Dental Examination and Pathologies in the Mammal Patient

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I cannot stress enough the importance of a good, thorough dental examination for each and every mammal patient you admit!

- Our patients use them to:
  - EAT
  - HUNT
  - PROTECT themselves and INTIMIDATE potential predators
  - COMMUNICATE to conspecifics
  - GROOM
  - GATHER MATERIALS and BUILD NESTS/DENS
  - CARRY YOUNG
  - BREED?

Teeth can also give us an idea of an animal’s Age, Health Status, and Rank

- A **dental formula** is used to describe how many of each type of tooth an animal has:
  - Incisors
  - Canines
  - Premolars
  - Molars

- Since the upper and lower jaw is symmetric, the formula only describes one side:
  - Example – Dog
    - Maxilla – 3142 (I\(\text{3}\)C\(\text{1}\)P\(\text{4}\)M\(\text{2}\))
    - Mandible – 3143 (I\(\text{3}\)C\(\text{1}\)P\(\text{4}\)M\(\text{3}\))

- **Types of Dentition**
  - Heterodont – mammals have different sizes and shapes of teeth!
  - Brachydont (low crowned)
    - Primates, carnivores, pigs
  - Hypsodont (high crowned)
    - Continue to erupt
• Horses, ruminants
• Elodont – rabbits, rodents
  • Continuously growing, open rooted

**Rabbit Dentition**
• No true anatomical root
• Continuously growing incisors and cheek teeth
  • Maintain wear and chisel shape with grinding action during chewing
• Upper I2 behind I1
  • “peg tooth”
• Vertical chewing motion until food reaches molars, then lateral
• Space between incisors and premolars = diastema

**Rodent Dentition**
• Only the front of the tooth has enamel. The backside is softer dentine
• No true anatomic roots
• Continuously growing (incisors only)
  • Maintain wear and chisel shape with grinding action during chewing
• Sharp and chisel-like
• No pre-molars
• Chewing is rostrocaudal
  • How the name RODENT came to be!
  • Can also move in a near vertical plane as well 😊

Opossums have 50 teeth, more than any other North American mammal!

**Cervids**
• No upper teeth
• ICPM (# varies by age)
• Deer are aged by the # and amount of wear on their teeth, especially the premolars and molars
  • Wear (color change to brown/black), cusps, ridges

**The Dental Exam**
• Teeth are a part of the digestive system!
• Poor dental health can be directly related to overall health!
• Our patients need healthy teeth to survive!
• Be sure to examine the mouth/teeth well if patient is exhibiting:
• Dysphagia
• Respiratory noise
• Facial swelling
• Anorexia
• Rabbits – small feces

• Tools for dental exams:
  • Mouth gag
  • Otoscope
  • Endoscope
  • Vaginal speculum (who knew??) ☺

Pathologies of Teeth

Decay

• Caries = carious lesion = “rottenness” in Latin = cavern in the tooth due to decalcification of the enamel and disintegration of the dentin by acid producing bacteria
• Rare in wildlife
• Squirrels
  • Rarely carry cariogenic bacteria
• Pet rodents
  • High carb diet and “treats”, human will bite off a piece of cracker, etc and their bacteria spread to the rodent
• Extraction recommended. If superficial, may be able to use sealant

A note about bats:

• Some nectar/pollen feeding species are prone to mite infestations in the mouth → osteolysis of the hard palate and odontolysis of the teeth
• Tooth/gum infections as well as abscessed teeth have been noted in Big Browns captured from the wild
• Captive insectivorous bats → prone to plaque buildup from soft diet/mealworm only diet → gum infection → abscesses
  • Offer insects (beetles) with hard exoskeletons
  • Supplements – tetrasodium pyrophosphate, CoQ10
• Sign of abscess → debris on the toes → not grooming appropriately b/c mouth is sore
• Big Browns fed a mealworm diet may develop dark stains on the teeth → develop on tartar on the teeth → may lead to decay/gum disease/abscesses
**Tooth trauma**

- Fractured teeth
  - HBC, fall from tree, chewing on cage bars
  - If there is pulp exposure, **THIS IS PAINFUL!!**
    - Animal may continue to eat
    - Portal for infection $\rightarrow$ abscess
  - Root/apical avulsion = tooth gets dislodged from the underlying bone and dislocated into another space (ie sinuses)
    - The tooth may never regrow correctly, especially if there is apical damage

**Tooth infection/abscess**

Symptoms of abscessation may include:

Anorexia

Facial swelling

Bulging eye

Painful on palpation

Drooping mouth

Excessive drooling

Sinusitis/excessive tearing

Respiratory noise

**Congenital malocclusion**

- Incisors in juvenile squirrels
- Usually 2* to facial bone deformity
- Sometimes related to trauma
  - Typically fall head/face first from the nest
  - Loose or gap between lower incisors normal when young!
- If not other signs of trauma, assume congenital
- Usually top incisors
  - Will never grow in properly, despite tooth trimmings. Consider euthanasia
- Deformity to the tooth structure itself
- Facial deformity $\rightarrow$ interruption in tooth eruption
- Malalignment of the upper and lower incisors
• **Congenital/Inherited**
  • Grave prognosis, not releasable

• **Acquired**
  • Trauma to tooth, jaw or other facial structures
  • 2* to tooth removal
  • Can attempt tooth trimmings

• **Neoplasia**
  • Rare in wildlife
    • Odontomas (benign) can develop in the case of traumatized root apices (from chewing on bars)
      • Rodents
  • Squamous cell carcinoma (SCC) reported in rabbit and opossum
  • Malignant melanoma reported in rabbit

• **Missing Teeth**
  • Congenital? Traumatic? Age?
  • Rodents and lagomorphs should not be released with a missing incisor! If uncertain – take a radiograph to look for the tooth!
  • Carnivores/Omnivores – many will have missing teeth from old age, fighting/territorial behavior, wear & tear
  • Make a judgement call. Patient likely has more pressing issues anyway and this is not their 1* problem

• **Dental Extraction**
  • When it’s recommended:
    • Fractured tooth with pulp exposure (>???)
    • Decaying tooth
    • Rotten/dead tooth (allow to fall out naturally? Painful?)
    • Avulsed root
    • Any other trauma to root or surrounding bone and tooth not erupting normally
    • Malocclusion
  • How many is too many? Consider the species and what they need their teeth for:
    • Carnivores rely highly on canines to hunt and kill prey effectively
    • What about omnivores (opossums? raccoons?) Do ok missing 1-2 canines?

• **Never remove rabbit or rodent incisors!**
• **Post-extraction healing**
  - Extraction sites typically take 7-10 days to heal; absorbable sutures
  - Antibiotics??
    - TMPS, Clavamox
  - Pain medications
    - Meloxicam, Tramadol
    - Buprenorphine and local blocks intra-op
  - Monitor site(s) for bleeding, swelling, discharge, dehiscence
  - Monitor patient closely for signs of pain, inappetence, difficulty eating, etc.
    - You’ll find that the patient is actually going to be LESS painful post-op!
  - Offer softer foods for the first several days

• **Trimming Teeth**
  - Rodents and lagomorphs will likely need frequent tooth trimmings while a broken incisor is growing back in
  - Use a dremel or dental handpiece. Clippers→splintering of tooth!!
  - Stressful! Anesthetize!
  - Ensure malocclusion does not reoccur before okaying for release!
  - The initial trauma may cause irregularities in tooth growth below the gumline
  - Monitor for several weeks

• **Keeping Teeth Healthy**
  - Feed as natural a diet as possible
  - Supply sticks, logs, chew blocks, bones, etc to rodents and lagomorphs = great enrichment/dietary supplement as well!
  - Discourage chewing on cage bars – if you notice this, change cage/provide more enrichment/bitter apple?
  - Get a quick visual of the teeth at each recheck!