

Osteoarthritis In Cats

Osteoarthritis (OA), a form of degenerative joint disease (DJD), is the most common cause of chronic pain in mammals, including cats, writes Norma Brady MVB MVM, CAE veterinary manager, Zoetis. More than 90 per cent of adult cats may have radiographic evidence of OA, with the presence/severity of disease expected to increase by >10 per cent each year



It is important that veterinarians routinely assess cats for the presence of OA.

Osteoarthritis (OA) in the cat is a very common condition with 40 per cent of all cats having clinical signs and >90 per cent of cats older than 12 years showing radiographic evidence of OA. However, as a disease the clinical signs are infrequently recognised by pet owners and the condition is under-diagnosed by the veterinary profession, with only 13 per cent of affected cats globally being diagnosed. It is important that we as veterinarians, are routinely assessing cats for the presence of OA and proactively educating owners to recognise the signs. Starting to screen cats as early as seven to 10 years of age will help to establish a baseline of 'normal' for that cat and may uncover OA early in the disease. Although OA is not curable, active screening and early identification can increase the number of cats treated and improve the quality of life of cats suffering from the pain and reduced mobility associated with OA.

RECOGNISING OA-ASSOCIATED PAIN

OA-associated pain may not be immediately obvious to owners or to veterinary staff. Cats are a sedentary species,

making pain-related mobility changes challenging to detect. Cats are mesopredators (both predators and prey), so naturally their instinct is to hide any vulnerability that could increase predation (e.g., pain). By nature, cats are also often semi-nocturnal; therefore, owners may be asleep when cats exhibit OA changes. By comparison with canine OA, which is primarily secondary and unilateral, feline OA is often idiopathic and bilateral. Limping is commonly exhibited by dogs with OA but unlikely to be exhibited by cats.

Additionally, cats spend more time moving vertically (e.g., jumping, climbing) as compared with dogs. For a cat, an elevated location such as on top of the refrigerator or on a tall bookcase, is a safe and secure place with a good vantage point. Mobility changes, where the vertical becomes more horizontal, are important indicators of OA-associated pain which most owners do not know how to identify. Checklists, animations, and videos are useful tools that can help owners and veterinary staff to accurately recognise and assess pain associated with OA in cats.

EDUCATION

TOOLS FOR CAT OWNERS

Although the prevalence of OA is similar between dogs and cats, cat owners may be less likely to identify pain than dog owners. However, educating owners on the prevalence of OA-associated pain and available treatment options may make owners more likely to bring their cat to the clinic. Owner discussions around mobility should focus on the cat's ability to jump and climb. Cat owners need to have an understanding of feline behaviour and mobility. Although clinical signs of OA-associated pain in cats are not very obvious, pain-mediated changes in behaviour, activity, and mobility may be more easily identified (e.g., inappropriate urination/defecation, decreased grooming, negative/reduced social interaction, altered sleeping pattern/location).

Tools such as feline OA owner checklists with specific pain-related behaviour/activity questions are useful to educate cat owners on the potential presence of pain and help to expedite an OA diagnosis by alerting the veterinary surgeon to pain-related concerns (see panel with details of education and diagnostic tools). Videos and animations comparing the movement of a healthy cat with that of a cat with painful osteoarthritic joints may help owners understand mobility changes in patients with OA. These could be displayed on TV or computer screens in the veterinary clinic waiting room/examination room or shared on the clinic's website or social media to heighten awareness of OA amongst cat owners.



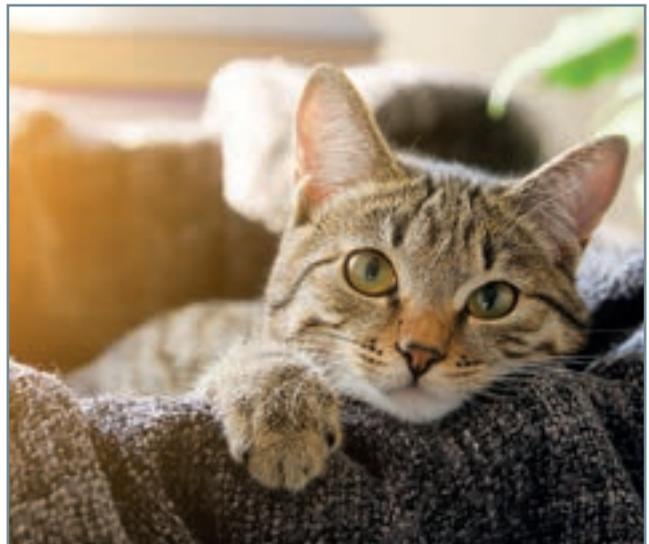
OA in cats is under-diagnosed.

TOOLS FOR VETERINARY PRACTICES

Identifying feline pain can be difficult if not specifically investigated. Veterinary surgeons rarely observe a cat walking in the clinic compared with dogs. Therefore, gait analysis is not typically a normal part of a routine examination. The owner's input is important, since many will know their own cat's behaviour and will have noticed changes earlier. They will provide a template for pointed pain-related, cat-specific questions. Providing the owner with checklists and mobility

animations prior to the visit can increase the likelihood of pain being identified. Encouraging clients to keep video records of their cat at home from an early stage will allow valuable comparisons with current levels of activity, thus helping to facilitate a diagnosis. Mobility and behaviour can be more accurately assessed when the cat is in its own familiar environment. Feline-friendly musculoskeletal veterinary examination focused on joint-specific pain and mobility using gentle palpation and range of motion should be a part of any examination for painful patients and for every examination of cats > seven to 10 years of age. Videos with information on feline-friendly, pain-focused musculoskeletal examinations of several commonly OA-affected joints in cats are available (see panel on education and diagnostic tools).

Radiography can provide valuable information and is recommended; however, radiographic changes do not consistently predict the presence of pain. Some patients will have radiographic lesions with no pain, and some patients may have pain that is worse than the radiographic evidence. Regardless, pain should always be the focus of OA treatment.



Pain management is the anchor therapy around which all other supportive management is implemented.

TREATMENT OF FELINE OA

Once a diagnosis of OA has been established, a multimodal approach to management should be considered while factoring in the burden of care and the relative impact on owner compliance. Treatment aims include: controlling the pain, maintaining mobility, and limiting disease progression. Management of OA may include some or all of the following:

- pain therapy;
- dietary modulation;
- weight reduction;
- physical therapy;
- exercise;
- environmental modification;
- surgery.

Pain management is the anchor therapy around which all other supportive management is implemented and needs to be clinically effective. In comparison to dogs, there are limited

drug therapies licensed for use in cats and non-steroidal anti-inflammatory drugs (NSAIDs) are the main treatment modality. Robenocoxib and meloxicam are the only NSAIDs licensed for long-term use in the cat. Multimodal pain therapy can be applied, but consideration needs to be given to what has proven efficacy, is licensed and what is feasible for the owner to implement long-term on a daily basis without disrupting the human-animal bond.

Nutraceuticals and specific joint diets could be added to the protocol as multimodal therapy but have little to no demonstrated efficacy in cats. These diets may also assist with weight loss if needed. Most of these compounds are probably more effective at slowing disease progression and delaying the onset of worsening pain than they are at providing analgesia directly. Nonpharmacologic treatment (e.g., acupuncture, laser and physical therapy) are largely unproven, but may be considered as some can be beneficial. Surgery may be indicated in cases where there is an underlying condition that is causing or predisposing a cat to osteoarthritis. Exercise can be encouraged using a cat tower/scratcher with easily accessible levels, toys and games. Owners should try to interact with their cats and encourage play several times daily. It is important to modify the cat's environment to accommodate any disability associated with osteoarthritis. Cats are creatures of habit and are territorial by nature. Ensuring the cat has easy access to food, water, a sleeping area and a litter tray is important, and can perhaps be facilitated by providing access using steps or a ramp. Multiple litter trays with a low side are easier to enter and increased accessibility may prevent potential accidents. Ensure the cat flap/door is easily accessible both from inside and outside. Warm resting sites and assisted grooming are also very helpful. Minor modifications can make daily activities less challenging for OA cats and improve their quality of life overall.

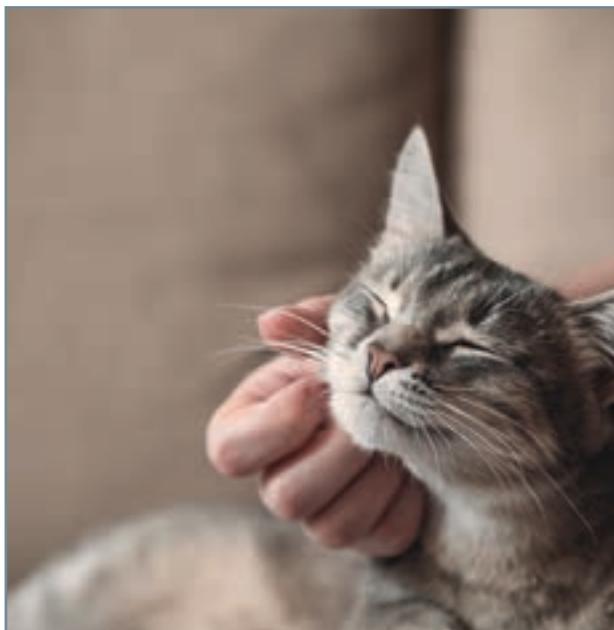
THE FUTURE FOR OA PAIN IN CATS

As previously discussed, the multimodal management of OA relies on effective analgesia. Current analgesic options are effective but may be difficult for pet owners to administer to their cat. Some limitations exist around availability of licensed medications in different countries, and safety considerations may limit long-term use or use in the face of concurrent disease, e.g., chronic kidney disease (CKD).

A new analgesic approach, therapeutic antibodies (also called monoclonal antibodies (mAbs)) that target a novel driver in the pain pathway – nerve growth factor (NGF) – and thereby block the pain signal are leading the way within this new field. Specified (felinised and caninised) anti-NGF monoclonal antibodies have shown relief of OA-associated pain for ≈1 month following SC injection.

This is a different mechanism to the more commonly known prostaglandin pathway targeted by NSAIDs, including EP4, 'piprant' NSAIDs.

Nerve growth factor (NGF) is a cytokine that has recently been recognised as a major factor in the generation,



Educating owners on the prevalence of OA-associated pain and treatment options may make owners more likely to bring their cat to the clinic.

propagation, and sensation of pain. This is the first novel OA pain pathway for new therapeutics in many decades. NGF is elevated in osteoarthritic joints in dogs. It is released from damaged tissues, but it is also found in some immune cells associated with pro-inflammatory mediators. The same receptor, TrkA, appears on these cells.

Unlike drugs, monoclonal antibodies (mAbs) are metabolised into amino-acids and peptides within cells. They are not metabolised in the liver or kidneys, converted into reactive or toxic metabolites, or excreted in urine, so are unlikely to cause drug-drug interactions or to induce liver or kidney toxicity.

References available on request.

KEY POINTS

- Feline OA is very common and because it is difficult to identify, there is potential to diagnose this painful condition in more cats.
- Owner education can be provided through numerous resources, such as posters, questionnaires, and mobility animations.
- Screening cats early establishes a baseline for 'normal' for that cat. Checklists can help to identify signs of osteoarthritis in cats.
- Feline OA management can include analgesics, environmental adjustments, activity, and surgery as needed.
- There are new antibody therapies on the horizon. With prolonged duration of activity (~1 month) and easy administration to cats with a subcutaneous injection, this new therapeutic antibody approach may be the solution that veterinarians, cat owners and cats suffering from OA have been waiting for.