

APEX

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Specializing in Veterinary Dentistry and Oral Surgery

TOOTH RESORPTION

What is tooth resorption?

There are many other terms for tooth resorption (TR) including feline odontoclastic resorptive lesions (FORLs), neck lesions, feline caries, and others. Resorption is a process of tooth disintegration. The tooth is attacked by small cells in the body called odontoclasts. This is different than caries/cavities in people which are a result of acids produced bacteria. Tooth resorption occurs in many species, but cats are especially predisposed. The resorptive process can be described in great detail, but cause of TR remains unknown.

What we do know

The prevalence of TR in the feline population has been widely reported, anywhere from 26 to 67% of cats. Resorption starts at the tooth root, and may eventually extend toward the tooth crown (at and above the gum line). The disease progresses with age. Dental x-rays are the most efficient means of diagnosing the condition.

External resorption can start anywhere on the periodontal attachment (outer root surface); internal resorption starts within the pulp canal system. Lesions that are beneath the gum line and do not communicate with the oral cavity are usually not painful. However, once communication occurs at the gingival margin and bacterial infiltration begins, acute inflammation is seen. Inflamed, highly vascular granulation tissue forms at the gingival margin and can actually fill in and obscure the resorption lesion. Clinically, the inflammation associated with TR may not be readily distinguishable from plaque-induced periodontal disease.

The severity of the lesions are staged 1 through 5:

TR1	Mild dental hard tissue loss (cementum or cementum & enamel).
TR2	Moderate dental hard tissue loss (cementum or cementum & enamel with loss of dentin, that does not extend to the pulp cavity).
TR3	Deep dental hard tissue loss (cementum or cementum & enamel with loss of dentin, that extends to the pulp cavity); most of the tooth retains its integrity.
TR4	Extensive dental hard tissue loss (cementum or cementum & enamel with loss of dentin, that extends to the pulp cavity); most of the tooth has lost its integrity.
	(TR4A) Crown and root are equally affected
	(TR4B) Crown is more severely affected than the root
	(TR4C) Root is more severely affected than the crown
TR5	Remnants of dental hard tissue are visible only as irregular radiopacities, and gingival covering is complete.

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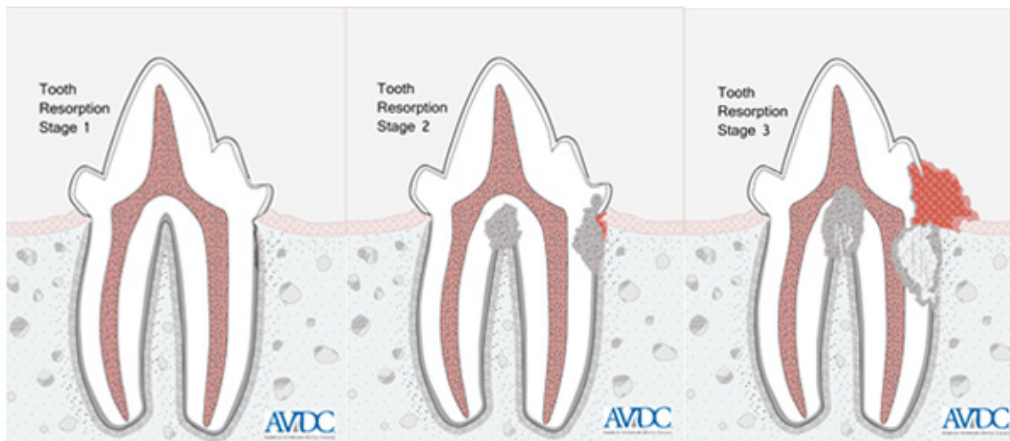
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What are the treatment options?

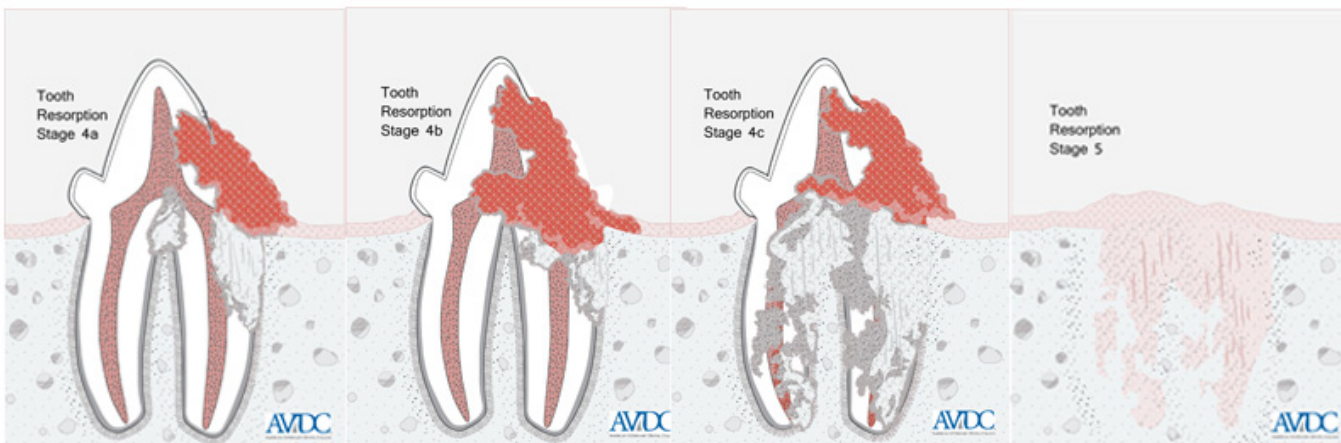
The treatment for TR1 can be sealing the lesion with a composite or glass ionomer restorative. This is a temporary or palliative therapy at best. It is expected that the restoration will have a 60-70% failure rate after one year. Treating with fluoride varnish offers no clinical benefit. Fluoride helps impart caries-resistance to enamel, but these lesions do not develop as a result of cariogenic bacterial action.

Most resorption-affected teeth (TR2 – TR4 lesions) should be treated with extraction. This provides immediate elimination of discomfort. No prevention is currently known. TR5 sites may require no treatment.

Stages of Resorption



Tooth Resorption - AVDC Classification of Clinical Stages



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Types of Resorption

TR is also categorized by type of resorption, based on radiographic appearance:

On a radiograph of a tooth with type 1 (T1) appearance, a focal or multifocal radiolucency is present in the tooth with otherwise normal radiopacity and normal periodontal ligament space.

On a radiograph of a tooth with type 2 (T2) appearance, there is narrowing or disappearance of the periodontal ligament space in at least some areas and decreased radiopacity of part of the tooth.

On a radiograph of a tooth with type 3 (T3) appearance, features of both type 1 and type 2 are present in the same tooth. A tooth with this appearance has areas of normal and narrow or lost periodontal ligament space, and there is focal or multifocal radiolucency in the tooth and decreased radiopacity in other areas of the tooth.

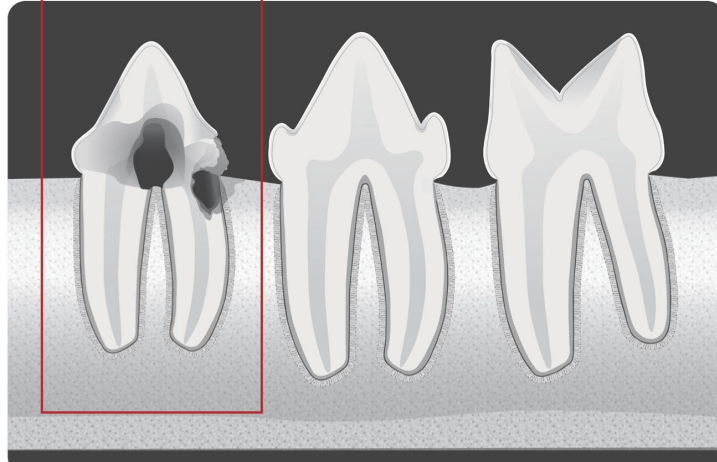
Type 2 TRs displaying root ankylosis and severe replacement resorption can be extremely difficult to extract. A study by DuPont demonstrated a less traumatic method for treatment of Type 2 TR using crown amputation. It must be emphasized that it is critical that this technique is always preceded by dental x-rays. It is vitally important that selected cases have no buried pathologic changes. Selected cases cannot have periodontitis, tooth mobility, or radiographic evidence of endodontic disease or periapical pathologic changes. Also, there must be no clinical evidence of gingivostomatitis. Cats that are positive for FeLV or FIV should not receive this treatment method.

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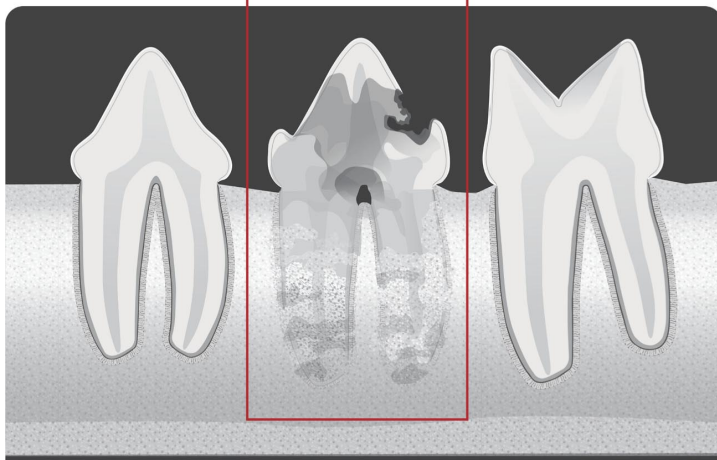
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Type 1



Type 2



Type 3

