



Common Oral Pathology in Dogs and Cats

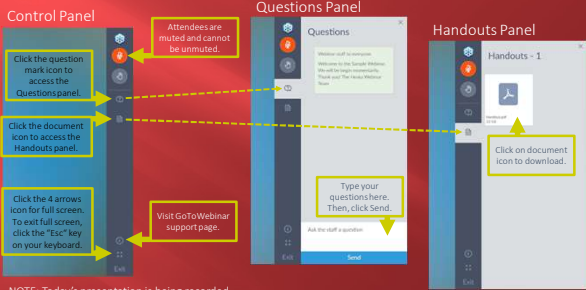
Patrick R Vall, DVM, Diplomate AVDC
Animal Dental Care and Oral Surgery
Colorado Springs, Colorado
Consultant to Heska
January 20, 2022

"Average people do not force themselves to get uncomfortable, and that is exactly how they stay average their entire lives."
- Eric Grzybowski

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GoToWebinar Control Panel





NOTE: Today's presentation is being recorded.

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To Recap...




Submit questions anytime. They will be answered during Q&A.



Download the CE Certificate during Q&A. Other handouts can be downloaded now.



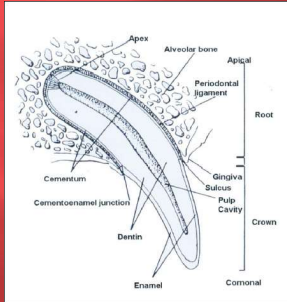
You'll get the recording via email within a few days.



You can tell us what you thought in the survey.

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Dental Anatomy



- Four Tissues
 - Enamel
 - Dentin
 - Cementum
 - Pulp

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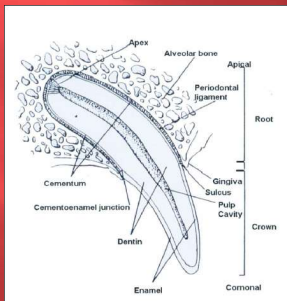
Enamel

- Hardest tissue
- Very brittle
 - Humans 5-10x
- 0.1 – 1.0 mm
 - Humans 5-10x
- Impermeable
- Not regenerative
- Mostly inorganic



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Dentin

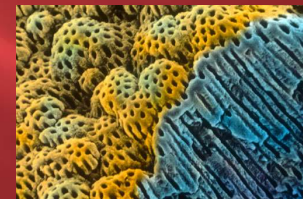


- Second hardest
- Elastic
- Covered by enamel and cementum
- Odontoblast – throughout vitality
- Reparative capacity

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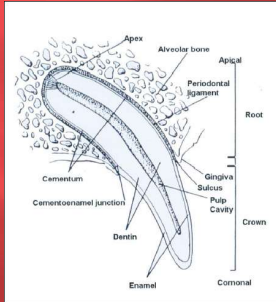
Dentin

- Permeable
- 30,000 – 40,000 tubules mm
- 70% Inorganic
- 30% Organic (collagen)
- Intimate association with pulp



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Pulp

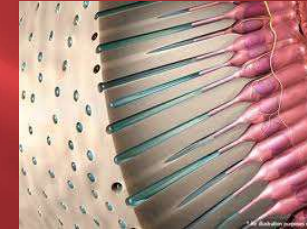


- ❑ Blood vessels, nerves, lymphatics, various cells
- ❑ Apex and lateral canal access
- ❑ Reparative capacity
- ❑ Damage always leads to inflammation
- ❑ Most dramatic response to injury

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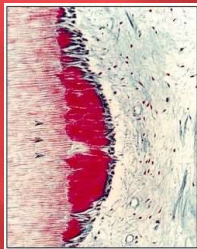
Dentin-Pulp Complex

- ❑ Odontoblasts
- ❑ Odontoblastic processes
- ❑ Nerve fibers
- ❑ Dentin tubule fluid
- ❑ Contact with anything > pain



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Tertiary (Reparative) Dentin

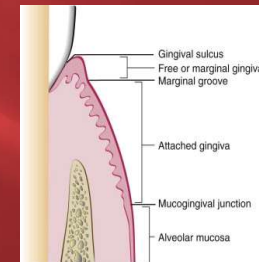


- ❑ Response to odontoblast trauma
- ❑ Below irritation
- ❑ Few dentinal tubules
- ❑ Structurally unorganized

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What is the periodontium? ("Around the Tooth")

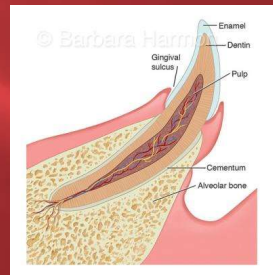
- ❑ Gingiva
 - Cover crown base & alveolar bone
 - Protective
 - Sulcus – Battlefield
 - Normal sulcus
 - 1-3 mm dog
 - < 0.5 mm cat



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What is the Periodontium?

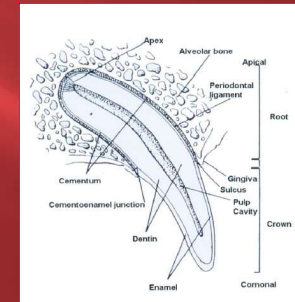
- Alveolar Bone
 - Surrounds roots
 - Forms socket (alveolus)



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What is the Periodontium?

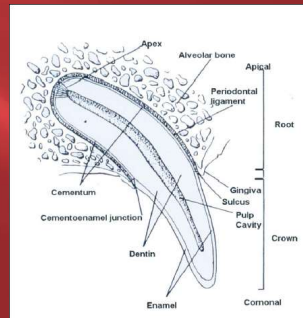
- Cementum
 - Outer root surface
 - Seals dentin tubules
 - Anchored to AB by the periodontal ligament



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What is the Periodontium?

- Periodontal Ligament (PDL)
 - Connective tissue
 - Multipurpose
 - Between tooth and bone
 - Supports each
 - Pain perception



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Why do we care about the periodontium?

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Attachment Loss!!!



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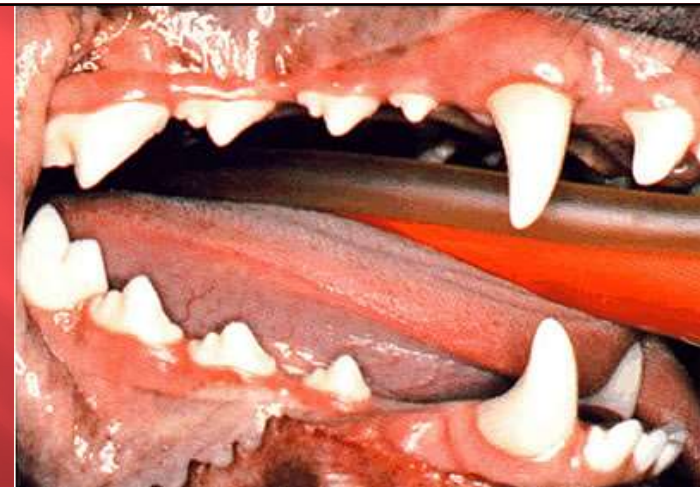
When does periodontal disease start after a professional cleaning?

18

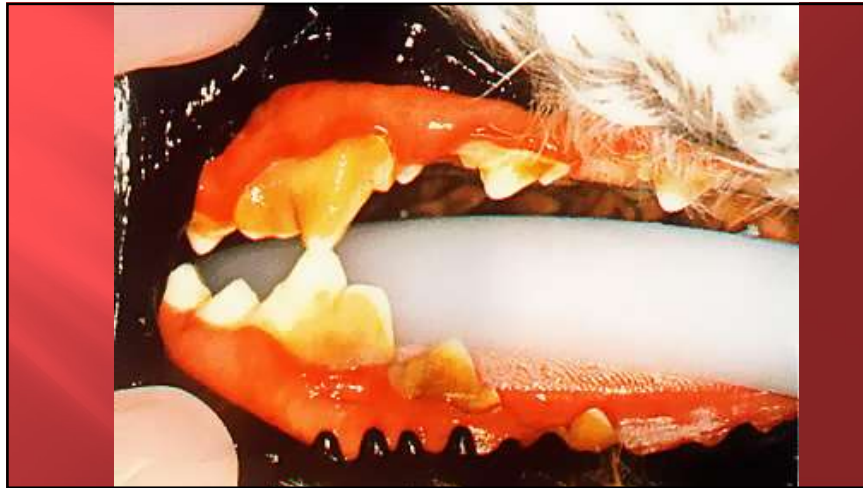
When does periodontal disease start after a professional cleaning?

Seconds (nano)

19



20


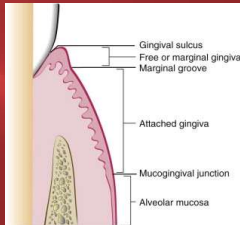


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Gingival Sulcus

The diagram labels the following structures:

- Gingival sulcus
- Free or marginal gingiva
- Marginal groove
- Attached gingiva
- Mucogingival junction
- Alveolar mucosa

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Stage 1 Periodontal Disease




- Gingivitis
- Advanced Gingivitis
 - edema and bleeding on probing
- Should this be treated with a COHAT? (Comprehensive Oral Health Assessment and Treatment)

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Stage 2 Periodontal Disease

- ▣ Early periodontitis
 - Beyond gingiva
- ▣ Pocket formation
- ▣ Gingival recession
- ▣ Up to 25% attachment loss



Gingival Hyperplasia

- ▣ Pseudo-pocket
- ▣ Traps debris
- ▣ Numerous etiologies
 - Periodontal disease
 - Breed predispositions
 - ▣ Boxer, Dobe, Great Dane, Collie
 - Drug-induced
 - ▣ Anti-convulsants
 - ▣ Ca channel blockers
 - ▣ Cyclosporine



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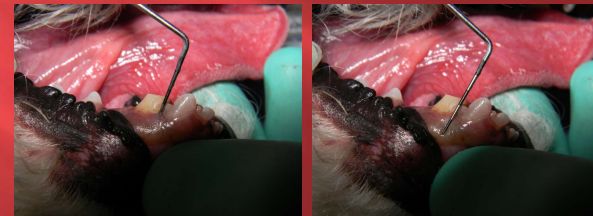
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Gingival Hyperplasia



True Pocket Depths

- < 4-6 mm - closed root planing
- >4-6 mm - open root planing



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Stage 3 Periodontal Disease

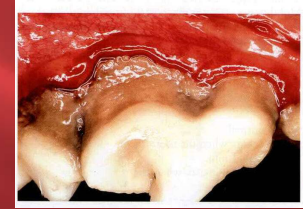


- ▣ Established periodontitis
- ▣ Slight mobility
- ▣ 25-50% attachment loss
- ▣ Early furcation exposure

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Stage 4 Periodontal Disease

- ▣ Advanced periodontitis (failure)
- ▣ > 50% attachment loss
- ▣ Furcation exposure
- ▣ Deep pockets
- ▣ Exfoliation
- ▣ How painful was it to get to this stage???



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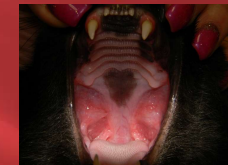
Typical Periodontal Disease Case

- ▣ Periodontal pockets
- ▣ Bone loss
 - Horizontal
 - Vertical
- ▣ Furcation lesions
- ▣ Fractured roots
- ▣ Perio-endo lesions
- ▣ Pending pathologic fractures



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Periodontal Disease Feline Stomatitis/Gingivitis



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Endodontic Disease Diagnosis

- ▣ Oral exam



Endodontic Disease Diagnosis

- ▣ Oral exam
- ▣ Radiographs
 - Essential tool
 - View into the past
 - 40-60% cortical bone loss needed
 - Periapical lesions may never be observed



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Endodontic Disease Uncomplicated Crown Fractures

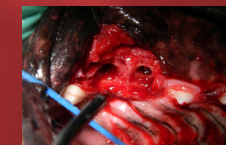
- ▣ Dentin exposure without pulp exposure
- ▣ Dentin is contaminated with bacteria
- ▣ Pulp is always irritated



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Treatment Uncomplicated Crown Fractures

- | | |
|---|---|
| <ul style="list-style-type: none"> ▣ If vital (alive) <ul style="list-style-type: none"> ▪ Smooth fracture ▪ Apply bonded sealant | <ul style="list-style-type: none"> ▣ If non-vital (dead) <ul style="list-style-type: none"> ▪ Endodontics (root canal) ▪ Extraction (toothanasia) |
|---|---|



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Endodontic Disease Complicated Crown Fractures

- ▣ Pulp exposure
- ▣ Always infected
- ▣ Always non-vital
- ▣ Always painful



Endodontic Disease Discolored Teeth



Are they dead?

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Endodontic Disease Discolored Teeth



- ▣ 92.7% non-vital
- ▣ Blunt trauma
- ▣ Malocclusion
- ▣ Blood
- ▣ All result in pulp necrosis

Discolored Teeth Diagnosis

- ▣ Oral Exam
- ▣ Radiography
 - Possible wide canal
 - Possible PAL
 - Possible normal rad
 - Key: Canal does not dilate with endo ds
 - Key: Canal stops narrowing with endo ds



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Endodontic Disease Inaparent Non-Vital Teeth Reason for FMR in all patients



This slide shows a clinical photograph on the left and a radiograph on the right. The clinical image shows a tooth with a yellowish discoloration and a small red spot on the gingiva. The radiograph shows a clear radiolucent area at the apex of the root canal, indicating endodontic disease.

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Endodontic Disease Inaparent Non-Vital Teeth Reason for FMR in all patients

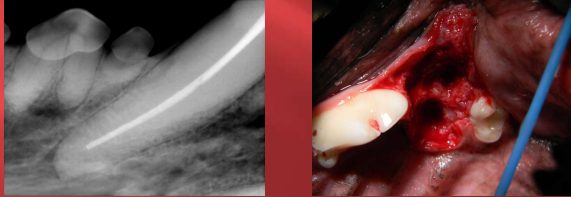


This slide shows a radiograph on the left and a clinical photograph on the right. The radiograph shows a radiolucent area at the apex of the root canal. The clinical image shows a tooth with a yellowish discoloration and a small red spot on the gingiva.

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Treatment Complicated Crown Fractures Discolored Teeth

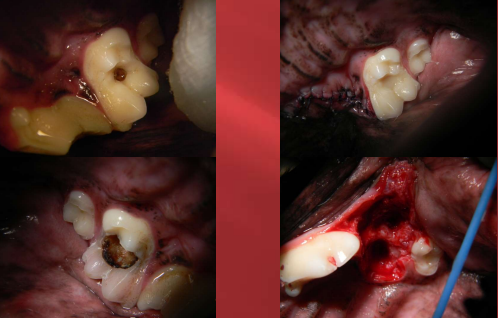
- ▣ Endodontics therapy (root canal)
- ▣ Extraction (toothanasia)



This slide shows a radiograph on the left and a clinical photograph on the right. The radiograph shows a tooth with a complicated crown fracture. The clinical image shows a tooth with a large crown fracture and a discolored root.

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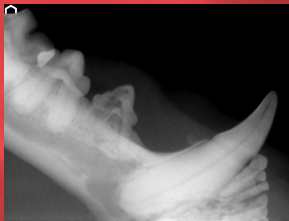
Caries in Dogs



This slide shows four clinical photographs of a dog's teeth. The top two images show a tooth with a large carious lesion. The bottom two images show a tooth with a large carious lesion and a discolored root.

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Tooth Resorptive (TR) Lesions in Cats and Dogs



Older Names

- ▣ FORL
- ▣ Neck lesions
- ▣ Cervical lesions
- ▣ Cervical erosions
- ▣ Stage (severity)
- ▣ Type (location)

45

Feline TR What Roots Should Be Extracted? Type I vs Type II



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Oral Neoplasia It's never "just" an epulis!

- | | |
|--------------------------------------|-------------|
| ▣ Benign epulides | ▣ Malignant |
| ▪ Peripheral odontogenic fibromas | ▪ Melanoma |
| ▪ Canine acanthomatous ameloblastoma | ▪ SCC |
| | ▪ FSA |
| | ▪ OSA |
| | ▪ Mast cell |
| | ▪ HSA |

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Benign Oral Neoplasia

- ▣ What is an "epulis"
 - Greek "epi-oulon"
 - "on the gum"
 - Purely descriptive
 - Gives no information
 - ▣ Histologic
 - ▣ Pathologic



Epulide Divisions

- ▣ Reactive Lesions



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Epulide Divisions

- ▣ Reactive lesions
- ▣ Odontogenic tumors and cysts



Epulide Divisions

- ▣ Reactive lesions
- ▣ Odontogenic tumors and cysts
- ▣ Non-odontogenic tumors (usually malignant)



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Odontogenic Tumor Classification (???)



- ▣ Acanthomatous epulis = canine acanthomatous ameloblastoma (CAA)
- ▣ Fibromatous & ossifying epulides = peripheral odontogenic fibroma (POF)
- ▣ Why do we care???
 - Dx drives Tx & Px
 - Understand histo reports

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of osteoid matrix. There
contains
minimal or negligible in

RE: 2000 MICROSCOPIC INT
MICROSCOPIC INTERPRETATI

Epulis

RE: 2007 PATHOLOGIST
PATHOLOGIST

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Diagnosis of Oral Neoplasia

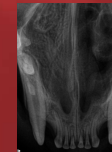


- ▣ Physical Examination
 - Open the mouth
 - Tumor size & location
 - Ulcerated, necrotic, mobile?
 - Sessile or pedunculated?
 - Lymph node
 - Size (larger reactive?)
 - Consistency

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Radiographs


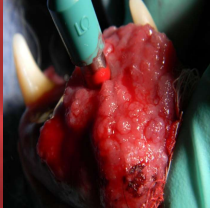

- ▣ Dental better than skull rads
- ▣ Surgical plan
- ▣ Nasal films (#4 film)
- ▣ Include in pathology report
- ▣ CT more available



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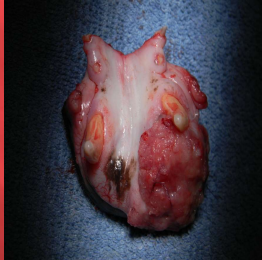
Diagnosis of Oral Neoplasia Histopathology

- ❑ Early & often
- ❑ 3-4 samples
 - Be descriptive with path report
- ❑ Incisional vs excisional

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Diagnosis Oral Neoplasia Histopathology



- ❑ Needed margins?
- ❑ GP vs referral?
- ❑ Biopsy non-healing extraction sites
- ❑ Far more reliable than cytology

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Cone Beam CT Imaging

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Cone Beam CT Imaging




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Occlusal Abnormalities

“Every animal is entitled to a pain free and functional bite.”



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Lance Canine (Mesioverted)



62

Lance Canine (Mesioverted)



63

Occlusal Abnormalities



- ▣ Diagnose early
 - 1st pup exam
 - More tx options
 - Potential correction
- ▣ Relieve pain
- ▣ Improve function

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Base Narrow Mandibular Canines Palatal Trauma

Permanent Dentition



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Base Narrow Mandibular Canines Palatal Trauma



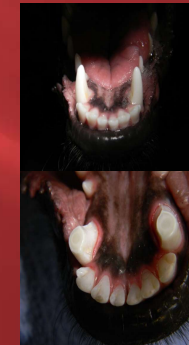
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Base Narrow Mandibular Canines Palatal Trauma



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Base Narrow Mandibular Canines Palatal Trauma



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Base Narrow Mandibular Canines Palatal Trauma

Primary Dentition



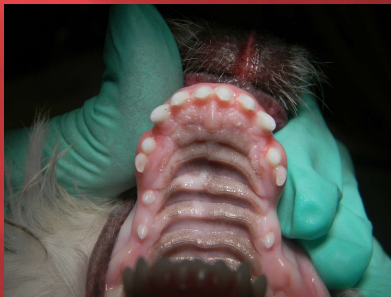
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Base Narrow Mandibular Canines Palatal Trauma



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Retained primary teeth push
permanents into malocclusion
“Rule of Succession”



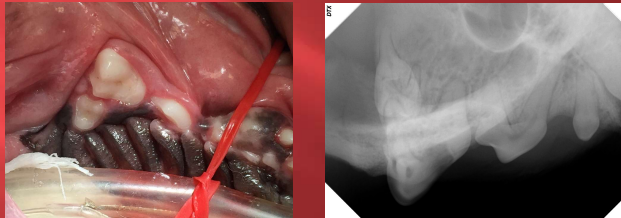
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Underbite and Overbite Causing Traumatic
Occlusion?



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Breed Variations



Questions?

Remember to
download the CE certificate
in the handouts panel of
the webinar control panel.

NOTE: CE certificate not available
for watching the recording.

Questions about CE?
events@heska.com

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