

ENA W 2

Which **ONE** of the following statements is **TRUE**?

Dentinal tubules contain:

- a) odontoblastic processes
- b) odontoclastic processes
- c) secondary dentin
- d) enameloblastic processes
- e) irregular secondary dentin

Kilic, S, Dixon, P M and Kempson S A. A light and ultrastructural examination of calcified dental tissues of horses: 111. Dentine. *Eq Vet J* 29, 206-212, 1997.

Dacre IT, Kempson, S and Dixon PM. Pathological Studies of Cheek Teeth Apical Infections in the Horse: Part 1 Normal endodontic anatomy and dentinal structure of cheek teeth. *The Vet J* 178, 311-320, 2008.

ENB W 1

Mineral trioxide Aggregate (MTA) consists mainly (75%) of Portland cement. Mixed with water it forms a colloid gel. MTA is an endodontic material which has shown excellent performance in endodontic applications including pulp capping, orthograde apical closure (apexification), perforation repair and retrograde root end filling.

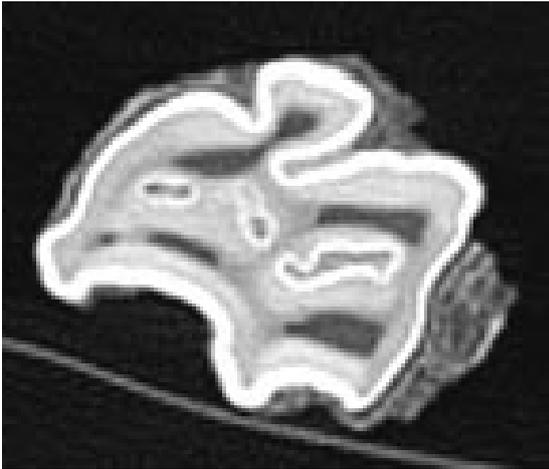
Choose the statement that describes the properties of MTA most exactly.

- A. MTA has a high alkalinity but is more cytotoxic than calcium hydroxide.
- B. MTA can be placed in a wet environment but has a long setting time of approx. 4 hours.
- C. MTA can be mixed with chlorhexidine gluconate but it inhibits cementogenesis.
- D. MTA has less marginal leakage than other cements but inhibits reparative dentine formation.
- E. MTA produces minimal periradicular (periapical) tissue inflammation but has poor marginal adaptation properties.

Reference:

Galloway S. Dental materials. In: Easley J, Dixon PM, Schumacher J, eds. *Equine Dentistry 3rd ed.* Philadelphia: Saunders, 2010;345-368.

ENA B 1



In this computed tomography image of a cheek tooth, which two pulp horns have a common pulp connection?

- A. Pulp horns #1 and #2.
- B. Pulp horns #4 and #5.
- C. Pulp horns #1 and #3.
- D. Pulp horns #3 and #5.
- E. Pulp horns #2 and #3.

Dixon PM, du Toit N. Dental Anatomy; In: Easley J, Dixon PM, Schumacher J. Equine Dentistry 3rd edition. Saunders Elsevier, Philadelphia, PA, 2011, 61.

ENA B 2

In the chapter “Obturation of the cleaned and shaped root canal system” in *Cohen’s Pathways of the Pulp* 10th ed (Hargreaves KM, Cohen S. St. Louis: Mosby, 2011; 356-357), scanning electron microscopy illustrates the cleaning of a root canal. The final cleaning process involves removing the tissue type demonstrated in Figure 1 and leaving a prepared dentinal surface (Figure 2) for root canal sealers. Which statement best describes what is present in Figure 1 and removed in Figure 2?

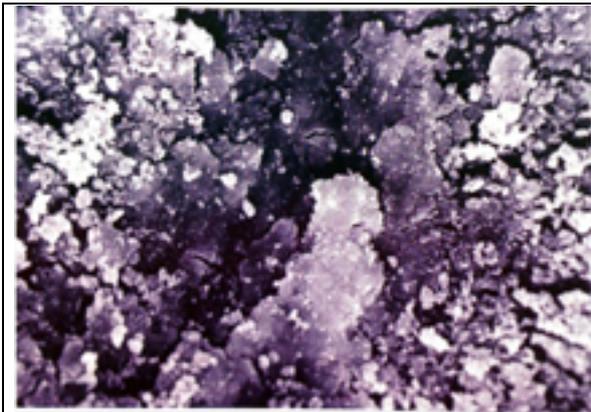


Figure 1.

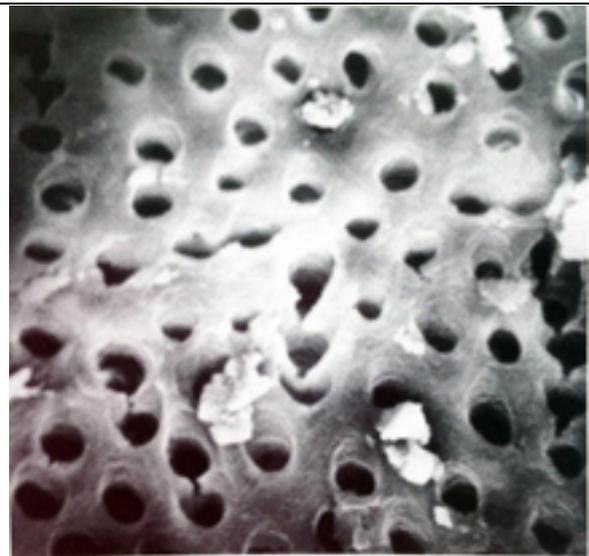
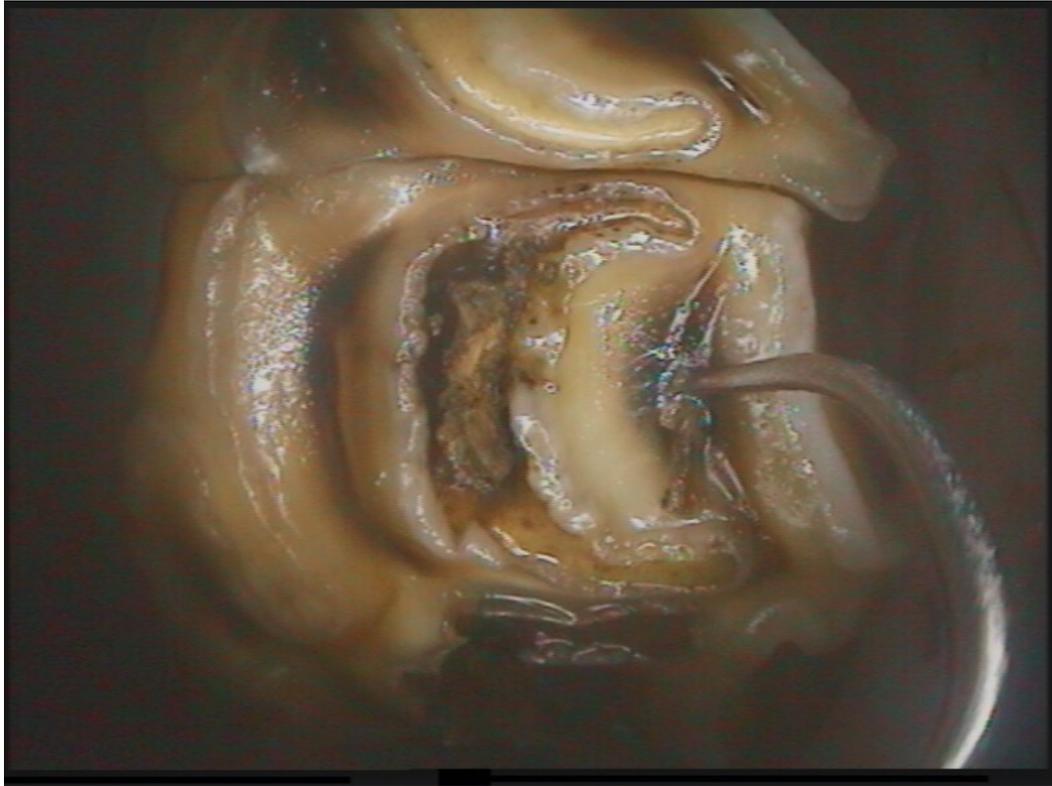


Figure 2.

- a) Pulpal remnants composed of organic debris.
- b) Hybrid layer composed of both inorganic debris and organic material.
- c) Smear layer composed of organic debris.
- d) Pulpal remnants composed of inorganic material.
- e) Smear layer composed of both inorganic debris and organic material.

Reference: In the stem.



Which of the following statements best describes the pathology in this oral endoscopic image?

- a) There is a defect in the secondary dentin indicating likely exposure of a buccal pulp horn of a maxillary premolar.
- b) There is a fissure in palatal secondary dentin indicating possible exposure of the buccal pulp horn of a mandibular premolar.
- c) There is a fissure of the secondary dentin indicating extensive dental caries.
- d) There is a fissure in the infundibular enamel indicating advanced caries with pulp exposure.
- e) There is a fissure of the infundibular enamel indicating pulpitis due to dental microfracture.

Van den Enden, M., Dixon, PM (2008) Prevalence of occlusal pulpar exposure in 110 equine cheek teeth with apical infections and idiopathic fractures. The Veterinary Journal 178, 364-371

CASEY, M. B. and TREMAINE, W. H. (2010), The prevalence of secondary dentinal lesions in cheek teeth from horses with clinical signs of pulpitis compared to controls. Equine Veterinary Journal, 42: 30–36

ENC W 1

A chelating agent is used when filing a canal for lubrication, emulsification and holding debris in suspension.

- a. An aqueous solution of chelator is best used for holding debris in a liquid suspension
- b. An aqueous solution of chelator is best used for emulsification
- c. A viscous chelator solution is best used for removing the smear layer
- d. An aqueous chelator solution is best used for removing the smear layer
- e. Both aqueous and viscous solution chelators are used for sterilization of the canal after filing

Reference: Pathways to the pulp 8th edition page 260

ENC W 2

Gutta-Percha (GP) is the most popular core material used for root canal obturation. It is the trans isomer of polyisoprene (rubber). Gutta-percha cones consist of approximately 65% zinc oxide, 10% radiopacifiers and 5% plasticizers.

Which of the following statements describe the properties of gutta-percha best?

- A. The toxicity of GP is minimal and it adheres well to dentine.
- B. Like rubber, GP can be compressed at room temperature explaining the ease of manipulation.
- C. GP is radiopaque but removal during re-treatment is complicated.
- D. Manipulation of GP is easy but the shrinkage on cooling is a disadvantage.
- E. GP points can be heat-sterilized and have excellent antimicrobial properties.

Reference:

Johnson WT, Kulild JC. Chapter 10: Obturation of the Cleaned and Shaped Root Canal System. In: Hargreaves KM, Cohen S, Berman LH. Cohen's Pathways of the Pulp, 10th ed. St. Louis: Mosby Elsevier, 2011:349-388.

ENC B 1



Which of the following statements is most accurate concerning fractured tooth 403 with a three-month duration of injury?

- a) It is very rare for an exposed equine pulp to remain viable this length of time.
- b) Equine incisors have very fine capillary-like blood vessels at the apex.
- c) The surrounding soft tissue that is being removed is mature scar tissue.
- d) The surrounding soft tissue that is being removed is hyperplastic gingiva.
- e) Endodontic procedures are totally contraindicated in the horse.

Simhofer, H., Stoian, C., Zetner, K.: A long-term study of apicoectomy and endodontic treatment of apically infected cheek teeth in 12 horses. *Vet J*178, 411-418, 2008.

Simhofer H 2011 Endodontic therapy ; In: Equine Dentistry (3rd Edition) 2009 Editors Easley, KJ, Dixon, PM and Schumacher JS Elsevier Saunders