

EVALUATION OF CANINE ELBOW DYSPLASIA IN 20 DOGS

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Summary: This study is aimed to evaluate the elbow dysplasia by International Elbow Working Group (IEWG) standards. The subject of the study is 20 dogs which are brought to Ankara University, Faculty of Veterinary Medicine, Department of Surgery, and Small Animal Clinic with forelimb lameness due to elbow dysplasia. After clinic and radiographic examination the cases those have lameness with any other lesions accept elbow dysplasia is excluded. Bilgili-Ulusan Lameness Scale is used to grade the lameness. The radiographs were taken in four special positions which IEWG accepts as standard radiographies to score the elbow dysplasia. The radiographic examination is done under general anesthesia. 25 % of all cases is described as 0 degree healthy joint, 5 % is 1st degree, 5 % is 2nd degree and 65 % of all cases are diagnosed as 3rd degree dysplastic joints.

Introduction:

Elbow Dysplasia (ED) is an orthopaedic disease of medium and large breed dogs puppies. The main symptoms are forelimb lameness due to progressive degenerative joint disease (DJD) (1, 2, 3, 7, 12, 14, 17, 24).

There are four main diseases which causes ED. These are Ununited Anconeal Process (UAP), Fracture of Medial Coronoid Process (FCMP), osteochondritis dissecans on humeral medial condyle (OCD) and Elbow Incongruity (EI) (2, 3, 8, 14, 16, 24, 13).

According to Olsson asynchronous growth of radius and ulna is the main cause of OC in elbow joint and the main reason of ED is this asynchronisation (18). According to Wind; the main cause of ED is the abnormal ulnar trochlear notch and due to this, abnormal contact points of anconeal process and medial coronoid process (23, 24, 25). In UAP, there is a decrease growing of ulna and due to this radius grows more than ulna and caput radii displace proximally, as a result of this there is an increased pressure on anconeal process by humeral trochlea. In FCMP, there is an opposite position to UAP. There is a delayed or decreased growth in radius and ulna grows more and due to this, pressure on medial coronoid process of ulna is increased and a step between radius and ulna is seen (2, 3, 14, 17, 24).

Elbow joints have a disadvantage for radiographic examinations. Standard two radiographic views are not enough to evaluate ED and surgeons need some special radiographic positions to diagnose ED (11, 13, 14, 16).

In this study we aimed to evaluate the ED which is not well known by veterinarians, by International Elbow Working Group (IEWG) Scoring System. We aimed to share the results to give a step for further studies of ED.

Material and Methods

This study is carried on 20 dogs that are brought to Ankara University, Faculty of Veterinary Medicine, Department of Surgery, Small Animal Clinic with forelimb lameness. Clinical and radiologic examinations were done. Bilgili-Ulusan Lameness Scoring System is used to evaluate the lameness (Table 1). After these examinations the patients who have a suspicion for ED were included to study.

Lameness Degree	Evaluation
0	Stance and walking is normal.
1	Stance and walking are normal, light lameness when weight bearing.
2	Stance is normal, light lameness during walk.
3	Light problem on stance, mild lameness while walking.
4	Stance is normal, advanced lameness while walking.
5	Stance is abnormal, mild lameness while walking.
6	Stance is abnormal, advance lameness while walking.

Table 1. Bilgili-Uluslan Lameness Scoring System

Four different radiographic views are taken to evaluate ED by IEWG scoring system. These are 45⁰ flexioned Medio-Lateral (ML), 120⁰ flexioned ML, Cranio-Caudal (CC) and Cranio Caudal Medial Oblique (CCMO) views. Radiographic examinations were done under general anesthesia. All these radiographies were evaluated by IEWG scoring system. According to IEWG elbow arthrosis are classed 4 degrees (Table 2).

Normal Arthrosis (0 Degree)	There isn't any sclerosis or osteophytes in elbow joint.
Light Arthrosis (Degree 1)	Sclerosis in ulnar notch and < 2mm oteophyts in the elbow joint.
Mild Arthrosis (Degree 2)	Osteophytes between 2–5 mm in the joint.
Advanced Arthrosis (Degree 3)	Osteophytes > 5mm in the elbow joint.

Table 2. IEWG Elbow Joint Arthrosis Scale

Results

20% of the dogs in this study were German Shepherds, 15% Rottweiller, 15% Turkish Anatolian Shepherd, 10% Golden Retrievers. 25% of all patients had healthy joints as 0 degree, 5% 1st degree, 5% 2nd degree and 65% had 3rd degree elbow dysplasia. 25% of the German Shepherds had healthy elbow joints as 0 degree, 8.33% had 1st degree and the rest 66.66% had 3rd degree elbow dysplasia. In Rottweillers 66.6% healthy 0 degree joints and rest 33.37% 3rd degree ED were diagnosed. 3rd degree ED was diagnosed in all Turkish Anatolian Shepherds. 50% of Golden Retrievers had 2nd degree and the rest had 3rd degree ED. In all 20 joints that are evaluated in the study, FCMP was diagnosed 40%, UAP 15%, OCD 5%, and 10% EI was diagnosed. In German Shepherds 33.33% FCMP, 8.33% UAP, 8.33% OCD, 16.67 EI were diagnosed. All of the Rottweillers and Golden Retrievers had FCMP. In Turkish Anatolian Shepherds 66% UAP and 34% FCMP were diagnosed. According to Bilgili-Ulusan Lameness Scoring System 25% of dogs had 0 degree, 5% 2nd degree, 55% 3rd degree, 5% 5th degree and 10% 6th degree lameness were diagnosed.

Conclusion

Elbow Dysplasia (ED) is an orthopaedic disease of medium and large breed dog's puppies. The main symptoms are forelimb lameness due to progressive degenerative joint disease (DJD) (1, 2, 3, 7, 12, 14, 17, 24,). ED is seen in 46-50% of Rottweillers, 36-70% of Bernese Mountain Dogs, 12-14% of Labrador Retrievers, 20% of Golden Retrievers, 30% of New Foundlands, 18-21% of German Shepherds and in St. Bernards, Irish Wolfshoud, Great Pyrenees, Bloodhounds, Boubiers, Chow Chows and chondrodystrophic breeds (12, 21, 22). In this study 60% of all cases were German Shepherds, 15% Turkish Anatolian Shepherds, 10% Golden Retrievers, 15% Rottweillers. 75% of German Shepherd dogs, 30% of Rottweillers, 50% of Golden Retrievers and in all Turkish Anatolian Shepherds were diagnosed ED. We had different ratios and this is because of all the papers were studied on general breed controls but we included the dogs which were brought to clinic with forelimb problems. Clinical symptoms of ED are starts in 4-10 month age (6, 25). In our study 15% of the cases were 5-6 months, 20% 8-9 months, 15% 1 year, 20% 3 years, 15% 4 years, 8.33% 6 years, 16.66% 10 years age.

Discussion

There are four main diseases which are ethiology of ED. These are UAP, FCMP, OCD and EI. According to IEWG, 4 special radiographic views should be taken to diagnose ED. These are 45⁰ flexioned ML view, 120⁰ flexioned ML view, CC and CCMO views (6, 25). For some authors ML, in extension ML and flexioned ML views are enough to diagnose ED (11, 15). Some authors emphasizes that radiographic examination is not sufficient to diagnose ED, other radiologic imaging systems are necessary such as Computed Tomography (CT) and arthroscopy (15, 16). In this study we had difficulties to diagnose FCMP.

In this study we found that 75 % of patients with forelimb lameness diagnosed ED. Diagnose of ED is complicated and in this study we noticed that direct radiographic evaluation has some disadvantages especially in diagnose of FCMP because of this next step to diagnose ED are CT, arthroscopy and Magnetic Resonance Imaging (MRI) (5, 19, 20)

Genetic factors are the main ethiology of the disease and controlled breeding is important to eradicate the disease. Sharing the knowledge with veterinarians and breeders is the important point. Pedigree recording system for our country is necessary for controlling the disease. Breed controls should be done without any symptoms and be recorded for forward studies and to control the disease.

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