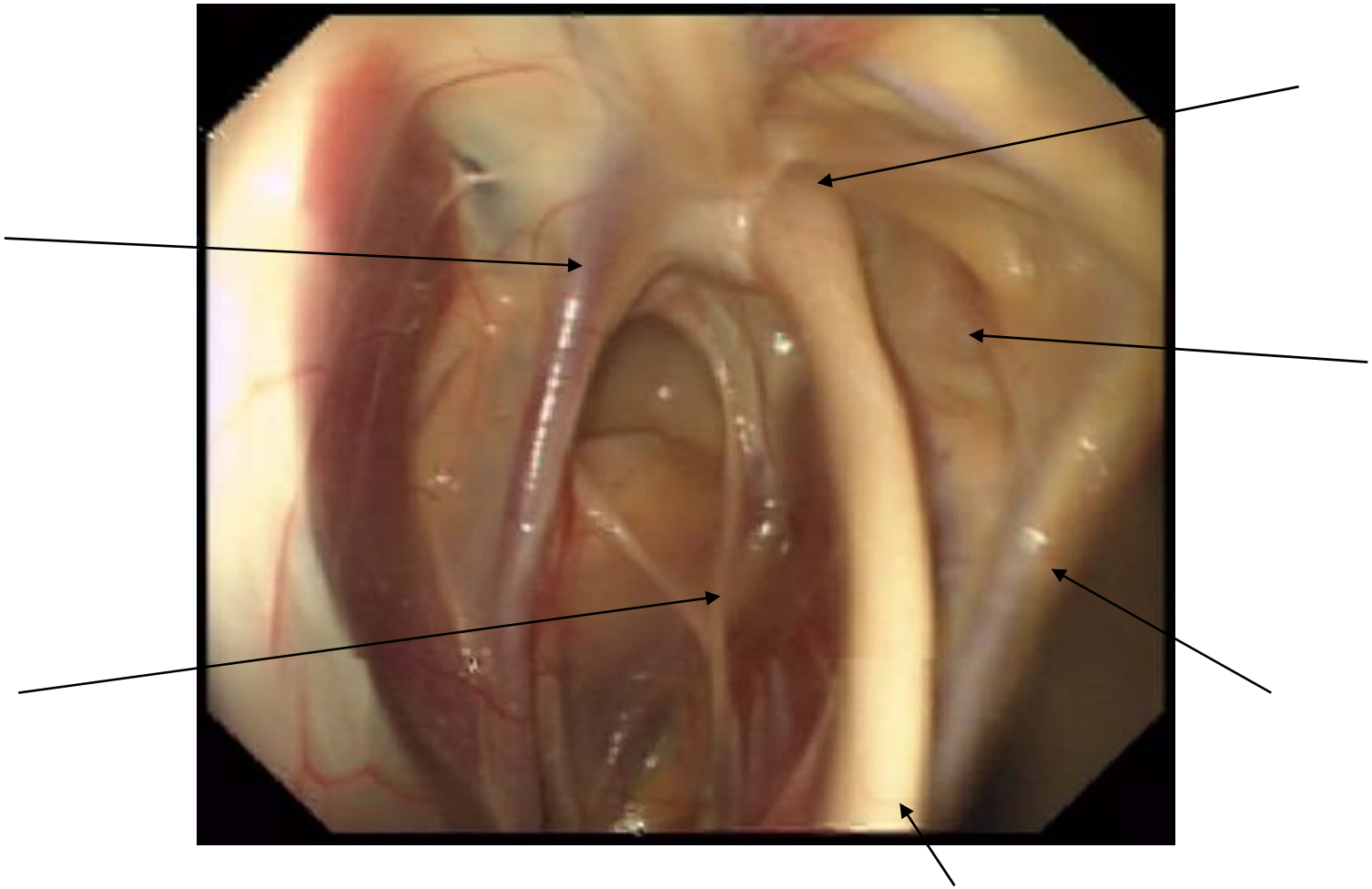


- Each pouch is separated into a medial & lateral compartment by the stylohyoid bone



- MEDIAL > lateral

GUTTURAL POUCHES: Normal anatomy & physiology



GUTTURAL POUCHES: Normal anatomy & physiology

A number of vital structures run through each pouch:

- **Internal carotid artery (ICA)**
- **External carotid / maxillary artery (ECA/MA)**

- Cranial nerves
  - **IX glossopharyngeal**
  - **X vagus**
  - **XI accessory**
  - **XII hypoglossal**

PRESENTING SIGNS OF GUTTURAL POUCH DISEASE

Relates to the structures affected:

- Epistaxis
  - erosion of wall of ICA / ECA
- Nasal discharge
  - haemorrhage / purulent material
- Dysphagia / laryngeal paralysis
  - cranial nerve paresis
- Swelling / Dyspnoea
  - Distension of pouches) by air, fluid or inspissated material /compression of nasopharynx

GUTTURAL POUCH MYCOSIS

- Relatively uncommon
- POTENTIALLY LIFE THREATENING CONDITION
- *Must rule this condition out in horses with epistaxis*
- Unknown aetiology; *Aspergillus* sp. found in lesions
- No geographical, age, breed or gender predisposition

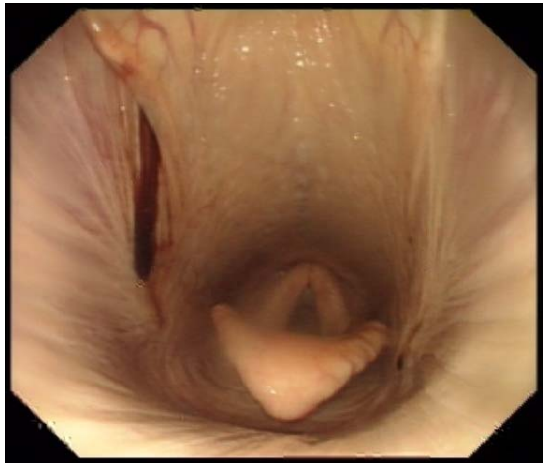
GPM: DIAGNOSIS

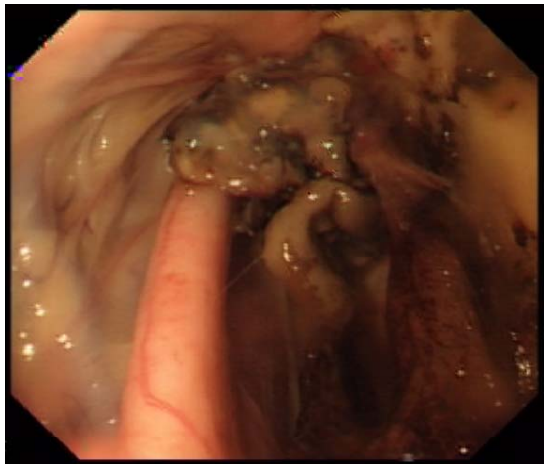
- HISTORY
  - Moderate – severe epistaxis
  - May have had several mild bouts of epistaxis
  - +/- dysphagia

- CLINICAL SIGNS
  - Epistaxis may be evident at the time of examination
  - +/- evidence of dysphagia

GPM: DIAGNOSIS

- ENDOSCOPY
  - Blood draining from one (rarely both) ostium
  - +/- DDSP or laryngeal hemiplegia
  - Diphtheritic membrane overlying ICA / ECA
  - ** care should be taken not to disrupt the clot and cause a fatal bleed – best to examine the guttural pouch at the surgical facility itself*



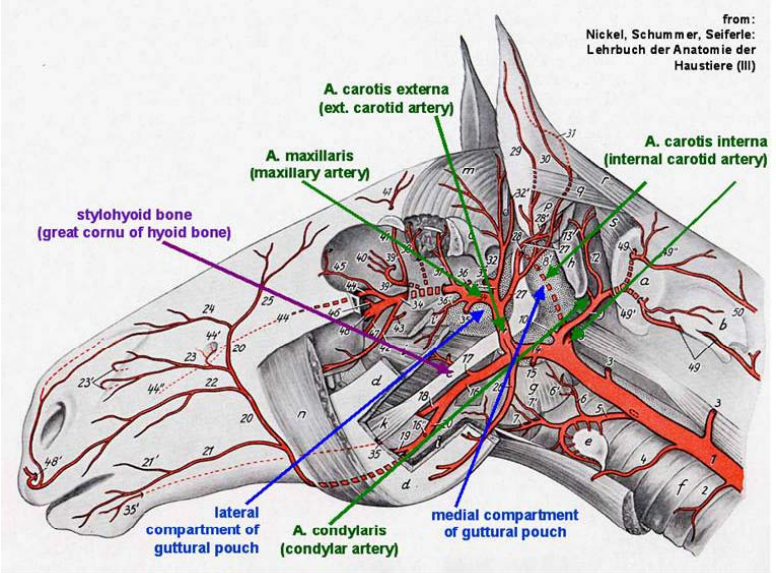


GPM: FIRST AID TREATMENT

- Assess how much blood has been lost
  - >5 litres clinically significant in a 500kg horse
- Assess the heart rate & mucous membranes
  - HR >60bpm, pale mm indicates hypovolaemic shock
- Keep the horse quiet
- Can administer acepromazine if no evidence of hypovolaemic shock
- Contact surgical centre to discuss referral
  - Usually 3rd / 4th bleed fatal (within 2-3 weeks of first bleed)

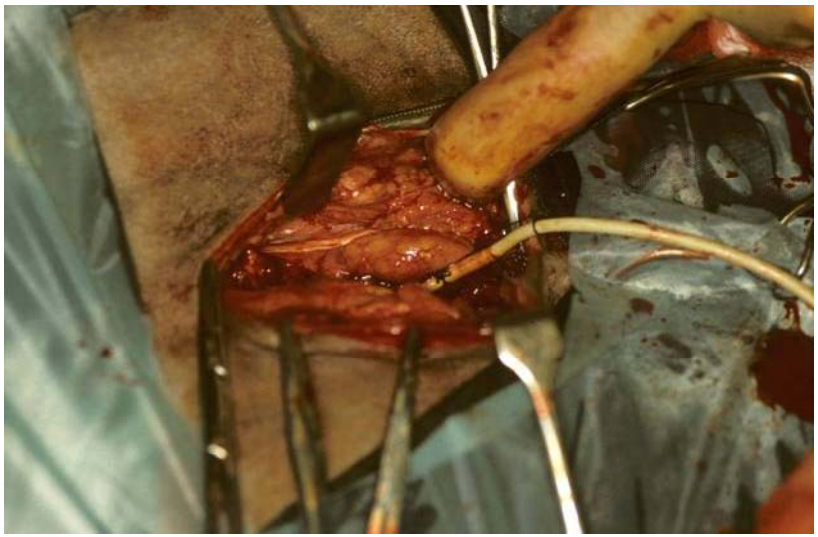
GPM: TREATMENT

- SURGICAL OCCLUSION OF THE AFFECTED ARTERY
  - Aim: to prevent fatal haemorrhage
  - Have to determine which artery has been eroded by the mycosis lesion
  - The ICA is the artery most commonly affected
  - Surgery to occlude the ECA is more complex
  - Failure to occlude the correct artery may result in fatal haemorrhage



SURGICAL TREATMENT OF GPM

- LIGATION
  - Still carries risk of retrograde haemorrhage from the circle of Willis
- LIGATION & BALLOON CATHETER OCCLUSION
  - Occlusion of the artery & prevents retrograde flow from the cerebral arterial circle
- TRANSARTERIAL COIL EMBOLISATION
  - Performed using fluoroscopy & angiography to selectively occlude the affected artery / arteries with microcoils

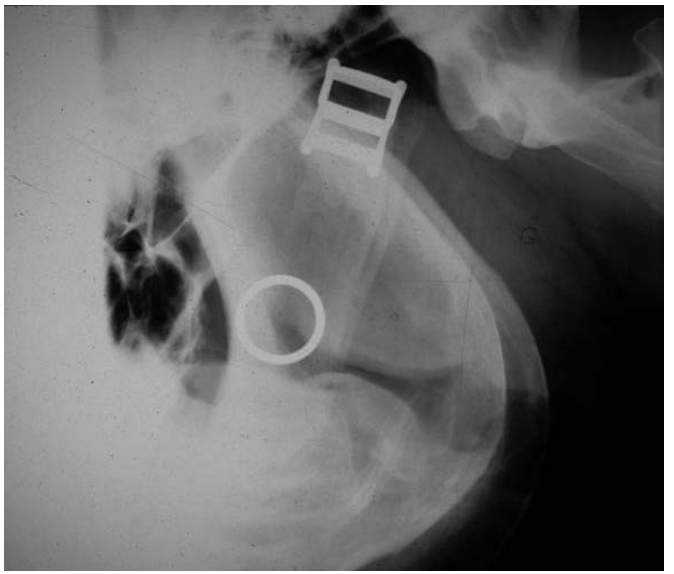


SURGICAL TREATMENT OF GPM

- Rarely are both guttural pouches affected
- Mycotic lesion usually spontaneously regresses
- Neurological signs can persist
- Sometimes these signs will improve over time
  - Laryngeal paralysis
  - DDSP and dysphagia

GUTTURAL POUCH EMPYAEMA

- Empyaema = purulent material or chondroids within one or both guttural pouches
- Chondroids = inspissated purulent material
- Usually occurs in young horses
- Aetiology:
  - URT infection *strangles
  - Infusion of irritant drugs



GUTTURAL POUCH EMPYAEMA

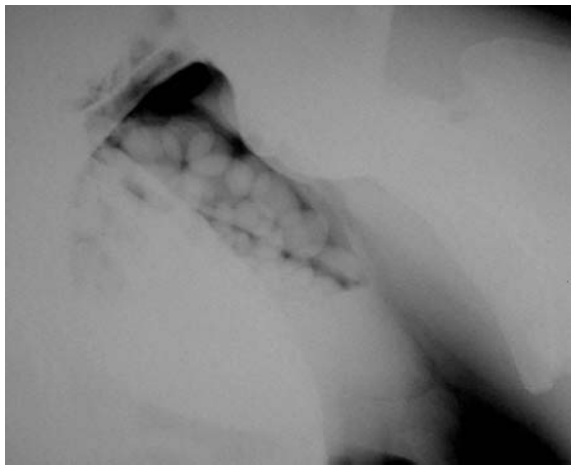
CLINICAL SIGNS

- Intermittent nasal discharge
- Parotid swelling & pain
- Extended head carriage
- Respiratory noise at rest
- Difficulty swallowing & eating
- Occasionally pharyngeal & laryngeal paresis

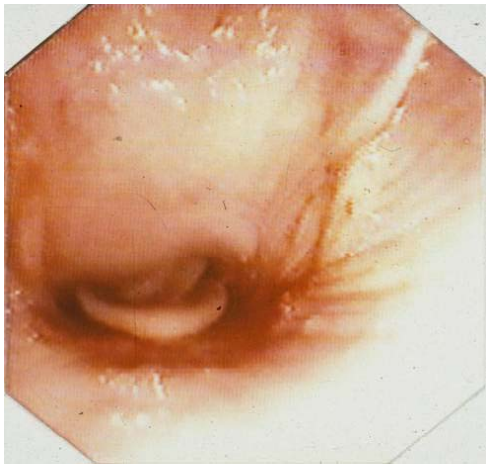
GUTTURAL POUCH CHONDROIDS

DIAGNOSIS

- Radiography
  - Increased radiodensity of GP on lateral views

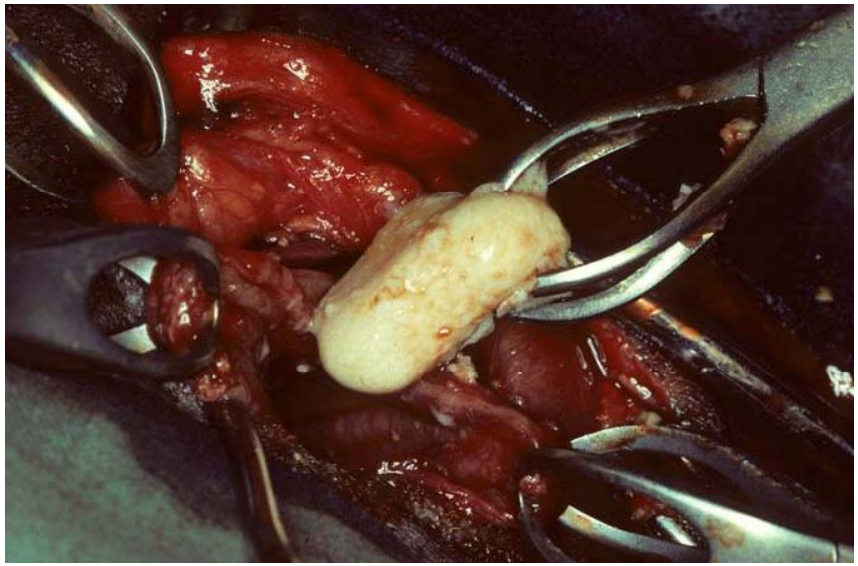


- Endoscopy
  - Dorsal pharyngeal compression
  - Purulent / inspissated material in GP



EMPYAEMA: TREATMENT

- Flushing of pouches using catheters inserted via ostia
  - Has to be performed repeatedly
  - Won’t work if chondroids / lot of inspissated material present in pouches
- Endoscopic removal of chondroids
  - Special endoscopic instruments
- Surgical flushing & removal of material



SURGICAL APPROACHES TO THE GUTTURAL POUCHES

1. HYOVERTEBROTOMY
   - Cranial to and parallel with the wing of the atlas

2. VIBORGS TRIANGLE
   - Borders are:
     - Tendon of the sternocephalicus muscle
     - Linguofacial vein
     - Vertical ramus of the mandible

3. WHITEHOUSE
   - Incision made on ventral midline over the larynx

4. MODIFIED WHITEHOUSE
   - Incision made over the lateral aspect of the larynx

GUTTURAL POUCH TYPMANY

- One or both guttural pouch(es) becomes filled with air
- Occurs in foals from birth – 1 year old
- Usually unilateral
- Distended, non-painful swelling
- +/- dyspnoea / dysphagia / inhalational pneumonia

- **DIAGNOSIS**
  - Clinical examination & radiographs

- **TREATMENT**
  - Creation of a fistula (conventional surgery / laser surgery)

OTHER CONDITIONS OF THE GUTTURAL POUCH

- TEMPOROHYOID OSTEOARTHROPATHY
  - Uncommon, progressive disease of middle ear & temporohyoid joint
- RUPTURE OF VENTRAL STRAIGHT MUSCLES
  - History of trauma, can cause haemorrhage into GP
- MELANOMATOSIS / MELANOMAS
  - Melanomatosis common in grey horses
- NEOPLASTIC MASSES
  - rare

SUMMARY – GUTTURAL POUCH

- Important structure in the horse
- A number of important vascular & nervous structures traverse the pouch
- Clinical signs of guttural pouch disease will depend on the structures affected
- Diagnosis based on endoscopy and less frequently radiography

A FEW OTHER THINGS…

TRACHEOTOMY

INDICATIONS:

- Emergency bypass of URT obstruction
- Route for intubation
- Rest the URT
- Bypass inoperable URT obstruction

HOW TO PERFORM AN EMERGENCY TRACHEOTOMY

- Clip 20x10cm area on ventral midline at the junction between the middle & upper thirds of the neck
- Palpate the paired sternothyrohyoideus muscles and tracheal rings
- Instil 10ml of local anaesthetic solution (e.g. lignocaine / mepivacaine) into skin & underlying tissues
- Aseptically prepare the site
- Make a 6-8cm incision on the ventral midline at the junction between the upper & middle 1/3rd of the neck

EMERGENCY TRACHEOTOMY

- Palpate the two tracheal rings in the centre of the incision
- Make a stab incision between the two rings
- Extend the incision for 1-2cm each side of the midline

  *do not incise more than 1/3rd of the diameter of the tracheal rings (risk damage to adjacent vessels)
- Insert tracheotomy tube
- Secure tube in place

DENTIGEROUS CYSTS

- Uncommon
- Incomplete closure of the 1st branchial cleft
- Contains dental elements e.g. enamel
- Cystic lining produces mucoid fluid

- Clinical signs:
  - Unilateral swelling at base of ear
  - Occasional drainage of fluid

- Treatment – cosmetic
  - Surgical removal

TEMPOROMANDIBULAR JOINT DISEASE

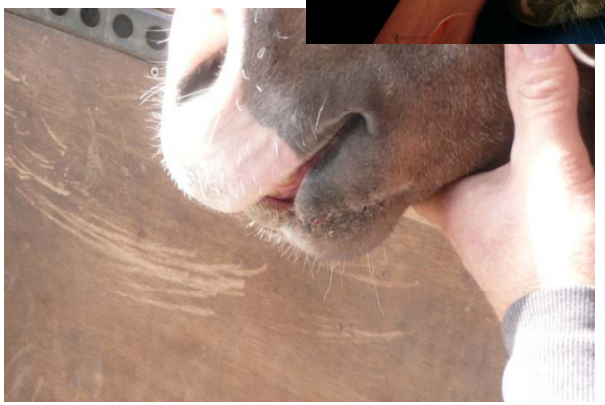
- Uncommon
- Can cause a variety of clinical signs
  - Reduced lateral excursion of jaw
  - Headshaking / headtossing
- Diagnosis
  - Ultrasound
  - Radiography
  - Scintigraphy
  - Arthroscopy ?treatment

HEAD TRAUMA

- Usually the result of rearing over backwards
- Other blunt trauma e.g. kick or blow to head
- Assess neurological status first & monitor carefully
- Stabilise before performing further diagnostic tests

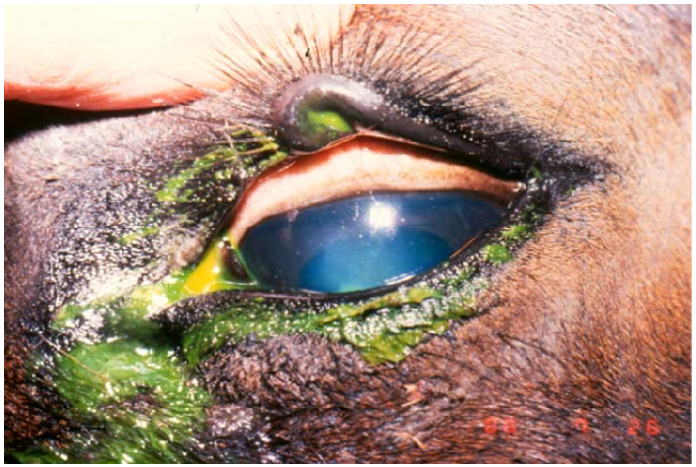
LIP & TONGUE INJURIES

- Lip injuries common; tongue less so
- Depends on the degree of deformity / injury
- Some lip injuries may be suitable for repair under standing sedation
- GA required for tongue & some lip injuries



EYELID INJURIES

- Common
- Must assess injury to eye itself & other periocular structures
- Repair under standing sedation / GA
- GOOD ANATOMICAL REPAIR ESSENTIAL



JAW FRACTURES

- Not uncommon
- Usually the result of the jaw becoming caught & the horse pulling back quickly
- Surgical repair to realign the teeth
- Technique depends on the site of fracture