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Chronic gingivostomatitis and resorptive lesions are common oral conditions in the domestic cat. Chronic gingivostomatitis (CGS) describes a clinical syndrome characterised by focal or diffuse inflammation of the gingiva and oral mucosa. Resorptive lesion (RL) describes a syndrome where the tooth roots are destroyed (resorbed) and the lost dental tissue is replaced by bone.

**Chronic gingivostomatitis**

CGS is thought to be an inappropriate response to bacterial plaque present on the tooth surfaces. It is useful to view CGS as being subdivided into three different types, which may overlap. In one type, an underlying cause that explains the inflammatory response (albeit not the intensity) can be identified. Common causes are retained root remnants from previous extraction, periodontitis or other dental pathology. In the second type, concurrent disease or infection that alters the animal's ability to mount an appropriate inflammatory response can be identified. Systemic diseases, e.g. chronic renal failure and diabetes mellitus will alter the immune response and may predispose to the development of severe gingival inflammation in the presence of plaque. Cats infected with FeLV and/or FIV are also unable to mount an appropriate immune response to the presence of plaque. Cats infected with feline calcivirus (FCV) are also likely to have an altered immune response. In the third type, no obvious dental pathology or underlying immune incompetence can be identified, i.e. idiopathic. Cats with CGS require a thorough work-up prior to any treatment. The purpose is not to reach a diagnosis per se, but rather an attempt to identify possible underlying causes. The minimal work-up includes testing for FeLV and FIV, routine haematology and blood biochemistry, and a thorough oral and dental examination (including full mouth radiographs). Additional investigations include testing for FCV and/or biopsy and microscopic examination of affected tissues. We do not routinely test for FCV; only if the cat does not respond to extraction of all or most teeth do we determine FCV status. Only cats that test positive (virtually 100%) will be treated with interferon therapy. Biopsy and histopathological examination of affected tissue is only performed if lesions are asymmetrical. There have been recent reports of squamous cell carcinoma developing in cats with CGS.

**Clinical findings**

Commonly described clinical findings in cats with CGS include elevated serum immunoglobulins (immunoglobulin (Ig) G, IgM and IgA). They also tend to have raised salivary concentrations of IgG and IgM, but reduced concentration of salivary IgA. It is unclear if the Ig pattern described is a cause or result of the inflammatory disease. Histological examination of affected oral mucosa shows a submucosal inflammatory infiltrate consisting of plasma cells, lymphocytes, macrophages and neutrophils. The elevated serum globulins and the nature of the submucosal inflammatory infiltrate have led a number of authors to suggest that there may be an immunological basis for the condition. To date, no underlying intrinsic immunological abnormality in cats affected by CGS has been identified; however, the condition may still be immune-mediated. Clinical studies have implicated the potential involvement of various viral agents (FCV in particular), as well as Gram-negative anaerobic bacterial species. However, attempts to reproduce the disease using these putative infective etiological agents have been unsuccessful.

**Treatment**

Historically, the intractable nature of the disease, in combination with a poor understanding of the aetiology and aetiopathogenesis has resulted in the widespread use of empirical symptomatic treatment regimens. The current recommendations for cats with CGS include a combination of periodontal therapy and a home care regimen whereby plaque accumulation is kept to a minimum. In some cats, this may result in a reduction in inflammation. Unfortunately, most cats will not cooperate adequately with home care measures and plaque reforms have been unsuccessful.

**Resorptive lesions**

Odontoclastic resorptive lesions (ORL) are a type of 'idiopathic' external root resorption, where the hard
tissues of the root surfaces are destroyed by the activity of multi-nucleated cells (odontoclasts). The root surface is replaced by cementum- or bone-like tissue. The process starts in cementum and progresses to spread along the dentine tubules and eventually involves dentine of the crown as well as the root. The peri-pulpal dentine is relatively resistant to resorption and the pulp therefore only becomes involved late in the disease. The process extends through the crown dentine, eventually reaching the enamel. The enamel is either resorbed or fractures off and a cavity becomes clinically evident. In the absence of routine radiography, the lesions are first noted clinically when they become evident in the crown, often as cavities at the cemento-enamel junction (CEJ). The first clinical manifestation of ORL is thus a late-stage lesion. In many cases, the progressive dentine destruction weakens and undermines the crown to such an extent that minor trauma, e.g. chewing, causes the crown to fracture off, leaving the root in the alveolar bone. The resorbing root remnants are usually covered by intact gingiva. However, in some cases the overlying gingiva may be inflamed. 

**Diagnosis**

Visual inspection and tactile examination with a dental explorer will only identify end-stage lesions, i.e. when the process involves the crown, resulting in an obvious cavity. Radiography will identify lesions localized to the root surfaces within the alveolar bone, which would not be detected by clinical methods. Moreover, it is only with the aid of radiography that the extent of a resorptive process can be identified. Selection of the best treatment option thus depends on radiography; a series of full mouth radiographs is recommended for all cats presented for dental therapy. If taking a series of full mouth radiographs is not possible, e.g. financial restrictions, then take one view of each mandibular premolar/molar region. The mandibular 3rd premolars are the most commonly affected teeth; in nine out of ten cats with resorative lesions, the process will be identified on these two views. If radiographs show resorption of these teeth, then a full mouth series must be taken. It remains a matter of debate as to whether ORL cause discomfort or pain to the affected individual. Based on the fact that pulpal inflammation occurs late in the disease process, it seems likely that lesions limited to root surfaces which do not communicate with the oral environment are asymptomatic. However, once dentine destruction has progressed to invade the pulp and/or a communication with the oral cavity has been established (after enamel resorption or fracture), then discomfort and/or pain are likely. Some cats may show signs indicating oral discomfort or pain, e.g. changes in food preferences (soft rather than hard diet), reduced food intake, but many cats do not.

**Treatment**

To date, there is no known treatment which prevents development and/or progression of ORL. It seems unlikely that such treatment can be developed without knowledge of the cause of the pathology. Currently, suggested methods of managing ORL are:

1. **Conservative management**
2. **Tooth extraction**
3. **Coronal (crown) amputation**

Conservative management consists of monitoring lesions clinically and radiographically. This approach is recommended for lesions that are not evident on clinical examination, i.e. only seen radiographically, and there is no evidence of discomfort or pain. In general practice, most lesions are only diagnosed when pathology is extensive and conservative management is rarely an option. In most cases, extraction or coronal amputation of an affected tooth is indicated. Pre-operative radiographs are mandatory to allow selection of the appropriate treatment option.

Teeth with ORL are notoriously difficult to extract as the resorbing root is being replaced by bone-like tissue. Moreover, there are areas of ankylosis, i.e. fusion of bone and tooth substance, along the root surface. Post-operative radiographs are required to ensure that the whole tooth has been removed. Affected teeth can be extracted using a closed technique, but an open technique is usually less traumatic to the tissues and easier to perform.

The indications for and outcome of coronal amputation have been well documented and the procedure is recommended for selected cases, but needs radiographic monitoring at regular intervals post-operatively to ensure that the root is resorbing and that healing is uneventful. The technique involves raising a gingival flap both buccally and palatally/lingually to expose the alveolar crest. The crown of the affected tooth is amputated using a small round bur. Just enough root tissue is also removed with the bur to ensure that the intentionally retained root(s) are apical to the alveolar crest. The gingival flap is replaced and sutured in place.

In summary, the purpose of the treatment is the relief of discomfort or pain. In most instances, extraction of the tooth, or coronal amputation, remain the preferable treatment options. Successful extraction and uncomplicated healing needs clinical and radiographic monitoring.