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FELINE STOMATITIS
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Chronic stomatitis is one of the most frustrating challenges for the feline clinician. It is a common problem and notoriously difficult to treat. Cure is often not achievable and management of the problem is the most realistic goal.

This is a syndrome that generates very differing views from vets. There is no general agreement about the definition/classification of stomatitis. The perspective on stomatitis is strongly influenced by the background of vets – whether they are experts in dentistry or are more orientated to internal medicine.

Stomatitis is generally regarded to include three main elements -
- Gingivitis - which is the most common it may be specified that this must extend beyond the gingivomucosal margin
- Ulceration - particularly at the fauces
- Hyperplasia

Other features may also be present – particularly inflammation elsewhere in the mouth. There is clearly a strong link with dental disease. Some restrict the term to cats which have stomatitis in the absence of dental disease (although some dental experts would question whether this is ever the case!) or disproportional for the degree of dental disease present. The most common form of chronic stomatitis is gingivitis, unassociated with significant periodontal disease. This form of oral inflammation is seen in cats of all types but noticeably more frequently in pedigree cats and young animals usually under two or three years of age. We have carried out surveys of cats at cats shows and have found gingivitis to be remarkably common, particularly in pedigree cats with at least 40% affected. The problem is also common in non-pedigree cats.

Clinical signs
Many cats with uncomplicated gingivitis (i.e. no ulceration or hyperplasia) appear to show no associated clinical signs and the problem may only become apparent during a routine examination carried out for other reasons.
Some cases are first presented because the owner has noticed gingival hyperaemia although the cat may be showing no other clinical signs at the time.

Dental disease and periodontitis
Gingivitis predisposes to the development of dental disease and the presence of dental disease can be an important factor in the pathogenesis of the development of gingivitis, although many cats with gingivitis appear to have no overt or minimal dental disease.

Pathogenesis
The cause of this syndrome is uncertain. Dental disease is absent in many cases, at least in the early stages and therefore, does not appear to be a primary factor. Histological examination of gingival biopsies invariably shows a heavy plasmacytic infiltration. This has been interpreted as suggesting an immune mediated mechanism.

There is a striking association between chronic gingivitis/stomatitis and the presence of feline calicivirus (FCV). This association has been recognised for a long time (Gruffydd-Jones 1991). In
A recent study of 60 cats with chronic gingivitis/stomatitis FCV was isolated from all cats following repeat swabbing. The exact role, if any, of FCV in the pathogenesis in chronic gingivitis is not clear. It is possible that it may be based on an abnormal immune response by the host.

An abnormal immune response to the normal bacterial flora of the oral cavity may also be involved in the pathogenesis. Antibodies against oral bacteria, particularly anaerobes, are believed to play an important role in the pathogenesis of periodontitis in humans. Similar antibodies have also been identified in cats with oral disease (Sims et al, 1990) (Norris & Love, 1995). Anaerobes are frequently isolated from cats with chronic gingivitis uncomplicated by dental disease. The gingiva of normal cats has a rich bacterial flora which includes anaerobes, and our experience has been that similar species are isolated from normal cats and cats with gingivitis (Gruffydd-Jones, 1991).

**TREATMENT**

The treatment of chronic gingivitis represents a major problem and many cases prove very refractory.

There is no consensus as to the best approach to management. Many treatments have been suggested but none can be relied upon to be successful in all or even the majority of cases.

**Dental attention**

If there is any overt periodontitis or neck lesions or other dental diseases, dental attention is a priority. It is recommended that a detailed dental examination under general anaesthesia is undertaken in all cases at the outset of treatment including teeth cleaning, even if no overt dental disease is present.

**Antibiotics**

Antibiotics are frequently used for gingivitis. There is a clear indication for their use in periodontitis and when dental attention is undertaken. The suspicion that abnormal immune responses to the bacterial flora of the oral cavity play a role in the pathogenesis may be a further indication in any case of gingivitis even if abnormalities of the bacterial flora are not present. Anaerobes are particularly important and therefore antibiotics which are particularly active against these organisms are usually selected. Metronidazole (20 mg/kg s.i.d.) and clindamycin (10 mg/kg b.i.d) are popular choices. Administration can be a major problem in many cases, particularly since affected cats may be very sensitive about handling around their head/mouth and because prolonged treatment may be required.

We often use “Stomorgyl” as a source of metronidazole since owners can find the relatively small tablets easier to administer. Some cats improve initially whilst on antibiotic treatment but soon relapse if treatment is withdrawn. Prolonged antibiotic therapy can be helpful in these cases. “Pulse” therapy with a cycle of one week of antibiotic treatment followed by one or two weeks without is becoming popular.

**Corticosteroids**

The use of corticosteroids is controversial although some authors regard these as one of the most effective treatment options (Lyons, 2005). A suggested basis for their use is the suspicion of an abnormal immune response, related to the lymphocytic/plasma cell infiltrate, to some antigen – FCV, anaerobic bacteria or some other antigen. In controlled clinical therapeutic trials we achieved the most consistent early improvement with corticosteroids although the longer term (3-6 month plus) benefits were less convincing. A relatively high dose is usually given, most often prednisolone at 2-4 mg/kg daily. Occasionally corticosteroids are administered intralesionally. Triamcinolone (up to 10 mg) has been recommended for this purpose.

There has been interest recently in the possibility of using other immunsuppressive agents, such as cyclosporine, for managing chronic gingivitis but their value has not been evaluated critically.
Other treatments
Gold injections, as an immunosuppressive treatment have been suggested. Aurothioglucose has been used intramuscularly once weekly (1mg/kg). However in a controlled treatment trial this therapeutic option did not perform well.

Recently recombinant feline interferon has become available in the form of Virbagen-Omega. Interferons have antiviral and immunomodulatory effects and their has been interest in their for treatment for gingivitis. There have been some reports of beneficial effects (Zetner et al, 2004). The dosage regimes used have been variable. Zetner et al used subgingival injection of 1.25 MU of interferon omega but others use it orally and suggest that there is a direct beneficial local action in the mouth.

A variety of immunostimulant drugs have been used but their value has not been evaluated critically and there are questions as to any beneficial effect. There is so me limited information to suggest that oral administration of bovine lactoferrin (40 mg/kg daily) may be beneficial (Sata et al, 1996)

Oral hygiene
Measures to improve oral hygiene are often recommended. the most effective method of doing this is probably brushing the cat’s teeth at least once, and preferably twice daily. For many cats this is not a realistic possibility and long term owner compliance can be a problem and owners are unlikely to maintain this for longer than 6 months. Oral gels are also available but are probably less effective. Use of a zinc ascorbate gel has been reported to provide some improvement in gingivitis. Chlorhexidine is also used.

Diet
It is likely that diet, particularly consistency and shape, but possibly also constituents can influence development of dental disease and gingivitis. Specific oral health diets e.g. t/d are now available. Dietary consistency (particularly dry versus wet diets) may have an influence but the evidence for this is contradictory. Kibble size and shape have been shown to be beneficial in reducing tartar accumulation and gingivitis in one study (Vrieling et al, 2005). Another approach that some vets advocate is to feed "natural fresh diets". There are some potential disadvantages with this approach – cats that have received commercial diets previously that are not accustomed to fresh food and with oral problems may refuse fresh food, the possibility of dietary nutritional imbalances must be avoided, and there are potential adverse effects of feeding some fresh foods e.g. exposure to enteropathogens (although this is probably a low risk). It is possible to feed raw feed as part of the diet on a regular basis. We sometimes recommend raw "skirt" (diaphragm) which is very fibrous. Fresh chicken wings and oxtail are also used. Feeding dental chews to the cat may also be helpful (Ingham et al, 2002).

Analgesia
Pain is often an important consideration in cases of chronic gingivitis/stomatitis and many cases will benefit from the use of analgesics. There are a number of options. We often choose meloxicam for longer term treatment or buprenorphine orally (10 μg/kg)

Many cases of gingivitis prove very refractory to treatment. No single treatment regime can be relied upon to prove effective and indeed the multitude of treatments used is indicative of the difficulty in managing this syndrome. Whilst these treatments may produce some improvement, this is often only temporary and signs recur rapidly once treatment is withdrawn. Fortunately in many cases of gingivitis only mild signs are present. In more severe cases involving ulceration and particularly marked gingival hyperplasia, a more radical approach to treatment is frequently necessary. Affected cats may be totally inappetant and there may be severe pain and discomfort associated with the lesions. If any response is seen to the treatments outlined above this may not be for some time. In such cases removal of associated teeth, whilst a drastic approach, may offer the only realistic prospect of a rapid resolution of clinical signs. Concurrent immunosuppression
particularly associated with feline immunodeficiency virus (FIV) infection and to a lesser extent with feline leukaemia virus (FeLV) infection worsen the prognosis. FIV positive cats are particularly unresponsive to treatment and over 70% are dead within 12 months of the initial diagnosis.

References:
Sims TJ, Moncla BJ & Page RC (1990) Serum antibody response to antigens of oral gram-negative bacteria by cats with plasma cell gingivitis - pharyngitis. J. Dent. Res. 69: