Degenerative Joint Disease in Cats

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Degenerative joint disease (DJD) is a commonly recognized cause of pain and decreased quality of life in older and geriatric dogs. Less well known is the effect of DJD on cats. Based on research in the past 10 years, DJD (more specifically, osteoarthritis) is a relatively common radiographic finding in cats. However, the disease and its effects on quality of life are underrecognized in cats. With many cats living well into their teens, feline geriatric care is increasingly a part of veterinary practice; therefore, DJD—perhaps the most common disease of domestic cats—should be acknowledged as a real concern in aging cats.

The disparity between joint care in dogs and the general lack of it in cats may be due to the difference in the presentation of DJD (i.e., the clinical signs) between dogs and cats, the difficulty of diagnosing the disease in cats, and the limited treatment options in cats.

The Affected Population
Much of the research on DJD and osteoarthritis in domestic cats has involved subjects that are 6 years of age and older. Studies involving subjects with a wide age range have shown a significant correlation between age and the presence of DJD. Because of the high rates of DJD in older cats, age should be considered a significant risk factor for this disease.

In retrospective and prospective studies on cats, researchers frequently use the broad term DJD because other causes of apparent osteoarthritis on radiographs cannot be immediately excluded (BOX 1). This means that study results likely include cats with congenital or inherited skeletal disorders (e.g., hip dysplasia, osteochondrodysplasia), secondary changes due to previous infection (e.g., tick-borne diseases), trauma, historical nutritional inadequacies, and low-grade inflammatory or immune-mediated causes. In cases of joint pain, the differential diagnosis should be considered, especially in younger cats, as treatment of an inciting condition (e.g., immune-mediated disease) may be necessary. It has been shown that even young cats can develop DJD and osteoarthritis.

Clinical Signs
Perhaps the most important reason DJD is underdiagnosed in cats is its unique clinical presentation. For physical and behavioral reasons, the prevalent canine medical model of DJD (e.g., lameness, a change in activity level, stiffness, trouble with stairs) cannot be directly applied to cats. The canine medical model includes dogs that will not walk or hike as far as they used to, that tire more easily while playing fetch, that do not leap to their feet when the doorbell rings, and that limp after playing with the dog next door. During physical examination, these patients may appear relaxed until the doctor tries to manipulate the painful joint, which may elicit a yelp, struggle, or growl. Applying this model to cats is problematic because they usually do not go for walks, play fetch, or limp to their feet when someone is at the front door. In addition, cats often do not display classic signs of pain (which may be more true for chronic pain, such as in DJD), and an orthopedic examination may yield few results because of cats’ stoic nature. Also, cats often resist substantial handling at an animal hospital and may be tense, struggling, and growling before joint manipulation; therefore, these behaviors may not be reliable indicators of discomfort.

Lameness is one of the most common reasons dogs present for orthopedic examinations. Cats show far fewer signs of lameness, possibly because they often have bilateral joint disease and are generally smaller and more agile than dogs. In terms of physical activity, cats tend not to “overdo it” compared with dogs and will stop or curtail a taxing or painful activity before it leads to acute lameness and greater pain. Several studies have suggested that DJD of the elbow may be common in cats, but subtle gait changes in affected cats may go unnoticed. Studies on DJD in cats detail arthritis of the elbow, hip, stifle, tarsus, and spine, with...
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Box 2. Common Indicators of Degenerative Joint Disease in Cats

- Changes in sleeping and resting locations (e.g., no longer climbing the cat tree or jumping onto the bed)
- Changes in eating habits or appetite can be caused by pain, the difficulty of stooping to eat from a low bowl, or accessibility issues if the bowl is on a high surface
- Behavior changes (e.g., increased aggression, decreased displays of affection, absence of habitual behavior [e.g., does not solicit food, does not greet in the morning])
- Physical changes (e.g., weight loss, decreased muscle mass)
- Decreased tolerance for handling (e.g., no longer tolerates handling, massaging, scratching along the back, having legs extended for nail trims)
- Changes in grooming habits (e.g., the presence of rumpled fur, dandruff, overgrown nails, and/or dirty nail beds; except for postprandial facial grooming, the client never sees the cat groom)
- Decreased playfulness (e.g., no longer chases string or a laser light, no longer engages other pets in play)
- Altered gait, posture, or carriage (e.g., signs may be subtle but observable, including a stilted walk, an abnormal gait, transient or persistent lameness, or a hunched posture); signs may be interpreted as behavioral changes (e.g., no longer walks with tail in the air, walks fast instead of running, does not get into the “pounce” position)
- Changes in mood or energy level (e.g., lethargic, reluctant to get up and interact with family, no longer asks to go outdoors, tires quickly, shows intolerance for previously enjoyed activities)
- Changes in litterbox habits (e.g., no longer using the litterbox or covering waste)

The treatment of chronic pain and, specifically, DJD should always include lifestyle changes and supportive therapies in addition to prescription drug therapy. Achieving and maintaining a healthy body weight may be, by far, the most important lifestyle change for cats and dogs with, or at risk for, arthritis (risk increases with age or a history of joint surgery or an orthopedic injury or condition). Patients should be as slim as possible while maintaining health and good muscle tone. Activity level and frequency should be determined in consultation with a veterinarian, and the owner should make every effort to keep the cat on a good diet and exercise regimen.

The multimodal approach to treating chronic pain involves exercise, diet, prescription medications, and nonprescription supplements. Lifestyle and environmental modifications (e.g., facilitating access to food, water, litter, and preferred sleeping areas) may also be recommended for cats showing clinical signs or for geriatric cats in general. Although a comprehensive treatment plan for a patient must be created by the veterinary team, individual treatment options follow.

Diagnosis

Osteoarthritis is usually diagnosed by radiographic findings (e.g., the appearance of enthesophytes, osteophytes, subchondral bone erosion, joint effusion, or periarticular or intraarticular mineralization). Despite these commonly recognized findings, veterinarians’ evaluations of joint disease and its severity may differ because of subjective findings (e.g., the presence of subtle changes, the degree of disease). In reviewing articles on osteoarthritis in cats, the author has found that one of the most prominent issues is the lack of standards in reading radiographs for evidence of DJD and osteoarthritis. However, it is not practical to routinely sedate asymptomatic or nonspecifically symptomatic older or geriatric cats for radiography to detect DJD, so most diagnoses need to be made another way.

A presumptive diagnosis can be made from a thorough physical examination (including observation of the patient’s carriage, gait, and reaction to handling) and patient history. However, as already discussed, both of these means of diagnosis are problematic with respect to cats. Perhaps the best way to diagnose DJD in cats is to obtain a detailed patient history during each feline examination, asking specific questions to elucidate changes in activity, grooming, and eating habits. Because many clients think certain changes are just part of “growing old,” some of the most common signs of DJD go unreported unless they are expressly questioned (Box 2).

Explicit questions about a feline patient’s at-home behavior should be part of any examination, especially for older cats. Cats generally show nonspecific signs of pain and illness, but behavior changes increase with age.

A prospective study in the United Kingdom offered one additional means of diagnosis: treatment with an NSAID. Meloxicam therapy for cats with radiographic signs of osteoarthritis (with or without clinical signs) resulted in positive changes in behavior, even in asymptomatic cats. While the decision to use NSAIDs in this species is controversial, this study may support the use of some kind of empirical treatment (including or excluding NSAIDs) for older and geriatric cats. The analgesic-response test is also mentioned in the AAHA/AAFP Pain Management Guidelines for Dogs & Cats: “If a question persists regarding the presence of pain, administer an analgesic and assess the patient’s response.”

Treatment

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Treating Pain and Inflammation

Treatment of chronic conditions such as osteoarthritis is long-term, and treatments may need to be added, or drug dosages changed, as the disease progresses. The AAHA/AAFP guidelines recommend reassessment of the patient every 3 months; for practices with many geriatric patients, this can be done through biannual hospital visits (e.g., in January and June) and biannual phone calls or e-mails (e.g., in March and September) from a dedicated technician. In addition, clients should be educated on how to evaluate their cat at home to help ensure the pain remains well controlled.

The prescription drug treatment options for cats are limited. Research on NSAID therapy for chronic pain in cats is ongoing, but the recent literature describes the use of meloxicam. In the United States, meloxicam's potential for causing kidney damage resulted in an FDA black-box warning stating that the drug is only for one-time use, making long-term use off label for cats. The FDA recently approved robenacoxib, an NSAID for short-term use in cats, but it has only recently become available in the United States. The lack of options for NSAID therapy for feline DJD in the United States is unfortunate because this therapy can be useful for treating chronic pain in cats.

Other oral prescription options for DJD-related chronic pain in cats include opioids (e.g., buprenorphine, the synthetic opioid tramadol) and glucocorticoids (e.g., prednisolone, prednisone). In veterinary medicine, opioids have been traditionally used to treat acute and postoperative pain, but these drugs have been used long-term in some cats with DJD because of the difficulty of administering NSAIDs to cats. Long-term use of opioids can have significant adverse effects, such as constipation, and increases the likelihood of diversion (use of a drug by a human family member). Long-term use of opioids can create dependence and require increasing doses to achieve the same effect, though neither of these consequences has been researched in cats.

Glucocorticoids (steroids) such as prednisolone can be used for their antiinflammatory effect. They are not analgesics but may provide analgesia through their powerful antiinflammatory action. Systemic steroid use in cats is associated with many adverse effects, the most serious of which may be diabetes mellitus and congestive heart failure; therefore, systemic steroid use cannot be considered a first-line therapy for DJD.

Aramatidine and gabapentin are gaining a foothold for managing chronic pain in dogs and cats. Although detailing the use of these drugs is beyond the scope of this article, they may prove helpful to treating cats with moderate to severe signs of DJD. Neither drug is recommended as a sole therapeutic agent; the two drugs are meant to be part of a multimodal program to address chronic pain.

Treating the Disease

All the drugs mentioned above would be prescribed to lessen the clinical signs of DJD. Ideally, treatment of DJD would include drugs that slow the course of the disease; these are called disease-modifying osteoarthritis drugs (DMOADs). The manufacturers of Adequan (polysulfated glycosaminoglycan; Luitpold Pharmaceuticals) and Cartrophen Vet (sodium pentosan polysulfate; Arthropharm Services) report that these injectable DMOADs can be used to treat canine and equine osteoarthritis, and both companies cite research to back these claims. Given intramuscularly in dogs, both drugs target joint cartilage. By keeping the cartilage healthy and intact, further joint destruction is delayed. Both medications are given on a strict schedule: initial, frequent dosing is eventually replaced with once-monthly injections. There is no peer-reviewed research on the use of either drug in cats, but anecdotal reports are promising. Some veterinarians prescribe the drugs for subcutaneous use in cats, allowing owners to administer them at home and avoiding the stress of frequent veterinary visits. Both drugs are heparin analogues, so their use in conjunction with anticoagulants requires veterinary supervision.

Various oral joint supplements may contain glucosamine, chondroitin, perna mussel, methylsulfonlymethane, hyaluronic acid, and/or avocado and soy unsaponifiables. All these substances claim to lessen joint pain. Most joint supplements claim to improve joint health by strengthening cartilage and decreasing inflammation. For some supplements, there has been a significant amount of research; for others, there has been little or no research. These products are rarely contraindicated, so some veterinarians recommend the animal-specific formulations for use in patients with or at risk of DJD.

Complementary Treatments

Various complementary treatments are available for treating chronic joint and muscle pain in cats. Acupuncture, massage, cold laser therapy, and diets containing large amounts of omega-3 fatty acids are among the supportive treatments used to ameliorate the clinical signs of DJD. Some modalities used in dogs (e.g., hydrotherapy, other intensive forms of physiotherapy) are not as suitable for cats because of behavior differences between these species, and any treatment may be limited by a cat’s individual behavior or needs.

Conclusion

DJD in cats is progressive and potentially debilitating, and recent evidence shows that a large portion of the population is likely affected. The veterinary team is responsible for identifying and treating DJD to improve the quality of life of cats, particularly as they age. DJD is often diagnosed presumptively through physical examination, laboratory testing to rule out other diseases, and a behavioral history that reveals clinical signs of DJD. Veterinary technicians can play a vital role in the diagnosis by serving as a communication link between the client and the veterinarian. Technicians often obtain a patient’s behavioral history before an examination begins, and questions focusing on potential clinical signs of DJD can be paired with general and specific physical findings (e.g., lack of grooming, overgrown nails) to allow the veterinarian to make a diagnosis.

Veterinary technicians can also play a role in educating clients. Speaking to clients about the likelihood of cats to develop osteo-
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Arthritis allows clients to become better caretakers by giving them the tools to recognize potential signs of pain and discomfort. A cat's age is no longer an acceptable explanation for muscle wasting, dandruff, and an increasingly “grumpy” demeanor. Clients are more likely to take action if they know that DJD is likely as cats age and that at-home measures can improve their cat's quality of life. Although cats are traditionally stoic and hardy, they should not have to endure great discomfort. The veterinary team can improve the quality of feline geriatric care by recognizing and managing joint disease.

References
1. DJD can affect adult cats
   a. only after 10 years of age.
   b. only after 14 years of age.
   c. only after 16 years of age.
   d. of any age.

2. Cats with DJD may exhibit nonspecific signs such as
   a. decreased activity and grooming.
   b. increased activity and vomiting.
   c. disuse of the litterbox.
   d. a and c

3. Cat owners should be regularly questioned about age-related joint pain when their cats become ___ years of age.
   a. 2
   b. 6
   c. 10
   d. 12

4. One of the most important components of reducing DJD-associated pain in cats is
   a. maintenance of a healthy body condition.
   b. feeding of a low-fat, high-fiber diet.
   c. intensive physical therapy to build muscle.
   d. reduction of dietary calcium.

5. DMOADs are used to
   a. reverse arthritic changes by causing reabsorption of osteophytes.
   b. reduce pain by increasing the muscle:fat ratio.
   c. directly cushion joints through intraarticular injection.
   d. reduce the progression of arthritis by keeping cartilage healthy.

6. Complementary treatments for feline DJD may include
   a. massage.
   b. hydrotherapy.
   c. controlled treadmill exercise.
   d. application of joint wraps or braces.

7. Which question can reveal possible clinical signs of DJD when obtaining the history of an adult cat?
   a. Who is your cat’s favorite person?
   b. Does your cat like to sleep during the day?
   c. How playful is your cat?
   d. Does your cat prefer dry food?

8. Physical examinations for diagnosing joint pain in cats can be hampered by
   a. a cat’s resistance to being handled.
   b. the natural reluctance of cats to exhibit signs of pain.
   c. a cat’s stress level, which can lead to struggling, growling, and tension.
   d. all of the above

9. Ingredients in oral joint supplements that may improve signs of joint discomfort in cats include
   a. calcium, phosphorus, and vitamin D in a balanced ratio.
   b. monosodium glutamate.
   c. avocado and soy unsaponifiables.
   d. pectin or gelatin extract.

10. The best treatment plan for cats with DJD is most likely
    a. administration of NSAIDs, with intermittent use of opioids to control breakthrough pain.
    b. a multimodal approach including a calorie-controlled diet, environmental changes, prescription drug therapy, and complementary treatments.
    c. hands-on physical treatments including hot compresses and massage two or three times per week.
    d. at-home changes such as more accessible litterboxes, elevated food bowls, and nonslip surfaces in common areas.