

Nursing management strategies for canine osteoarthritis cases

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Summary

OSTEOARTHRITIS (OA) is a slow progressive, low-grade inflammatory syndrome that affects joint tissues, including cartilage, bone and synovium, as well as the surrounding ligaments, tendons and muscles. Osteoarthritis affects approximately 20 per cent of dogs more than a year old, including all breeds, ages and sizes. It can be divided into two categories: primary and secondary. The primary aims of treatment are to ameliorate the pain and disability associated with the disease. The veterinary nurse can play an integral role in delivering specialist nursing care, such as through nursing clinics, weight clinics, in-patient care and assisting with treatment and rehabilitation therapy. General management strategies for OA in dogs are medical management, weight management/nutrition, exercise moderation/ physical rehabilitation therapy, surgery and alternative therapies.

Key words

canine joint, canine osteoarthritis, degenerative disease, rehabilitation, veterinary nurse clinics

OSTEOARTHRITIS (OA) is a slow progressive, lowgrade inflammatory syndrome that affects tissues of the joint, including cartilage, bone and synovium, as well as the surrounding

ligaments, tendons and muscles (Innes, 1995).

Osteoarthritis affects approximately 20 per cent of dogs more than a year old, including all breeds, ages and sizes. It can be divided into two categories: primary and secondary. Primary OA is idiopathic, where no initiating cause is identified. This form of osteoarthritis is uncommon in dogs, as a causative factor is usually identifiable (Innes, 1995). Secondary OA occurs when a primary disease or other causative factor develops into OA. Secondary OA is the most common form of OA in dogs. According to Innes (1995), potential causes of the disease are:

- trauma;
- developmental;
- inflammatory;
- joint disease;
- metabolic; and
- congenital.

Dogs may present with a history of lameness that is either acute or chronic and of varying severity, ranging from mild to complete disability, depending on the arthropathy. Clinical signs may include:

- muscular asymmetry (due to disuse atrophy);
- joint enlargement (due to effusion or fibrosis);
- abnormalities in range of motion (often reduced);
- instability (often with erosive arthritis);
- crepitus; and
- pain.

Changes occurring with OA within the joint are irreversible. However, early recognition of clinical signs and identification using diagnostic imaging may offer an owner more options for treatment. The primary aims of treatment are to ameliorate the pain and disability associated with the disease (MacPhail, 2000). Patient lifestyle changes may also be adopted in an attempt to slow disease progression.

Two main management approaches to treating OA exist: surgical and medical.

Management options

When a disease condition is present that has the potential for OA, the veterinary surgeon (VS) should advise corrective management or environmental changes. Options may include surgery for cruciate ligament rupture or special diet plans for obese patients (Piermattei et al, 2006).

The veterinary nurse (VN) can play an integral role in delivering specialist nursing care, such as through nursing clinics, weight clinics, in-patient care and assisting with treatment and rehabilitation therapy. Nurse clinics in particular are an invaluable tool for educating and supporting owners and monitoring their dogs' response to treatment. Owner compliance is vital to the successful management of OA. The VN can ensure treatment options and lifestyle changes are discussed thoroughly during the clinic, as well as making sure an individual's progress and response to treatment is monitored. A key message to reinforce is that OA may be managed effectively in the majority of cases and does not have to be viewed simply as an inevitably deleterious condition with a poor prognosis for management.

The goals of therapy according to MacPhail (2000) are to:

- relieve pain;
- reduce inflammation;
- improve joint mobility;
- increase activity levels;
- prevent further cartilage denegation; and
- improve quality of life.

These goals can primarily be achieved through a multimodal treatment approach. The general management strategies used for OA in dogs are:

- medical management;
- weight management/nutritional;
- exercise moderation/physical rehabilitation therapy;
- surgery; and

- alternative therapies.

Management of osteoarthritis is generally conservative during nursing clinics, and an individual treatment programme can be devised and agreed for the animal by considering each therapeutic modality (as appropriate for the patient).

Administration of drugs

The majority of medications do not reverse the effects of OA and they are most commonly prescribed to ameliorate pain and discomfort caused by the condition.

- Medical treatments for OA have conventionally comprised NSAIDs. NSAIDs are often prescribed for managing the clinical signs of OA due to their ability to reduce joint pain and inflammation, although they do not significantly alter the progression of the disease (McLaughlin, 2000).
- The use of corticosteroids for treating OA is controversial. Intra-articular therapy was once very popular in human medicine, but fell into disrepute. In veterinary medicine, they have been used to manage end-stage OA as an alternative to NSAIDs; however, any enhanced efficacy in terms of longterm analgesic or anti-inflammatory benefit is controversial (Innes, 1995).
- Nutraceuticals, such as glucosamine and chondroitin, may be prescribed to dogs with OA to provide the building blocks of cartilage in an attempt to slow the progression of cartilage loss within the osteoarthritic joint. However, a lack of robust objective studies is available to demonstrate a clear benefit in both dogs and humans.
- Omega-3 fatty acids, such as those found in cod liver oil, have been shown in ex vivo and in-vitro studies to reduce inflammation within the joint and may help improve clinical signs of OA (Schoenherr, 2005). Eicosapentaenoic acid has also been shown to block the genes that produce cartilagedestroying enzymes.

Once animals are prescribed medication(s), it is important for the VN to warn owners to be vigilant of any occurrence of vomiting and/or diarrhoea, or other adverse reactions to drug treatment – especially with the use of NSAIDs. A major concern for a client is that his or her pet is in pain and it is, therefore, important for the VN to have knowledge and understanding of drug therapy options.

Nutrition and weight management

Weight control potentially has a profound effect both on a patient's clinical signs associated with OA, and the rate of progression of these signs and osteoarthritis change within the joint(s). During nursing clinics, an owner should be informed of his or her dog's optimum bodyweight at the time of initial consultation. From this measurement, a weight-loss plan can be formulated, from which a

daily nutritional requirement can be recommended. The weight of the dog and the body condition score should be recorded at each subsequent visit to monitor the patient's progress.

Weight reduction alone may cause significant improvement in clinical signs in dogs with OA, and is essential in the obese patient. Research by McPhail (2000) shows obesity to be a risk factor for OA in both humans and dogs. If an animal is overweight, a reduced-calorie diet should be instigated. Research by Millis (2005) showed obesity to be strongly associated with the development of OA in humans, and contributed to the progression of osteoarthritis in dogs.

Overweight humans are 3.5 times more likely to develop osteoarthritis than those of optimum weight, and a loss of 5kg in bodyweight may decrease the odds of developing the disease by more than 50 per cent. Calorie-controlled commercial diets are a simple way to instigate a sensible weight-loss programme, although failure can occur when owners do not comply with the diet for their pet. Regular visits to the weight clinic and careful monitoring with precise nutritional advice and counselling for an owner is, therefore, crucial to minimise this possibility.

Preventive measures can and should be taken in fast-growing puppies, especially large breeds that risk developmental disorders, such as hip dysplasia, elbow dysplasia and osteochondrosis, by avoiding nutrient excess and rapid development. A balanced and complete proprietary commercial diet is recommended.

Exercise

Research by Davidson (2005) showed a controlled, low-impact exercise programme alone improved pain and overall function scores in geriatric dogs with OA. The benefit of controlled and consistent exercise can be valuable and is often under-used.

Adjusting a dog's exercise regime to short, frequent lead walks, rather than complete rest, is ideal. Such a regime ensures activity, which is behaviourally stimulating for the dog, as well as facilitating weight loss and maintaining joint movement and muscle mass without over-activity, which may predispose to OA flare-ups. It should be noted, however, that heavy training programmes may cause cartilage changes that can lead to OA (Millis, 2005).

Exercise routines should be individually evaluated for each patient and adjusted according to clinical signs of pain and inflammation. The dog should not be forced to exercise during times of aggravation because inflammation may damage articular cartilage OA and exacerbate clinical signs.

Unrealistic demands placed on owners and their pets will decrease compliance and may exacerbate the severity of clinical signs.

Physical management

Physical therapy treatments ([Table 2](#)) are aimed at addressing the secondary effects of OA, including pain, loss of muscle strength. In addition they may promote the repair of damaged tissues, the range of motion of joints, improve the quality of life and slow the clinical progression of the disease (Marcellin-Little, 2005). Owners can be taught how to successfully carry out the majority of physical exercise at home, with support from the VN to demonstrate what is required.

When creating an exercise plan it is important to use several techniques, as appropriate for the patient. This will reduce repetition of the same movement on the joint; varying muscle groups are then recruited and excessive repetitive joint loading is avoided.

Environmental modifications

All rehabilitation therapy should be delivered in an environment as quiet and free of distraction as possible.

At home, and when hospitalised, a well-padded and warm bed can help prevent injury. Other considerations, such as nonslip flooring and ramps to replace use of the stairs, may also be effective. Additionally, assistive devices can play an important role in the overall well-being and functional abilities of an animal with orthopaedic impairments. With the advantages of providing increased independence for the pet, these devices can provide autonomy for the owner (Adamson et al, 2005).

They provide support to a weak or non-functioning body part and may assist with rehabilitation. They can also help reduce the risk of decubital ulcers, increase an animal's mobility and prevent complications in recumbent patients.

In dogs with OA, popular devices include boots to protect the paws, and slings to provide support – especially in larger dogs – to prevent stumbling and falling.

Surgery

Surgery may be indicated for treatment in secondary OA, which generally involves surgical correction of the underlying disease in an attempt to ameliorate the clinical signs associated with, and progression of, OA. According to Fossum (2007), surgical techniques include:

- debridement;
- arthrodesis;
- arthroplasty;
- osteotomy; and

- amputation.

As previously mentioned, once OA is endemic in a joint, surgical intervention will not reverse the osteochondral damage present. Surgery may, however, simulate the formation of fibrocartilage, replace the joint services with prosthetics improving comfort levels, or, in the case of arthrodesis, remove function of the joint entirely.

Treatment should include a balance of client instruction, moderate medication and surgery, where applicable.

Other treatments

Acupuncture is commonly requested by clients for pets with OA, as this therapy is thought to help the body heal itself. The theory is that this is accomplished through nerve stimulation, increased blood circulation, muscle spasm relief, and endorphin and endogenous cortisol release (MacPhail, 2000). Although this alternative therapy may appeal to some owners in the treatment of OA, it is important to note that little objective research supports its efficacy.

Monitoring process

Once a treatment plan has been established within the nursing clinics, the VN's role is to support the owner and monitor the progress of the patient.

Owners may monitor any changes in:

- reluctance to walk/run/play;
- difficulty in rising from lying down;
- lameness;
- stiffness;
- yelping/whimpering;
- personality changes;
- soreness when touched;
- lagging behind on walks;
- decreased mobility;

- aggressive behaviour;
- weight; and
- general body condition.

Vital owner feedback

Owners can provide vital feedback at the clinics, via telephone or on a home visit regarding their pets' progress.

Points to note and record include pain assessment, limb use, joint stability, performance during exercise, progression with weight management and overall patient well-being. An assessment of this feedback can then influence and adapt the management plan for the individual patient to ensure progress is made and maintained.

Summary

Because OA is a progressive and incurable disease, it can be a testing time for owners and their pets, and numerous treatment options are available. Therefore, for successful management of OA, compliance is fundamental between the VS, VN and owner to gain a full understanding of the commitment required.

The VN can use his or her skills by working together with the owner to create an appropriate management strategy. Regular patient monitoring is essential to achieve success and maintain and/or adapt an appropriate treatment programme to suit the patient, making the VN's knowledge and support an integral aspect of successful management of OA.

References

- Adamson C et al (2005). Assistive devices, orthotics, and prosthetics, *Veterinary Clinics of North America: Small Animal Practice* **35**: 1,441-1,445.
- Davidson J, Kerwin S and Millis D (2005). Rehabilitation for the orthopaedic patient, *Veterinary Clinics of North America: Small Animal Practice* **35**: 1,357-1,388.
- Fossum T et al (2007). Diseases of the joints. In *Small Animal Surgery*, Elsevier 1,143-1,315. Innes J (1995). Diagnosis and treatment of osteoarthritis in dogs, *In Practice* **17**: 102-110.
- MacPhail C (2000). Treatment of canine osteoarthritis, *Waltham Focus* **10**: 25-31.
- Marcellin-Little D (2005). Therapy options, *Clinicians Update*: 5-6.
- McLaughlin R (2000). Management of chronic osteoarthritic pain, *Veterinary Clinics of North America: Small Animal Practice* **30**: 933-947.

- Millis D (2005). Adjunctive therapy for osteoarthritis, *Targeting Osteoarthritis Pain*: 16-21.
- Piermattei D et al (2006). Arthology. In: *Handbook of Small Animal Orthopaedics and Fracture Repair*, Elsevier, Philadelphia: 185-215.
- Schoenherr W (2005). Canine cartilage, *Clinicians update*: 8-9.

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ZSL HELPS RESCUE ORPHANED GORILLA

CONSERVATIONISTS from the Zoological Society of London (ZSL) have been working with the government of Equatorial Guinea to help a confiscated baby gorilla.

Afangui is a two-year-old female that was orphaned by poachers and found being used illegally as a tourist attraction. The possession, hunting, sale and consumption of all primate species in Equatorial Guinea have been illegal since 2007, but, until recently, the law has not been properly enforced.

ZSL field conservationist Juliet Wright has been working closely with the Equatorial Guinea government to prevent further wild animals from suffering the same fate.

She said: “The oil boom in Equatorial Guinea has resulted in an influx of expatriate workers who are creating a demand for infant primates as pets.” To obtain a baby gorilla, the mother and the members of the group are killed, with the rest taken as bush meat. We wanted to make an example of this case and dissuade others from buying infant apes.”

Following the publicity surrounding Afangui, the government has launched an awareness campaign, with ministry officials distributing leaflets about the law and destroying seized primate carcasses being sold as bush meat.

ZSL conservation programme manager Dr Noelle Kumpel said: “The government is to be congratulated in taking such a strong stand to implement the law and we hope that efforts to raise awareness of and enforce conservation legislation will continue. The western lowland gorilla is a critically endangered species and populations in Equatorial Guinea are currently under severe pressure from hunting and habitat loss.”

Profession to discuss EVM collaboration

DELEGATES are to discuss the potential for developing a range of evidence-based resources for the veterinary profession.

In an open symposium, supported by the RCVS Trust, attendees from the human medical and veterinary fields will talk about the possibility of creating a collaborative collection of evidence-based veterinary medicine (EVM) resources, similar to that of the Cochrane Collaboration – an evidence-based collaboration in human health.

The event – The sceptical vet: Eminence or evidence? Finding the best way forward for the veterinary profession – will be held on October 30 at the RCVS building in London.

Speaking of why the RCVS trust is supporting the symposium, Cherry Bushell, trust director, said: “The modern evidence-based medicine (EBM) approach has revolutionised patient care in human medicine. It has been more challenging to set up a veterinary database similar to the Cochrane, due to the particularities of veterinary medicine and the wide number of species involved. The RCVS Charitable Trust wishes to encourage the veterinary profession to continue to make progress towards this ambition.”

The event is open to the veterinary profession and aims to provide a forum where opinions on the clinical potential and caveats of EVM can be voiced. For more details, visit www.rcvstrust.org.uk/grants-and-collaborations

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