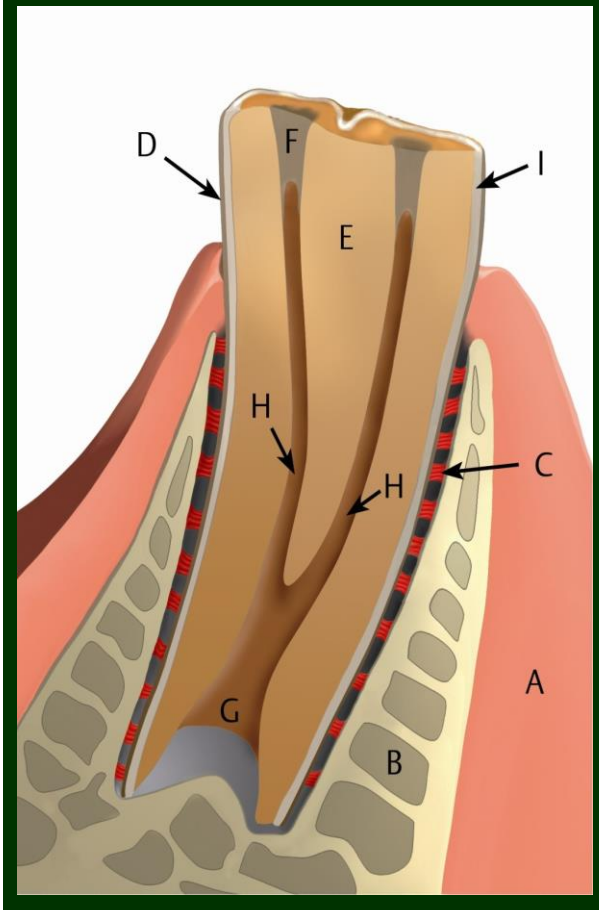
Periodontium-
the practitioners approach

Tilman Simon
Dr. med. vet.
cert. vet. dent
Equine Veterinary Dentist (SVA)

Bürg 27
83627 Warngau
Germany

Survey of this presentation:

- Anatomy and definitions
- Function of a healthy periodontium
- From gingivitis to periodontitis
- Pathological conditions (Diagnostic and treatment options)
  - Calculus (or tartar)
  - Epulis, hypergranulation and hyperplasia
  - Gingivitis
  - EOTRH (Equine odontoclastic tooth resorption and hypercementosis)
  - Periodontal disease and diastemata in cheek teeth

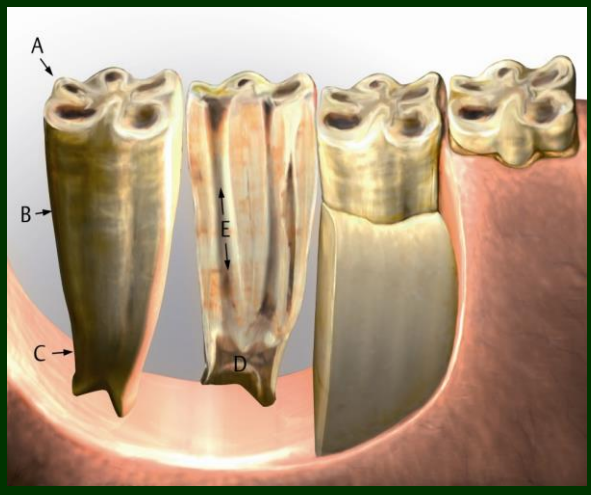


Anatomy

- A: Gingiva
- B: Alveolar bone
- C: Periodontal ligament
- D: Cementum

From: „Praxisleitfaden Zahn- und Kiefererkrankungen des Pferdes“ by T. Simon, I. Herold and H. Schlemper. Parey editor. Stuttgart 2009

Function of the periodontium



- Attachment of the tooth
- „Growing“ of hypselodont teeth
- Orthodontic movement of the tooth
- Repartition of masticaory forces into the jaw-bones (buffer)
- Tactile sensation (pain!)

From: „Praxisleitfaden Zahn- und Kiefererkrankungen des Pferdes“ by T. Simon, I. Herold and H. Schlemper. Parey Editors, Stuttgart 2009

From gingivitis to periodontitis

1st stage

- Reversible gingivitis
- Mechanical/chemical/thermal/ parasitical insult or teeth shedding

2nd stage

- Loss of gingival attachment and gingiva recession
- Periodontal pockets
- Bacterial infection of the periodontal ligament

3rd stage

- Periodontal pocket deeper than ca. 5 mm up to several cm
- Loosening of the tooth: Periodontal ligament affected
- Bone retraction/ bone reaction
- Irreversible!

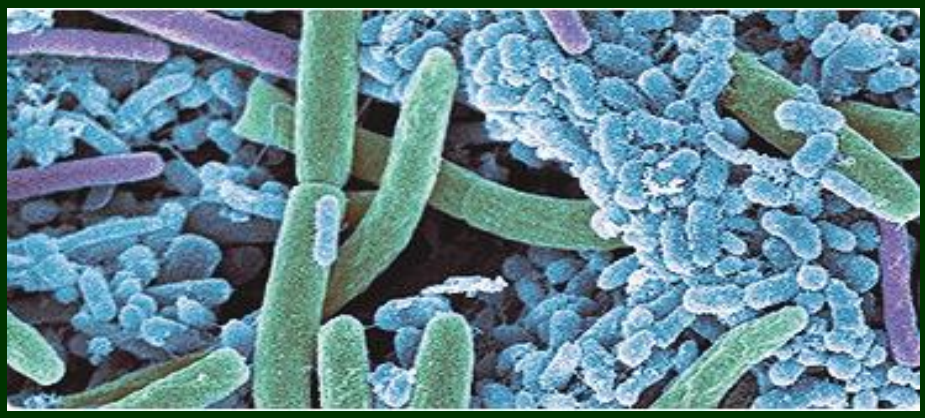
4th stage

- Apical abcessation
- Retrograde infection of the pulp
- Loss of the tooth

Tartar (calculus dentalis)

Mineralic deposition on the teeth and their surroundings.

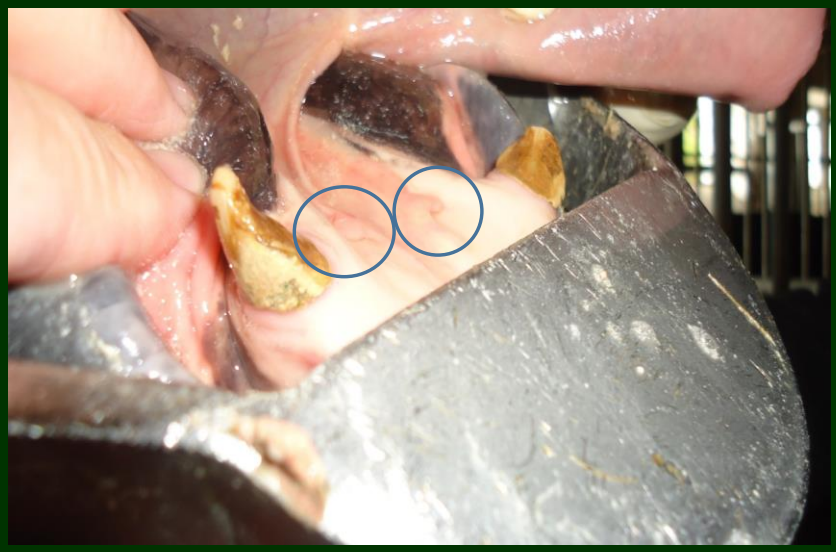
Bacteria can easily settle on ist rough surface and this can lead to infection of the periodontal structures



- Calciumphosphate and calciumcarbonate from the saliva (75%)
- Food particles
- Dead body cells

Tartar on canines

Localisation of salivary glands



Glandula mandibularis

Glandula parotis

Tartar on canines: the removal

Tartar on incisors

Aetiology may be biomechanical stress

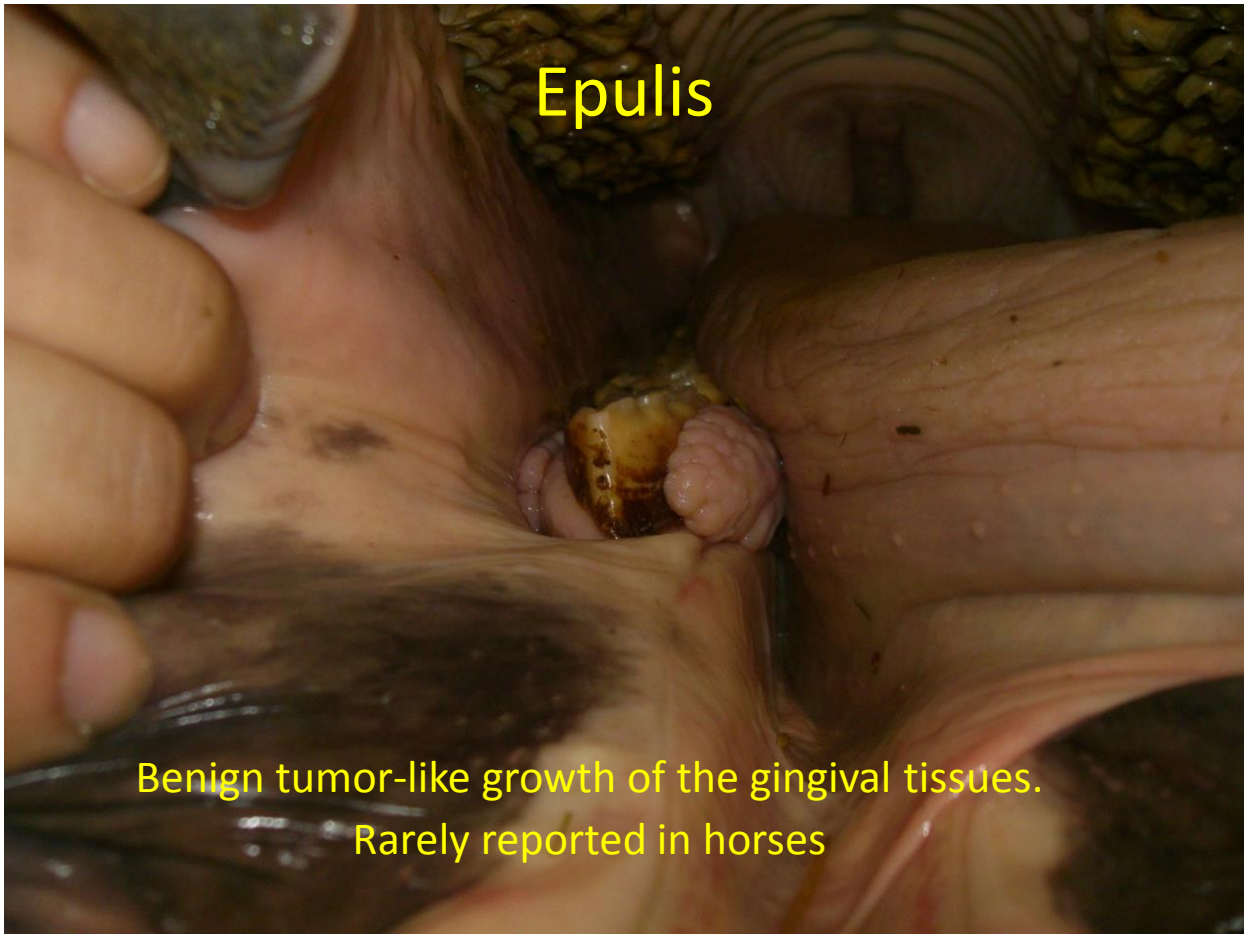
and/ or

Genetical predisposition

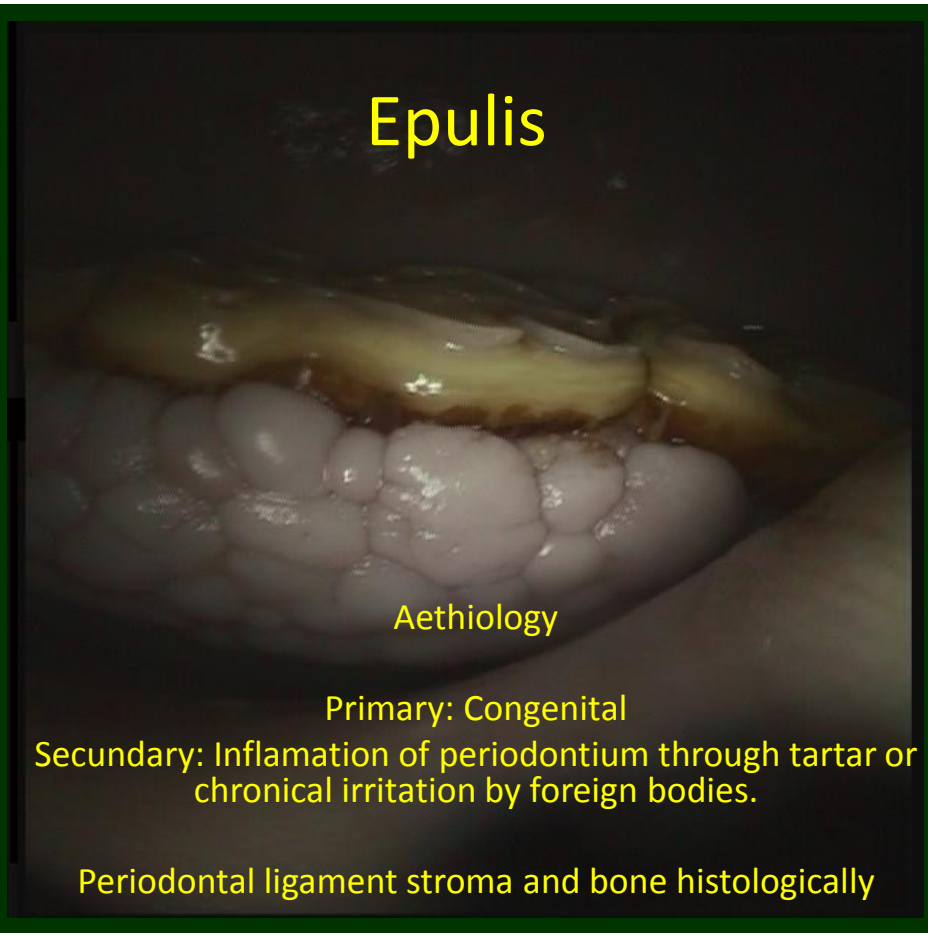
Tartar on cheek teeth

Tartar (calculus dentalis) résumé:

- The less a tooth is chewed on, the more tartar there is likely to form
- Malocclusion could be related to formation of tartar (described in human literature)
- The formation of calculus is dependent on:
  - Diet
  - Genetical predisposition
  - Localisation of efferend duct of salivary glands
- Calculus dentalis is not the cause of periodontal disease.
- It is a place of retention for bacteria and helps with the colonisation


Epulis
Benign tumor-like growth of the gingival tissues.
Rarely reported in horses

Epulis



Aethiology

Primary: Congenital

Secundary: Inflamation of periodontium through tartar or chronical irritation by foreign bodies.

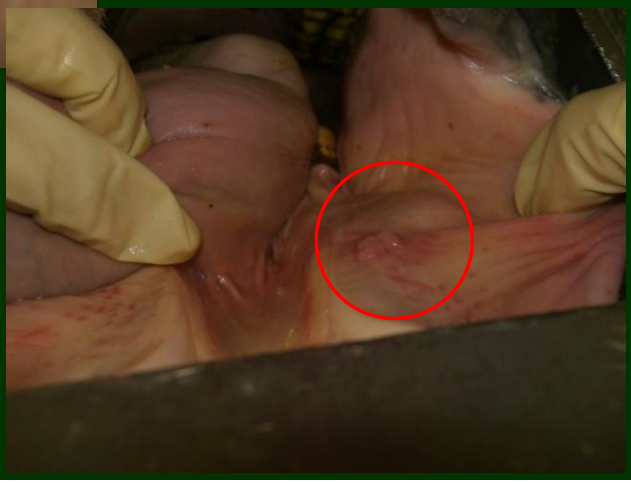
Periodontal ligament stroma and bone histologically

Epulis: Treatment

Recurrence is frequent
(picture: 8 months Post OP)

Hypergranulation

Always secondary to injury or inflammatory state



Gingival hyperlasia

Gingivitis

Akute, sometimes reversible

- Thermal
- Mechanical
- Chemical
- Tooth shedding
- Infection (rhabdovirus or habronema/ gasterophilus)
- Neoplastic (Carcinoma, Fibroma, Anemoblastoma, Melanoma)

Gingivitis

If untreated: chronical gingivitis develops with
Retraction and loosening of the attached gingiva.
Infection of the surrounding tissues (Periodontitis)
Further loosening of the periodontal ligament and pain.
Apical tooth infection or loosening and loss of the tooth

EOTRH

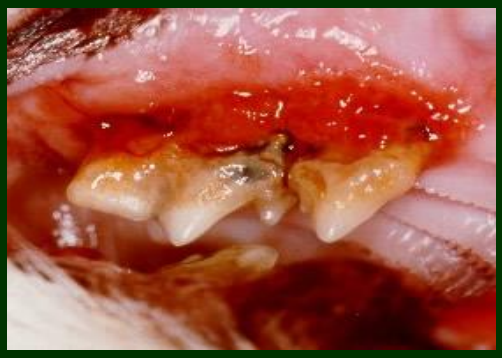
Equine Odontoclastic Tooth Resorption and Hypercementosis

From: „Praxisleitfaden Zahn- und Kiefrerkrankungen des Pferdes“ by T. Simon, I. Herold and H. Schlemper. Parey Editions, Stuttgart 2009

EOTRH - Ethiology?

- Gingivitis
- Gingival retraction
- Fisulae and loss of attachment
- Dental fractures and reorption
- Caries and discoloration
- Alveolar protrusion
- Hypercementosis

EOTRH- Therapy?



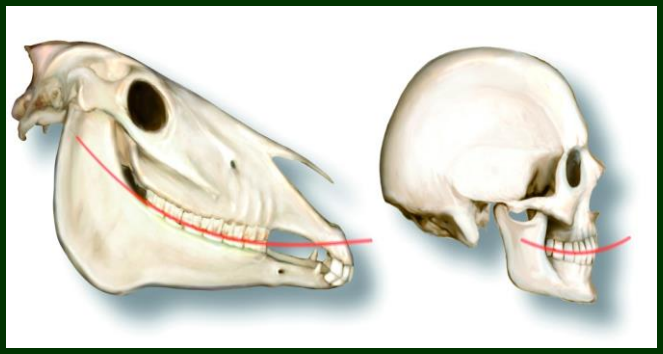
Resorptive lesions in marmosets, dogs, humans or FORL in cats?

EOTRH - Therapy?

EOTRH – Therapy?

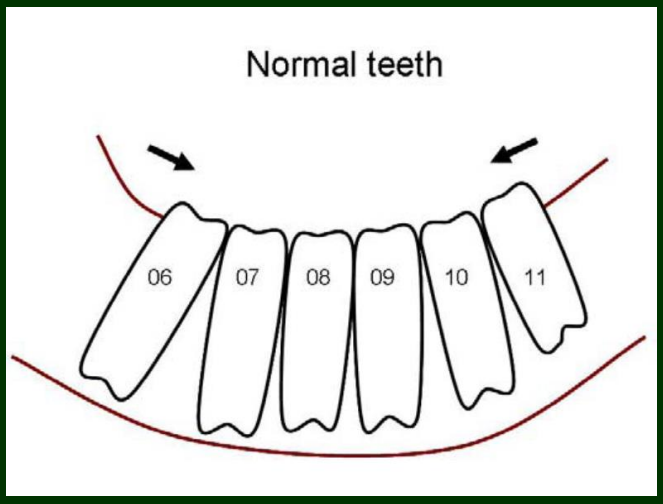
before… and …after

From gingivitis to periodontitis in cheek teeth



Curve of Spee

From: „Praxisleitfaden Zahn- und Kiefererkrankungen des Pferdes“ by T. Simon, I. Herold and H. Schlemper. Parey editions, Stuttgart 2009

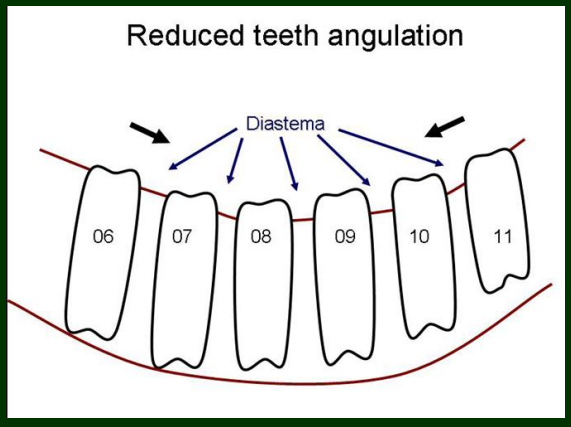


Diastema

Angulation of normal cheek teeth

From: „Cheek Teeth, Diastemata and Impactions“

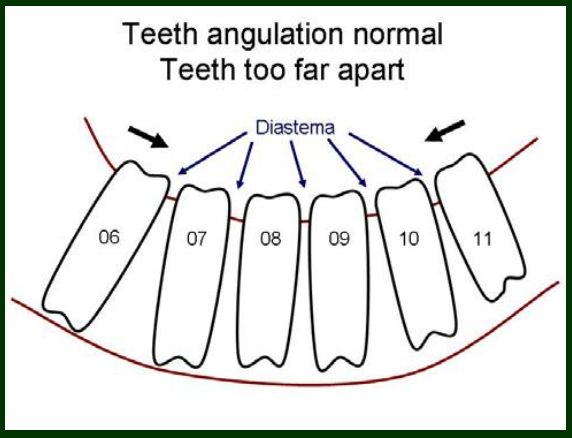
P. M. Dixon, MVB, PhD, MRCVS



Disatema

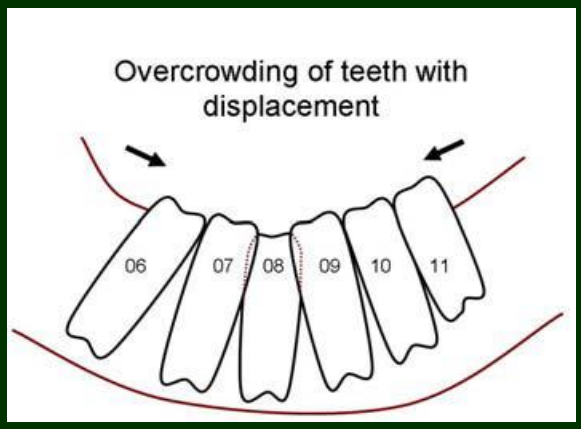
Congenital abnormality mostly found in young horses

Diastema



Congenital if found in young horses

Typical finding in old horses with expiring teeth



Diastema

Overlapping diastema in crowded mouth

From gingivitis to periodontitis

1st stage

- Reversible gingivitis
- Mechanical/chemical/thermal/ parasitical insult or teeth shedding

2nd stage

- Loss of gingival attachment and gingiva recession
- Periodontal pockets
- Bacterial infection of the periodontal ligament

3rd stage

- Periodontal pocket deeper than ca. 5 mm up to several cm
- Loosening of the tooth: Periodontal ligament affected
- Bone retraction/ bone reaction
- Irreversible!

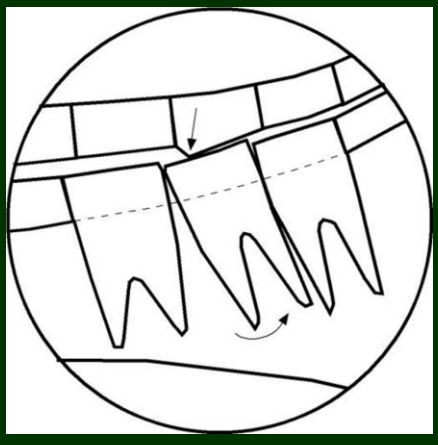
4th stage

- Apical abcessation
- Retrograde infection of the pulp
- Loss of the tooth

Diastema:
Treatment options

Extraction of loose teeth

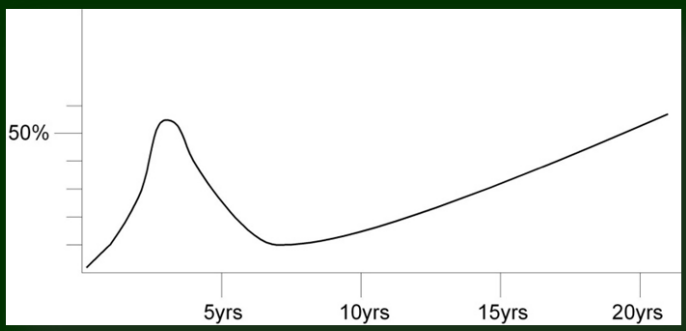
Diastema: Treatment options



Malocclusion leads to wrong repartition of masticatory forces and to diastema formation!

Diastema: Infraocclusion

Diastema: Treatment options



- Diastema formation is age-related!
- A conservative approach is recommended!

Carmalt JL, Rucker BA: Treatment of Periodontitis associated with Diastema Formation in the Horse – An Alternative Approach, Proceedings American Association of Equine Practitioners, 2004 annual meeting

Diastema:
Treatment options

Cleaning and flushing

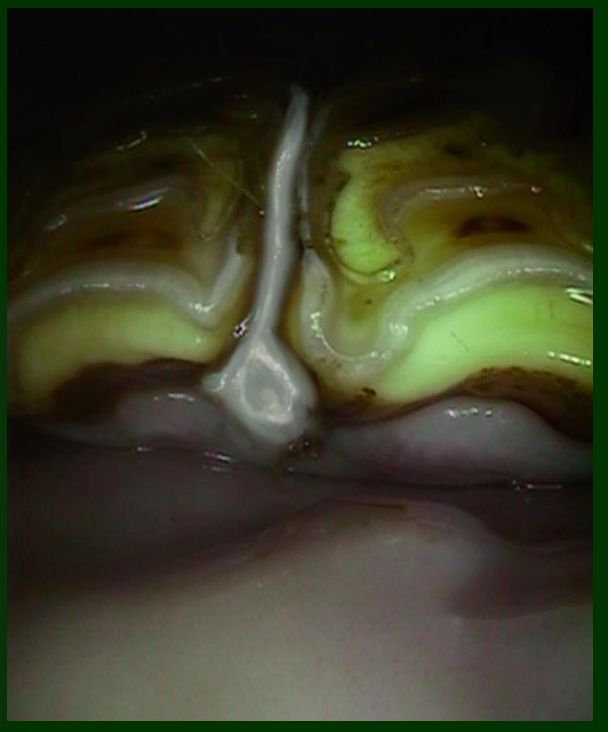
Diastema: Treatment options

Self resolving plugging(?)

Diastema: Treatment options

Pluggings that need reassessment

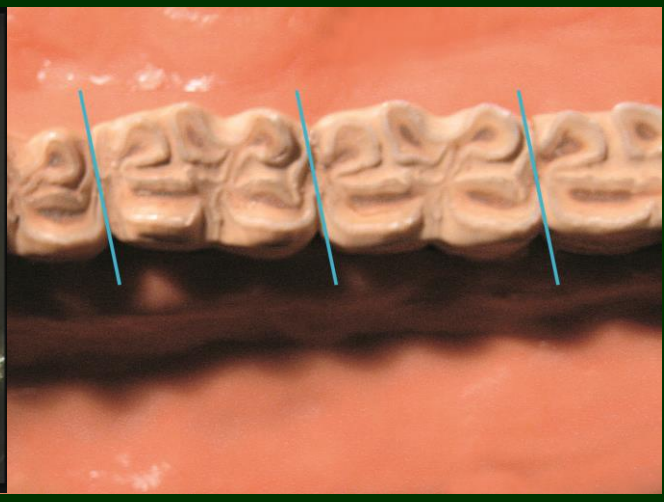
Diastema: Treatment options



Diastema: Treatment options

Diastema widening

Diastema: Complications to avoid



From: „Praxisleitfaden Zahn- und Kiefererkrankungen des Pferdes“ by T. Simon, I. Herold and H. Schlemper. Parey Editors, Stuttgart 2009

Feeding of horses with periodontal disease in cheek teeth

Dietary adjustment:

short fibers (pelleted food) and feed ad libidum to activate saliva production

Hubert Simhofer, Dr. med. vet. and Martina Kowelka, Dr. med.vet., Dr. phil.
AAEP Focus meeting (2013):

Periodontal Disease: Comparison of Three Therapy Methods for Periodontal Disease in Equine Cheek Teeth

"Take Home Message—Comparing three different therapy methods for equine cheek teeth affected by diastema formation and subsequent periodontal disease (1. enlargement with burrs, 2. cleaning and filling, 3. enlargement combined with filling), no significant differences could be found between the therapeutic techniques."

Thank you for your attention - any questions?