

## HIP Dysplasia in Labrador Retrievers in Turkey

Ali Said Durmus, Mehmet Cengiz HAN<sup>1</sup> and Ozmen ISTEK  
Firat University, Veterinary Faculty, Department of Surgery, 23119 Elazig, Turkey

**Abstract:** Clinical and radiographic diagnostic methods and incidence of hip dysplasia in Labrador retrievers has been discussed in this article. One hundred and fifty hip joints of 75 Labrador retriever dogs (different age and sex) consisted the material of the study. Radiograms were evaluated appropriate to Norberg and Olsson Methods in the dogs. Out of 75 dogs, 40 dogs were found to be dysplased. The results of the present study show that hip dysplasia is a significant problem in Labrador retrievers dogs in Turkey.

**Key words:** Hip dysplasia, Dog

### Introduction

Malformation of the coxofemoral joint in dogs or canine hip-dysplasia (CHD) is a major canine health problem. The clinical condition of CHD is likely to be caused by a combination of genetic and environmental factors, but for selective breeding, the interest is in the genetic factor (Wood *et al.*, 2000a,b and 2002).

CHD is a condition characterized by impaired development of the hip joint, which affects the puppies of large and giant breed dogs (Alexander, 1992 and Piermatei and Flo, 1997). The dogs are born with normal hip joints. During growth, however, there may be incoordination between the skeleton and the supporting muscular system (Alexander, 1992).

There is no direct correlation between the severity of the clinical signs and the radiographic changes associated with hip dysplasia. Some animals with quite severe radiographic changes maintain their lives with little or no evidence of lameness while others with minor radiographic changes may have quite marked episodes of lameness (Denny, 1980). The aim of this study was to document the incidence of CHD in Labrador retrievers in Turkey.

### Materials and Methods

Seventy five Labrador retriever dogs (with different age and sex) with suspected of hip dysplasia consisted the material of the study. After clinical evaluations, radiograms (obtained ventro-dorsal position) were obtained according to the method of Norberg and Olsson. Radiographic examination was conducted under general anaesthesia to achieve full muscle relaxation. Anaesthesia was induced in animals by intramuscular administration of a combination of Rompun 1.5 ml/10 kg (Bayer, xylazine hydrochloride, 23.32 mg/ml), and Ketalar 15 mg/kg (Parke-Davis, ketamine hydrochlorur, 50 mg/ml).

A line was drawn on the radiograph to join the center of curvatura of the femoral heads. The center of the curvatura of each femoral head was established by placing a clear piece of plastic with various concentric circles, so that one of the circles matches the exact curvatura of the femoral head. The center of the circle was the center of the curvatura for that femoral head. Two centers were joined by a straight line. A second line was then drawn from the center of curvatura of each femoral head to the cranial edge of the acetabulum. When the angle formed by the second line and the line joining the two centers was less than 105°, the acetabulum was shallow (Whittick, 1974). If the Norberg Angle (NA) > 105° hips considered as healthy, hips graded as mild (the femoral head and the acetabulum are incongruent, NA is more than 100° and/or there is a slightly flattened cranio-lateral rim), moderate (obvious incongruency between the femoral head and the acetabulum with subluxation, NA more than 90°, flattening of the cranio-lateral rim and/or osteoarthritic signs) or severe dysplastic (marked dysplastic changes of the hip joints, such as luxation or distinct luxation, NA less than 90°, obvious flattening of the margo acetabularis cranialis, deformation of the femoral head "mushroom shaped, flattening" or other signs of osteoarthrosis) (Aslanbey and Candas, 1998; Bakir *et al.*, 1995; Ozsoy, 2002 a,b and Sarierler, 2003).

### Results and Discussion

A total of 150 hip joints of 75 Labrador retriever dogs were examined in this study. Dogs were of different ages (range 1-5 years), sexes (35 males, 40 females). Out of 75 dogs, 39 (52 %) were aged between 0-1 years, 13 (17.33 %) 2 years, 13 (17.33 %) 3 years, 8 (10.67 %) 4 years, and 2 (2.67 %) 5 years old. Forty of 75 dogs were dysplased. Twenty (50 %) of the dysplased dogs were male and 20 (50 %) were female. A total of 68 hip joints of 40 dogs were dysplased. Bilateral and unilateral dysplasia were observed in 28 and 12 dogs respectively. Degree of dysplasia in the dogs are shown in Table 1.

Table 1: Degree of dysplasia in the male and female

| Degree of dysplasia | Number of joint |        |       |
|---------------------|-----------------|--------|-------|
|                     | Male            | Female | Total |
| 1                   | 16              | 9      | 25    |
| 2                   | 6               | 12     | 18    |
| 3                   | 4               | 7      | 11    |
| 4                   | 9               | 5      | 14    |
| Total               | 35              | 33     | 68    |

Despite CHD has known for a long time and selection has applied, it has not been controlled yet. Early diagnose is very important to control the CHD. In order to that various diagnostic methods have been improved (Ozsoy, 2002 a,b).

Dogs are presented for treatment either during the acute growth stage between 4 and 8 months of age, or later in life when secondary

osteoarthritic changes have occurred in the hip. History includes, pain on rising, poor exercise tolerance and a "rolling" gait. On clinical examination the hind-quarters are often poorly muscled. Pain, crepitus and excessive laxity may be evident on manipulation of the hips (Denny, 1980).

Joint laxity is important in predicting CHD and degenerative joint disease (Leppanen and Saloniemi, 1999).

Flattening of the femoral head, lateral displacement of the femoral head in to the acetabulum and luxation or subluxation of the femoral head is seen in young dogs. Subchondral erosion of the acetabular margin with osteophyte formation, flattening of the femoral head due to subchondral eburnation, and new bone formation along the articular margin of the femoral head and around the attachments of the joint capsule on the femoral head and trochanteric fossa are primary changes are followed by degenerative joint disease in older dogs (Denny, 1980).

In diagnosing CHD, radiographic evaluations used in dogs are employed. As well as radiographical changes in the femoral head and acetabulum, the degree of dysplasia is determined using the Norberg-Olsson angle as described by Denny (1980) and Ozer *et al.*, (1997). Norberg and Olsson Method is commonly employed to assess the shape and depth of the acetabulum (Aslanbey and Candas, 1994; Piermattei and Flo, 1997; Sarierler, 2003 and Whittick, 1974). In this study, Norberg and Olsson Method was used to assess the radiograms. This method was found effective to diagnosis of CHD.

Wood *et al.* (2000a,b and 2002), reported that hip-dysplasia scores were higher in males than in females. Bakir (1992), have been reported that hip-dysplasia scores were 29.56% in males, 39.06% females in Sivas Kangal dogs.

Our study showed that hip dysplasia were same in males and females. This results did not agree with those reported by Bakır (1992), and Wood *et al.* (200a,b and 2002).

Our results show the extent to which the CHD scheme in the Turkey is being followed for Labrador retrievers. Because hip score is likely to be correlated positively with the probability of occurrence and the severity of CHD.

## References

- Alexander, J. W., 1992. The pathogenesis of canine hip dysplasia. *Vet.Clin.N. Am.-Small*, 22: 503-511.
- Aslanbey, D. and A. Candas, 1994. *Veteriner Operasyon, Medisan Yayınevi, Ankara*
- Bakir, B., R. Yucel, S. E. Acar and H. Buyukonder, 1995. Köpeklerde kalça displazisinin tanısında Richter Scalasý ve femur inklınasyon açısının deđerlendirilmesi. *Veteriner Cerrahi Derg*, 1: 7-10
- Bakir, B., 1992. Sivas Kangal köpeklerinde kalça ekleminin displazi açısından klinik ve radyolojik olarak deđerlendirilmesi, (Thesis), İstanbul
- Denny, H. R., 1980. *A Guide to Canine Orthopaedic Surgery*. Blackwell Scientific Publications, Oxford
- Leppanen M. and H. Saloniemi, 1999. Controlling canine hip dysplasia in Finland. *Prev.Vet. Med.*, 42: 121-131
- Ozer, K., B. Bakir and D. Sadalak, 1997. Hip dysplasia in two cats. *Veteriner Cerrahi Derg.*, 3: 53-55
- Ozsoy, S., 2002. Köpeklerde kalça displazisinin tanisi: I. Klinik deđerlendirmeler. *Veteriner Cerrahi Derg.*, 8: 81-88
- Ozsoy, S., 2002. Köpeklerde kalça displazisinin tanisi: II. Radyografik deđerlendirmeler. *Veteriner Cerrahi Derg.*, 8: 89-95
- Piermattei, D. L. and G. L. Flo, 1997. Hip Dysplasia. in: Brinker W.O., Piermattei D.L., Flo G.L. (eds.), *Handbook of Small Animal Orthopedics and Fracture Repair*, W.B. Saunders Co., Philadelphia, pp: 433-465
- Sarierler, M., 2003. Comparison of Ortolani's palpation method, Norberg Angle and subluxation index in the diagnosis of hip joint laxity and hip displasia in dogs. *Veteriner Cerrahi Derg.*, 9: 20-25
- Whittick, W. G., 1974. *Canine Orthopedics*, Lea&Febiger, Philadelphia
- Wood J. L. N., K. H. Lakhani and K. Rogers, 2002. Heritability and epidemiology of canine hip-dysplasia score and its components in Labrador retrievers in the United Kingdom. *Prev.Vet. Med.*, 55: 95-108
- Wood, J. L. N., K. H. Lakhani and R. Dennis, 2000. Heritability of canine hip-dysplasia score and its components in Gordon Setters. *Prev.Vet. Med.*, 46: 87-97
- Wood, J. L. N., K. H. Lakhani and R. Dennis, 2000. Heritability and epidemiology of canine hip-dysplasia score in flat-coated retrievers and Newfoundlands in the United Kingdom. *Prev.Vet. Med.*, 46: 75-86