Treating Endodontic Disease Jaclyn Polhamus, RVT, VTS (Dentistry)

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The endodontic system comprises the hollow of the tooth which is filled with blood vessels, nerves, and connective tissue that end at the root tip, or apical delta. Any trauma to a tooth may result in pulpal inflammation (pulpitis). This can be reversible if the cause of inflammation is treated or removed. If this is not possible, the pulp continues to swell inside the tooth, resulting in strangulation of the pulp or pulpal necrosis. Pulpal necrosis indicates the need for extraction or root canal therapy. Ignoring the problem will result in tooth abscesses, bone infections and other systemic complications.

While most animals do well without one or more teeth, many owners are looking for alternatives to simply extracting compromised teeth. Some animals, like working police or military dogs, require intact dentition to do their jobs. If you only offer one solution to this problem (extraction) please find a certified veterinary dentist in your area to refer your patients to.

Types of endodontic disease

• Endodontic-periodontal lesion (Class I lesion). Endodontic disease has spread from the root apex to the periodontal ligament (PDL). As bacteria travels along the PDL, infection sets up in the sulcus.



• Periodontal-endodontic lesion (Class II lesion). Moderate to severe periodontal disease has infected the endodontic system. As bacteria travels apically down the tooth, it destroys cementum which protects the root. Bacteria may enter the apical delta, lateral canals or furcation canals.



Treatment

Class I lesions are usually prime candidates for endodontic therapy, although some other components may preclude successful obturation of the canal. This may include age of the tooth, canal calcification, or tertiary dentin destruction of a portion of the canal.

Class II lesions almost always require extraction due to advanced periodontal disease. These teeth are usually mobile to some degree with no periodontal support making them poor candidates for endodontic therapy. If only one root is affected, the tooth may be hemisected – extracting the diseased root and root canal therapy performed on the healthy root.

Endodontic therapy

Standard endodontic therapy or root canal therapy begins and ends with quality radiographs. Radiographs help determine the extent of the disease, possible complications during root canal therapy, and serve as a guide to the practitioner during cleaning and obturation of the canal. Radiographs also serve as a comparison for any changes in the tooth at annual cleanings.

Once initial radiographs are taken, the pulp canal can be approached either through a fracture site or an access hole. The entire pulp is removed, the canal is cleaned using various files, and irrigated and disinfected using sodium hypochlorite. Once the canal is dried, the root canal is sealed with a cement to prevent bacteria from entering the canal and then obturated (or filled) with gutta-percha. The access hole is then filled with a restorative material.

In young, permanent teeth with endodontic disease (usually from tooth fractures), a vital pulpotomy with direct pulp capping may be performed. In this procedure, the inflamed portion of the pulp is removed. Once bleeding is controlled, calcium hydroxide is placed on the pulp to stimulate dentinal bridge closure. The tooth is then restored.

References

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