

# FELINE OROFACIAL PAIN SYNDROME

## Introduction

Feline Orofacial Pain Syndrome (FOPS) is a pain disorder of cats with behavioural signs of oral discomfort and tongue mutilation. (*Rusbridge et al 2010*)

FOPS is suspected to be a neuropathic pain disorder and the predominance within the Burmese cat breed suggests an inherited disorder, possibly involving central and/or ganglion processing of sensory trigeminal information.

The disease is characterised by an episodic, typically unilateral, discomfort with pain-free intervals. The discomfort is triggered, in many cases, by mouth movements. The disease is often recurrent and with time may become unremitting – 12% of cases in this series were euthanized as a consequence of the condition. *Sensitisation of trigeminal nerve endings as a consequence of oral disease or tooth eruption appears to be an important factor in the aetiology - 63% of cases had a history of oral lesions and at least 16% experienced their first sign of discomfort during eruption of permanent teeth.* External factors can also influence the diseases as one or more FOPS events could be directly linked to a situation causing anxiety in 20% of cats. FOPS can be resistant to traditional analgesics and in some cases successful management required neurogenic analgesics such as phenobarbitone and other anti-epileptic drugs.

The investigating group, who cover the specialities of Neurology, Ethology, Dentistry and Internal Medicine, became aware of this syndrome in 1997 and it prompted an ongoing investigation into the character of the syndrome, possible aetiology, and treatment that continues.

## Clinical signs

- *Exaggerated licking and chewing movements*
- *Pawing at the mouth.*
- *Discomfort is unilateral*
- *Episodic or continuous. In the episodic version, the distress usually occurs after eating and lasts between 5 minutes and 2 hours.*
- *Cat remains alert and can be distracted with difficulty.*
- *Some cats have continuous discomfort that increases in intensity when excited or stressed. These cats are often anorexic and in considerable distress, requiring paw bandaging and /or an Elizabethan collar to prevent severe mutilation.*
- *Some cases appear to be associated with oral disease, which can be divided into 5 groups:*
  - a) *Mouth ulceration, especially as a consequence of Calici virus infection or primary vaccination*
  - b) *Erupting permanent teeth*
  - c) *Dental disease, most commonly periodontal disease and dental resorptive lesions.*
  - d) *Recent routine dental treatment including difficult/traumatic extraction*
  - e) *After tooth atomisation with drills when neurovascular bundles beyond the roots have been damaged.*

Treatment of, or natural resolution of the lesions, can result in improvement. However many cases have recurrences which proved more difficult to successfully treat. In kittens, the problem often resolves when the mouth ulceration/teething does. However, these cats may have a recurrence when adult. Other possible influences include stress, from systemic disease, pregnancy, or environmental factors e.g. a multi-cat household. Spontaneous remission and recurrence is common.

### Hypothesis of pathogenesis

Orofacial pain disorders are well described in humans. *The feline orofacial pain syndrome shows some similarities to trigeminal neuralgia.* This disease is characterised by paroxysmal bouts of pain in the distribution of the trigeminal nerve, usually the jaw region. The pain is precipitated by trigger factors of which the most common is facial movement e.g. chewing. For trigeminal neuralgia to occur there must be a combination of peripheral disturbance or damage, e.g. dental disease, together with a cerebral brainstem disinhibition of the trigeminal apparatus. This results in a paroxysmal discharge and reverberation of pain impulses when a trigger point is elicited<sup>1</sup>. It is for this reason that anti-epileptic drugs are one of the most effective treatments. More unusual human facial pain syndromes include glossodynia (burning mouth syndrome)<sup>5</sup>. This is described as a burning or prickling sensation of the oral mucosa most commonly the anterior tongue<sup>6</sup>. In many of the affected cats, tongue discomfort seems to be the primary problem and several cases severely mutilated the tongue. There are also facial pain syndromes primarily involving missing teeth (atypical odontalgia or phantom tooth pain), the temporal mandibular joint (temporomandibular pain and dysfunction syndrome) and one where taste is the trigger (gustatory neuralgia)<sup>5, 6</sup>.

*As Burmese cats are predisposed, this raises the question of a hereditary susceptibility.* The original study group involved in the investigation of this condition proposed that these cats are susceptible to the problem because of a disorder of central processing. They subsequently acquire a peripheral lesion such as dental disease resulting in the orofacial pain disorder. Stress may be a contributory factor. Although treatment may be effective initially there is a high chance of recurrence and treatment may become less effective with time. Many of the affected Burmese cats are closely related. A familial trigeminal neuralgia is recognised (rarely) in humans<sup>2, 3, 4</sup>.

### Investigation

Diagnostic work up of affected cats includes ruling out predisposing medical problems, especially dental disease. Specialist opinion and good quality dental radiographs are recommended. Tooth resorption lesions (TR's) are one of the more common associated diseases and the questionable practice of dental atomisation of fractured or retained roots can aggravate the problem. It is also important to explore the history for possible psychological factors, e.g. stress from multi-cat household, and implement appropriate management.

### Treatment

Medical treatment is dependent on the underlying disease, if there is one. Some cases with gingivitis have appeared to respond to antibiotics, although spontaneous remission could not be ruled out. NSAID's were an effective analgesia for some mildly affected cases. Opioids were very useful for severe hospitalised cases. In the main, anti-epileptic drugs (diazepam or phenobarbitone) gave more sustained and consistent relief. Some cases, especially those with chronic dental disease, responded to steroid therapy

**Phenobarbitone** is the preferred first choice drug for serious cases because of the greater risk of idiosyncratic hepatic failure with diazepam. *An initial dose rate of 2-3mg/kg* should be used with a reduction over time to the lowest effective dose rate. Occasionally life-long therapy is required. Somnolence, weight gain, decreased grooming, and transient cystic calculi are reported as possible adverse effects.

**Gabapentin** (Neurontin: Pfizer) has been used more recently to good effect in milder cases. The dose rate is in the range of 10-20mg/kg every 8-12 hours. In general, lower doses are best to start with. If no effect is seen after four weeks, the dose can be increased. This drug is used for chronic nerve root pain in humans (e.g. Shingles). Carbamazepine & amitriptyline are also reported to have been used in some cases.

**Selegiline** is effective for some and is probably more appropriate for those with a behavioural component or contributing stressful environment. *The dose used is 1mg/kg p.o. sid.* For these cases alterations to the environment and application of behavioural modification is also essential.

### Conclusion

Feline Orofacial Pain Syndrome (FOPS) is a recently recognised condition *affecting mainly Burmese cats*. The most common triggers appear to be oral lesions especially dental disease. There are similarities to trigeminal neuralgia and other orofacial pain disorders in humans. The Burmese cat is predisposed and a hereditary susceptibility is suspected. As a general guideline, NSAID's are the most appropriate first line therapy for mild cases and phenobarbitone for more severe acute or chronic cases. New cases are still seen in the UK on an occasional basis. There are reports of cases in Australia and New Zealand where the genetic basis of the Burmese cat population is similar to the UK but no reports from other countries up to late 2006.

### References

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