

## Bilateral Legg-Calve-Perthes Disease in a Dog

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### Abstract

Bilateral Legg-Calve-Perthes disease (LCPD) is characterized by avascular necrosis of femoral head. An eight years old male dog was presented with signs of lameness since last two months. Physical evaluation revealed pain, inco-ordinated movement, limping of limbs and restricted stepping with other signs of lameness. Radiography showed degraded bony structure at joints, widening of the joint space of hip joint, radio opacity of femoral heads etc. On the basis of anamnesis, clinical findings and radiographic interpretation, the case was diagnosed as legg-calve-perthes disease (LCPD). Femoral head and neck osteotomy (FHNO) was performed under premedication with Xylazine and Ketamine used as general anesthetic. Post-operatively antibiotic, analgesic, antiseptic dressing of wound was undertaken. Physiotherapy was performed in form of massage as supportive treatment. The animal was completely fine and bearing weight on 62<sup>nd</sup> day as per owner confirmation in telephonic conversation.

Keywords: Dog; femur; legg-calve-perthes disease; osteotomy

### Introduction

Legg-Calve-Perthes disease (LCPD) also called avascular necrosis of the femoral head, is a disorder that occurs during developmental phase of dogs. Epidemiological study showed that this condition mostly encountered in little toy breeds to large terrier breeds of dog. It is also found in small breed dogs weighing more than 12 kg (Piermattei and GL, 1997; Wallace and Olmstead, 1995). In LCPD, affected animal was presented with clinical symptoms of lameness, pain on palpation, inability to bear weight to walk, muscular atrophy and crepitus like fracture with gradual lose of joint motion (Piek *et al.*, 1996). History, physical examination and radiographic findings are used together as a tool for the diagnosis of LCPD.

Identification in early stages of LCPD may be difficult to detect and difficult to identify in radiographs specially in minimal fractures or collapses (Yeh *et al.*, 2009). Radiography and computed tomography scan (CT scan) is useful technique to obtain precise results and nowadays appreciated as the most valuable tools for orthopedic patients (Ohlerth and Scharf, 2007). This case report describes a typical case of bilateral legg-calve-perthes disease in a dog with their diagnosis and management.

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### History

An eight years old, 15 kg body weight, intact male Labrador dog was presented for diagnosis and treatment affected with unknown etiological condition with some signs of lameness. The owner of the dog reported that the dog had non-weight bearing lameness on both limbs from last 2 months. Owner also detailed about each and everything history, behavior and previous treatment of his dog. The previous treatment was not fruitful and owner was unsatisfied with treatment. Finally, the case was referred to clinical complex of the college for further and proper diagnosis as well as needful treatment to relieve the patient from this grave condition. As per owner attention and attachment towards the dog, the case have been very important to diagnose properly and decide best treatment.

Diagnosis of the case was started with physical examination of the dog, revealed pain on extension of both hind limbs on palpation, in coordinated movement, abnormal gait, limping of limbs, non-weight bearing, restricted stepping with other signs of lameness. The signs resemble lameness of various reasons and confusing to diagnose grossly. So, it was decided to go for radiography of affected part to know involvement of the bones, extension of the lesion and possible etiological factors.

### Radiographical Examination

On ventrodorsal radiographical projection, the

## Legg-calve-perthes disease

radiograph showed loss of osteocortical contour, degraded bony structure at joints, widening of the joint space at acetabular region of hip joint, atrophied musculature, loss of femoral head architecture, bending of right femoral shaft and radio opacity of femoral heads (Fig.1).



Fig. 1: Radiographic view of LCPD

On the basis of anamnesis, clinical findings and radiographic interpretation, the case was diagnosed as legg-calve-perthes disease (LCPD) and right side joint seen more poor in condition as compare to left one. As per diagnosis and responses of previous treatment, it was decided to perform surgical correction by femoral head and neck osteotomy of right side joint.

Treatment was started with pre-operative laboratory examination, physiological examination and preoperative preparation of patient and surgical site.

### Anesthesia

On the day of surgery, all parameters were found under normal limit. Anesthesia was achieved by premedication with Xylazine at 1 mg/kg body weight, intramuscularly and Ketamine at 2 mg/kg body weight intramuscularly used as a general anesthetic for induction as well as maintenance during surgery.

### Surgical Management

Femoral head and neck osteotomy (FHNO) was performed surgically. Surgery started with skin incision followed by separation of muscles. The femoral head and neck were exposed after incising joint capsule. Surrounding structures near the joint were carefully isolated from bone to avoid unusual trauma. The exposed femoral head was severed below the neck and isolated from surgical site. The bleeding was checked and fluid were mopped off.

The wound cavity was irrigated with normal saline solution and antibiotic powder sprinkled over the site to prevent infection. Severed part of femur was put near the cavity for formation of pseudoarthrosis or false joint. The surgical wound closed by series of suture techniques via interrupted suture on muscle layers by absorbable suture material catgut no.2, subcutaneous layer by lock stitch pattern by catgut no. 1. Finally, the skin edges were sutured by silk no. 2 in interrupted pattern. Dressing of wound was done with antiseptic solution and ointment and covered by three layer bandage technique.

Post-operative care included physiotherapy by regular massage of right femoral muscle for 15 minutes along with from second day of surgery, animal was initiated for leash walking. Owner was advised to follow same exercise till weight bearing by the animal and prevent the surgical site from self-mutilation.

As the dog was brought away from college, it was not possible to visit again. Therefore in telephonic conversation with the owner, he reported that the animal revealed no evidence of lameness. The animal was completely fine and bearing weight on the 62<sup>nd</sup> day as per owner confirmation.

### Discussion

According to Demko and McLaughlin (2005), the etiological factors of LCPD are unknown but occlusion of epiphyseal vessels that enter proximal femur near the insertion of joint capsule may be one of the reasons. Another study evaluated that jumping on pelvic limbs, may produce enough damage to collapse epiphyseal vessels in tiny breeds of dogs (Paster *et al.*, 2002). Clinical examination in dog with LCPD initially associated with conformational modification and as condition progresses, degeneration of joint of proximal femur was occurred (Lee,1970; Moores *et al.*, 2004). Patients are difficult to recognize in early stage and without radiography it is difficult to judge LCPD with other similar conditions as present case. When disease progresses, symptoms become more appreciable on radiographs. Warren and Dingwall (1972) reported similar findings like formation of osteophyte on acetabulum and subchondral fractures or modified femoral head.

Hunt *et al.* (1990) said that avascular necrosis mostly encountered in slipped capital femoral epiphysis

(SCFE) in humans, but uncommon problem in small animals. Focal bone necrosis, fibrosis and infiltrations of defensive cells (Moores *et al.*, 2004). Progressive necrosis of the femoral head was examined and fracture might have occurred secondary to LCPD (Thak *et al.*, 2013). It was concluded that early presentation of case, proper history about case, familiarizations with clinical findings and inclusion of diagnostic imaging techniques can provide a better direction for correction of the cases.

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### Pebbles, the 22-year-old Toy Fox Terrier - the World Oldest living dog



A 22-year-old Toy Fox Terrier from South Carolina, U.S. now holds the title of 'Oldest dog living', as recognised by Guinness world records on 17<sup>th</sup> May, 2022. Named 'Pebbles', the four-pound dog is 22 years and 59 days old. Earlier, Guinness World Records had bestowed the title to a 21-year-old chihuahua, TobyKeith. After hearing the news, Gregorys, Pebbles' pet parents, realised that Pebbles was older. The pet parent said that initially, they hoped to adopt a large breed dog but they set their eyes on the pocket-sized pup who won them over with her larger-than-life personality.