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Injecting platelet-enriched plasma into joints

A NOVEL therapy that helped the world's richest sportsman, Tiger Woods, to resume his golf career following a knee injury is now available in the UK to dogs suffering from osteoarthritis.

Jeffrey Schaffer, director of the animal health division of the US medical equipment company Pall Life Sciences, told British veterinary surgeons about its development of a filter system for extracting platelets from canine and equine blood. The platelet enriched plasma can then be injected directly into the joint, where it has been shown to be useful in treating both cartilage and ligament injuries, he said.

Dr Schaffer and his fellow US veterinarian Professor Alicia Bertone, an equine orthopaedic surgeon from Ohio State University, were invited to address audiences of small animal clinicians by VBS Direct, which has

literature - continued

spatial kinematic and kinetic analyses. There were significant biomechanical changes after amputation in the vertebral column, carpus, ipsilateral hip and stifle joints. The gait of a thoracic limb amputee appeared to be a mixture of different gait patterns in which the ipsilateral pelvic limb assumed dual thoracic and pelvic limb roles. *American Journal of Veterinary Research* 74 (9): 1,155-1,163.

Discospondylitis and epidural empyema due to a *Salmonella* species infection

Ioannis Plessas and others, Royal Veterinary College, London

Discospondylitis is an inflammatory condition of the intervertebral disc, the adjacent endplates and vertebral bodies. *Staphylococcus pseudintermedius* is the most common cause in dogs although a number of other bacterial species have also been isolated. *Salmonella* infections have been described as a cause of the condition in human patients but there are no previous reports involving these bacteria in dogs. The authors describe a case involving a seven-year-old intact male boxer in which the history, clinical signs and magnetic resonance imaging suggested discospondylitis and epidural empyema and *Salmonella* was identified on blood culture. Following surgery and antimicrobial therapy, the patient made a full recovery.

Canadian Veterinary Journal 54 (6): 595-598.

the contract to import and distribute Pall's veterinary products in the UK.

Based in Long Island, New York State, Pall is one of the world's leading suppliers of filtration technologies for

VETERINARY PRACTICE reports on a recent international conference where a novel therapy for osteoarthritis was revealed

a range of industries from human health care to the food and drink sector. Its latest product, C-Pet, is believed to be the first commercial venture into the small animal market by a company in the emerging field of regenerative cell therapy.

Activated platelets are known to release around 30 different cellular growth factors, as well as a range of anti-inflammatory cytokines which have been shown to accelerate healing of damaged joint tissues. The technique has been used by US equine practitioners to treat around 4,000 horses, mainly for suspensory ligament injuries, and the results have been very encouraging, he said.

The filter system was developed for use by clinicians working in ambulatory clinics to treat horses in the field. It is a single use, disposable unit which will produce a therapeutic quantity of plasma with around three times the base level concentration of platelets ready for use without further processing.

Sample from jugular vein

A sample of around 55ml of blood

can be taken from the jugular vein and injected into the entry tube for the filter which can be held manually or suspended from an intravenous infusion stand. The platelets bind selectively to a special filter while the majority of the other blood cells pass through and are discarded.

The platelets are then collected in a proprietary harvest solution and a quantity of 1.5 to 5ml, depending on the size of the dog, is injected directly into the affected joint.

Professor Bertone described the results of trials using this technology in 20 client-owned dogs with osteoarthritis affecting a single joint (see also the Marie Fahie study mentioned on the previous page of orthopaedic abstracts).

On examination 12 weeks after a single treatment, there were significant improvements in lameness and pain scores, as assessed by the owners and referring veterinarian, and a substantial improvement in the peak maximum force generated by the



Professor Alicia Bertone with Dr Jeffrey Schaffer, who is holding one of the filters.

BVOA to discuss feline orthopaedics at April meeting

THE spring meeting of the British Veterinary Orthopaedic Association will be held on Wednesday 2nd April in the Hilton Metropole Hotel, Birmingham. The subject will be feline orthopaedics.

Subjects and speakers will be (in order): Management of feline pelvic fractures – Sorrel Langley-Hobbs; Femoral capital physal fractures – Jason Bleedorn; How to manage feline radius/ulna fractures – Sorrel Langley-Hobbs; Spinal surgery in cats – Harry Scott; Management of tarsal shearing injuries – Jason Bleedorn; Feline osteoarthritis – Denis Marcellin-Little; and Exoprostheses in dogs and cats – Denis Marcellin-Little. The day will finish with the presentation in memory of Professor Leslie Vaughan.

The association's AGM will also be held during the day.

The autumn meeting of the BVOA will be held from 24th to 26th October in the Hilton Hotel in Brighton.

For details see

www.bsavportal.com/bvoa/Meetings/BVOAMeetings.aspx.



affected limb on a pressure plate.

Any fluid left over after the first treatment can be frozen and used later for a second treatment. This may be particularly valuable in those dogs where it is not immediately clear which joint is the source of the lameness in a particular limb, Dr Schaffer noted.

However, once defrosted, the plasma would have to be used immediately. Like the centrifugation process used previously to concentrate platelet cells, thawing causes activation of the cells and the release of the cytokines contained in the cytoplasm.

Less invasive

Prof. Bertone believes that platelet treatment will be appealing to both veterinarians and dogs' owners as a much less invasive technique than some of the surgical alternatives such as joint replacement.

"Subjectively, the filter-based device used to obtain the platelet concentrate ... was easy to use, and the entire procedure from initial sedation to completion of the intra-articular injection took about 30 minutes.

"Although the study found significant effects at 12 weeks after treatment, further studies are needed to determine the optimal dose and the duration of effect," she notes in her paper published in the *Journal of the American Veterinary Medical Association*

Booklet on managing pain in canine OA

VÉTOQUINOL has produced a booklet entitled *Managing pain in canine osteoarthritis* which contains information on how to choose the right NSAID for the individual dog, advice on monitoring OA progression, what to do if there are side effects, use of NSAIDs alongside other medications and tips on improving compliance and pet owner satisfaction.

The booklet is the result of eight months' work between the company and a panel of veterinary surgeons with expertise in this area – Kate Smith, Peter Attenburrow, Stuart Carmichael, James Dunne, Matthew Gurney, Sorrel Langley-Hobbs, Kate Murphy, Jo Murrell, and Martin Owen; the aim was to establish consensus guidelines for managing canine OA in first opinion practice.

Robert Simpson at Vétoquinol says the booklet is a great reference tool for answering questions in this area and as a resource for building robust practice protocols.

Copies can be ordered from the firm on 01280 825497.

(November, p1,291).

The US's most successful golfer is not the only leading sportsman to have used platelet rich plasma treatment and publicly acknowledged its role in speeding a return from injury.

Tennis player Rafael Nadal, basketball player Kobe Bryant and American footballer Troy Polamalu are also on record as having undergone this treatment.

However, some orthopaedic specialists in North America are

unpersuaded by the currently available evidence on the efficacy of this form of treatment.

Writing in the January 2014 edition of the *Clinical Journal of Sports Medicine* [24 (1): 31-43], Andrew Dold and colleagues from the University of Toronto division of orthopaedic surgery offer a critical review of the technique in cartilage injuries.

"Currently, there is a paucity of data supporting the use of PRP for the management of focal traumatic osteochondral defects. There is

limited evidence suggesting short-term clinical benefits with the use of PRP for symptomatic osteoarthritis of the knee, but the studies published to date are of poor quality and at high risk of bias.

"Further high quality comparative studies with longer follow-up are needed to ascertain whether PRP is beneficial, either alone or as an adjunct to surgical procedures, in the management of articular cartilage pathology," he said.

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JAVMA article published Nov 2013

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