

DIAGNOSTIC OPTIONS AND TREATMENT RESULTS OF OCD LESION IN THE SHOULDER JOINT OF TWO DOGS

Soner ÇAĞATAY¹, İlker ŞEN², Mehmet SAĞLAM¹

¹Ankara University, Faculty of Veterinary Medicine, Department of Surgery, 06110
Ankara/TURKEY.

²Cumhuriyet University, Faculty of Veterinary Medicine, Department of Surgery, 58140
Sivas/TURKEY.
scagatay@ankara.edu.tr

Abstract: Severe lameness and pain was detected with inspection and clinical examination. After radiological examinations, cartilage damaged which is generally occurred on caudal surface of humeral caput and significant lesion for OCD, could not be observed. Case one (Breed: Kangal, Gender: Male, Age: 8 months, Weight: 52 kg) was examined with USG and CT. Significant lesions of OCD on caudal surface of caput humeri and free body (corpora vitrea) were detected. After clinical and radiographical examination, dog was prepared for surgery. Lateral approach and arthrotomy were performed. After arthrotomy, cartilage flap was viewed on caput humeri. Free body (corpora vitrea) and cartilage flap were removed from joint and lesion was drilled into the subchondral bone. Joint capsule and tissues were closed routinely. In postoperative period, there was no lameness in case one. At postoperative 3rd week, lameness was observed again and this condition was evaluated as a likely drilling complication. One dose of cortisone was injected intra-articularly and treatment was completed successfully. This case was followed up for 2 years. During this period there was no other complication and functional recovery was achieved. Case two (Breed: Rottweiler, Gender: Male, Age: 9 months, Weight: 32 kg) had similar symptoms and similar clinical and radiographical evidences. But in this case there were no specific findings in USG but strong evidence for the existence of OCD lesion in CT. When this case was operated, on caudal surface of caput humeri, some fissures were observed and border of lesion was quite evident. Lesion was curetted and drilling was performed. Drilling complication or other complications were not observed in this case.

As a result, OCD should be considered in lameness of shoulder joint especially in fast growing large breed dogs and CT should be noted as a diagnostic method.

Keywords: CT, dog, experience, OCD.

Introduction

Osteochondrosis Dissecans (OCD) is a disease of cartilage tissue characterized by separation of articular surface and OCD of Caput humeri is a common lesion of the forelimb lameness in young and large or giant breed dogs (7).

Incidence of OCD is related with size of the dog. However it is not only seen in large breed dogs, but also reported in small breed dogs. OCD is a form of osteochondrosis and it causes cartilage thickness (2,4,7). The cartilage tissue separates from subchondral bone and breaks off

completely, so it becomes free in scapulo-humeral joint (1).

Causes of OCD lesions are not clear but lesion formation is considered with pathological process of cartilage growth (1,7). Hypercalcemia as a result of supplementation of the diet with calcium, increases the risk for OCD in dogs. Other factors that may associated with OCD are trauma and ischemia. Trauma can be considered as secondary factor of OCD lesions (7).

OCD lesions have been reported especially in large or giant breed dogs. Lameness is observed in one leg in spite of the fact that half of cases are bilateral. Symptoms of OCD are characterised as shoulder lameness occurred after intense exercise (1, 6). Additionally clinical signs include pain and atrophy of the forelimb muscle. Disfunctions of forelimb are probably reversible. First clinical symptoms are detected in 4-8 months of age in most of dogs. But in some cases, it can be detected in 2-3 years of age (1).

Radiographs are necessary to accurate diagnosis. Laterolateral, anteroposterior and if it is necessary, oblique radiographs of both shoulders should be taken. While head and neck of dog are flexed dorsally, the affected extremity is drawn downwards and forwards. The Diagnostic radiographic signs of OCD are loss of contour of the posterior aspect of the articular surface of the humerus, associated with a variable degree of subchondral rarefaction (6).

Two ways can be followed for treatment of OCD. Limitation of movement can be applicable if lesions are not evident and free bodies are not detected in shoulder joint. Analgesia and steroids are contraindicate because of increase the motion of joint. If the disorder of articular surface is longer than 6 weeks and the dog is older than 6 months of age, chondroplasty can be performed (1).

The aim of this study was to evaluate diagnosis options, results and treatment of osteochondrosis dissecans (OCD) lesion in two dogs.

Material and Method

In this study, it is aimed to evaluate diagnosis options, results and treatment of osteochondrosis dissecans (OCD) lesion.

Study material involves 2 large breed dogs belong to 2 different breeds (Anatolian sheep dog/Kangal and Rottweiler) with the average weight of 41kg which are diagnosed as osteochondrosis dissecans and treated at Ankara University Faculty of Veterinary Medicine Surgery Department.

Case one (Anatolian Shepherd, male, 8 month, 52 kg) was examined clinically and

radiographically. In radiographical examination, there was no evidence of OCD lesions but with USG and CT examination, significant lesions of OCD on caudal surface of caput humerii and free body (corpera vipera) were detected and dog was prepared for surgery.

4 mg/kg dose of Propofol (Pofol® %1, Fresenius Kabi, Germany) was used for induction intravenously. Isoflurane (Isoflurane®, Eczacıbaşı-Baxter, Turkey) and oxygen were mixed to maintain the anesthesia. Morfin (Morfin HCL®, Galen, Turkey – 0,8mg/kg dose IM) for preoperative analgesia was used. In postoperative period meloxicam (Anaflex®, Hektaş, Turkey – 0,3 mg/kg dose SC) was used during 7 days.

Surgical procedure: The dogs were anesthetized and positioned in lateral recumbancy with the affected joint uppermost. Caudolateral approach was performed. Middle of the scapula was incised as a curved incision and the spine was followed distally crossing the joint and incision was continued over the lateral surface of the humerus to the midpoint of the shaft. Skin margins were undermined and retracted after subcutaneous fascia and fat were incised in the same line.

Deep fascia was incised over the ventral border of the spina scapula on distal part of operation area to make free the origin of the scapular part of the musculus deltoideus. This incision was expanded through the distal direction over the acromial part of the musculus deltoideus. The incised tissues were elevated and retracted cranially and caudally. Joint capsule was incised.

In case one: After the joint capsule had been incised, it was encountered with free body. After arthrotomy, cartilage flap was viewed on caput humeri. Free body (corpera vipera) and cartilage flap were removed from joint and lesion was drilled into the subchondral bone. Joint capsule and tissues were closed routinely.

When case two (Rottweiler, male, 9 months, 32 kg) was operated, on caudal surface of caput humeri, some fissures was observed and border of lesion was quite evident. Lesion is curetted and drilling was performed.

Results

Case one was examined with USG and CT. Significant lesions of OCD on caudal surface of caput humerii and free bodies “corpera vipera” were detected with USG examination (Figure 1). These free bodies were not observed in radiographies. After USG, CT was performed and OCD was detected firmly (Figure 2). Intraoperatively, free body was viewed with incision of joint capsule. Flap of cartilage on the joint surface was observed after removal of three parts of free bodies (Figure 3). In postoperative period, there was no

lameness in case one. At post operative 3rd week, lameness was observed again and this condition was evaluated as a likely drilling complication. One dose cortisone was injected as intraarticular and treatment was completed successfully. This case was followed up 2 years. During this period there was no other complication and functional recovery was achieved.

Case two had similar symptoms and similar clinical and radiographical evidences. But in this case there were no specific findings in USG but strong evidence for the existence of OCD lesion in CT (Figure 4). Intraoperatively, flap of cartilage surface was viewed as a cover (Figure 5). This cartilage cover was removed and subchondral tissue was drilled. After drilling all of the tissues were closed routinely. During the postoperative follow up period, drilling or other complications were not observed in this case and clinical treatment was achieved.

Discussion

Physical examination and radiography have been important for diagnosis. Due to the difficulty visualizing of structures of joint surface, various radiographic views are recommended, including mediolateral, craniocaudal and caudal-laterocranial oblique view (5). The Diagnostic radiographic signs of OCD are loss of contour of the posterior aspect of the articular surface of the humerus, associated with a variable degree of subchondral rarefaction (6). On the other hand, exploratory arthrotomy has been recommended because of the low incidence of correct radiographic identification. Computed tomography (CT) may result in more accurate imaging of the shoulder joint. In a study, it is compared radiography, xeroradiography, linear tomography, positive contrast arthrography and computed tomography. CT had the highest accuracy (86,7%), sensitivity (88,3%) and negative predictive value (84,6%) for identifying a FMCP (5).

Although radiography is a non-invasive imaging method, lesions may not be obvious. Some factors as Size of lesions, quality of x-ray machine, size of patients or etc. can act for a clear view. But computed tomography is a method that gives definitive results and it is also non invasive to. In our study lesions were not seen clearly and USG was performed. Free bodies were detected in USG examination and accurate diagnosis was made by computed tomography in case one.

Blood supply is enhance the healing and it can be increase by create vascular channels by drilling. Drilling is generally applied to minimal separated lesions in young dogs and it can be adjuvant to improve blood supply and to make shorter the healing process. Results of the drilling treatment is generally favorable and age of patients is prognostic factor (3).

In our study, drilling method was performed in both of cases. In case 2, there was no

complication of drilling but in case 1, drilling complication was observed for a while. After steroid application, lameness was treated and during the follow up period, there were no lameness or another complications.

As a result, OCD should be considered in lameness of shoulder joint especially in fast growing large breed dogs and CT should be noted as a diagnostic method.

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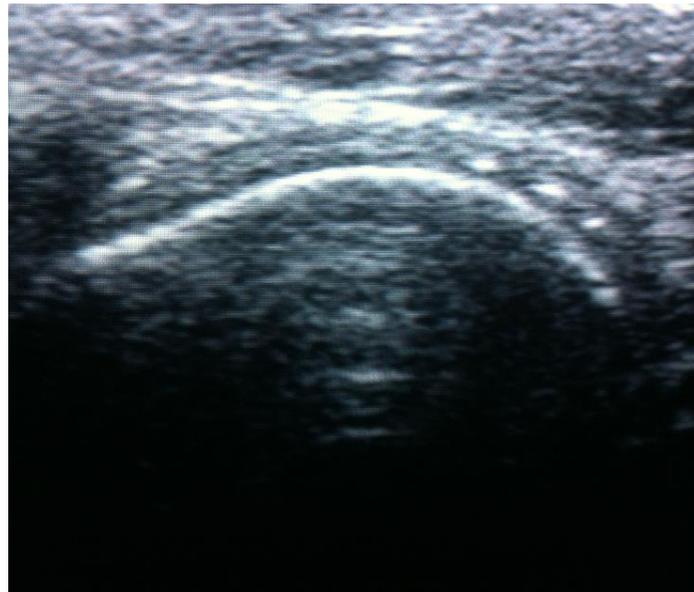


Figure 1. USG view of shoulder joint of case one.

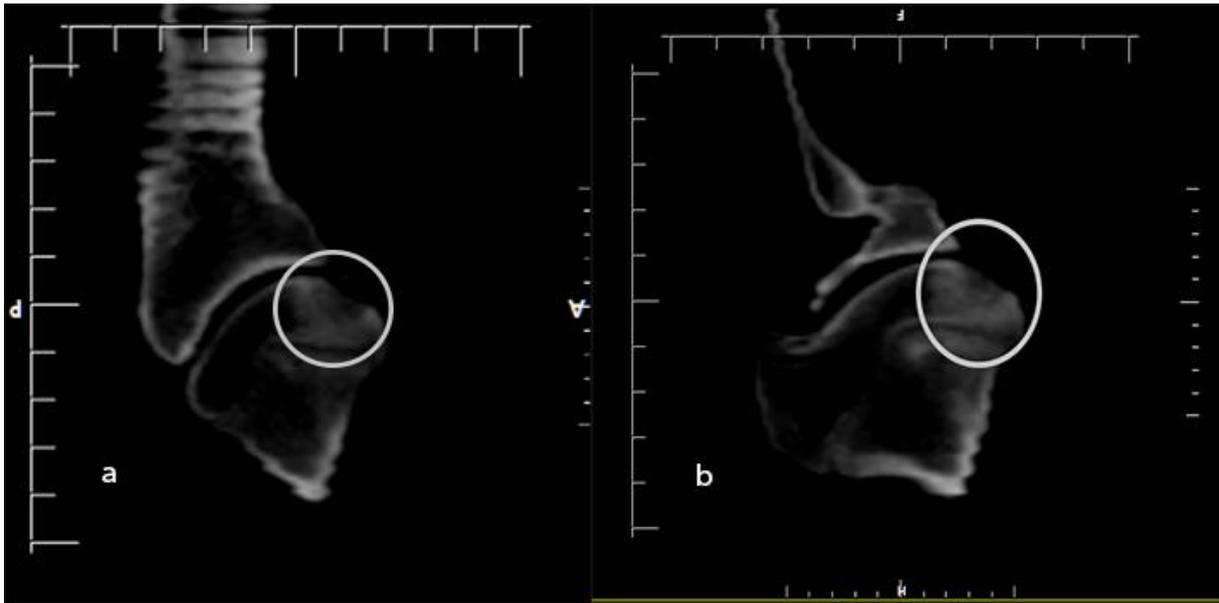


Figure 2.a-b. Tomographic image of affected shoulder joint of case one.

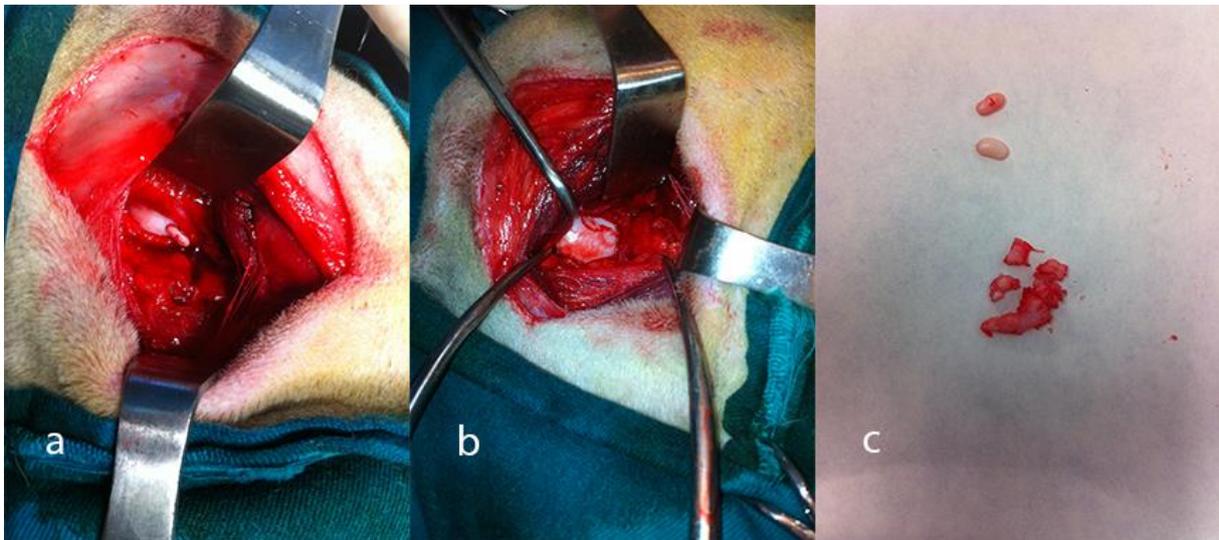


Figure 3.a) Free body view after arrotomy, b) Border of cartilage flap, c) Flap and free bodies after removal.



Figure 4. Cartilage flap of articular surface.



Figure 5. Tomographic image of the OCD lesion of case two.