

Short Communication / Kısa Bilimsel Çalışma

The absence of the foramen supratrochleare in German shepherd dog

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Summary: In the present study, the case of absence of the foramen supratrochleare in humerus bones which were in both legs of 10-year-old German Shepherd dog was identified. Morphometric measurements were taken with digital callipers on the bones which were duly carried out a maceration. While calcification areas were not seen in the proximal and corpus parts of right and left humerus; a large calcification of 9,17 mm width and 17,75 mm length was determined in length on the edge of fossa olecrani with the caudal edge of epicondylus lateralis of the right humerus, especially in the distal part. Also, a large calcification area of 5,51 mm width and 14,69 mm length which was overflowed towards the lateral was determined just above the epicondylus medialis of the same humerus. In addition, a wide range of small calcification areas were determined inside the fossa radialis and fossa olecrani. In left humerus, only a few small calcification areas were observed in fossa radialis. In addition to this, these calcification areas may be formed depending on the age of animal.

Key words: Foramen supratrochleare, humerus, dog.

Alman kurt köpeğinde foramen supratrochleare'nin olmaması

Özet: Sunulan çalışmada 10 yaşında erkek Alman Kurt köpeğinin her iki bacağına bulunan humerus kemiklerinde foramen supratrochleare'nin bulunmaması olgusu tanımlandı. Usulüne uygun olarak maserasyonu gerçekleştirilen kemikler üzerinde digital kumpas ile morfometrik ölçümler alındı. Sağ ve sol humerus'un proximal ve corpus kesimlerinde kalsifikasyon alanlarına rastlanmazken sağ humerus'un özellikle distal kesiminde epicondylus lateralis'in caudal kenarı ile fossa olecrani'nin sınırında 9,17 mm eninde 17,75 mm boyunda, aynı humerus'un epicondylus medialis'inin hemen üzerinde 5,51 mm eninde 14,69 mm boyunda lateral'e doğru taşan büyük bir kalsifikasyon alanı belirlendi. Ayrıca fossa radialis ile fossa olecrani içerisinde de çok sayıda küçük kalsifikasyon alanları tespit edildi. Sol humerus'ta ise yalnızca fossa radialis içerisinde küçük birkaç kalsifikasyon alanı gözlemlendi. Buna ilaveten, tespit edilen bu kalsifikasyon alanları hayvanın yaşına bağlı olarak da şekillenmiş olabilir.

Anahtar sözcükler: Foramen supratrochleare, humerus, köpek.

Distal end of humerus (extremitas distalis) is formed by condylus humeri. The concavity on the front face and above of condylus humeri is fossa radialis. And also, the concavity which is on and at the back of condylus humeri is referred to as the fossa olecrani. In dogs, fossa radialis and fossa olecrani are connected through foramen supratrochleare (1, 3, 5, 7, 10, 13). There are lots of studies about the presence or absence of foramen supratrochleare in humans (8, 9, 11, 12) or animals (1, 3-5, 7, 10, 11, 13), especially in dog literature (1, 3, 4, 7, 10). While the foramen supratrochleare was not observed in one-day-old animals in the study of Kahvecioglu et al. (1999), it was defined that the foramen supratrochleare differed at puppies until the age of 3.5 months. While the foramen was shaped on the one side of some puppies's humerus, it was not observed on the other side. The result detected as the formation of foramen supratrochleare was after birth and in parallel to

the fusion of the distal epiphysis of the humerus and the completion of the puppies growth. Trotter (1934) had made the most accepted mechanism on the formation of foramen supratrochleare as Ozturk et al (2000) reports. According to this comment, instability in calcium mechanism during the course of the bone ossification causes weakness on the bone development. Thus, the foramen supratrochleare is formed with the mechanical reaction depending on the hiperextention at the elbow. The aim of the study was to contribute to literature defining the absence of foramen supratrochlerare observed in the humerus of 10-year-age German Shepherd dog.

The humerus bones of each leg of 10-year-old German Shepherd dog taken from a cadaver of which had come to Anatomy Department of Veterinary Faculty, Mehmet Akif Ersoy University. The digital caliper (*Mitutoyo - Digimatic Caliper, 150mm*) was used for



Figure 1 : Front view of the left humerus
 Şekil 1 : Sol humerus'un önden görünümü
 A - Greatest length of humerus.
 E - Breadth (greatest) of the distal end.
 F - Breadth (greatest) of the trochlea humeri.

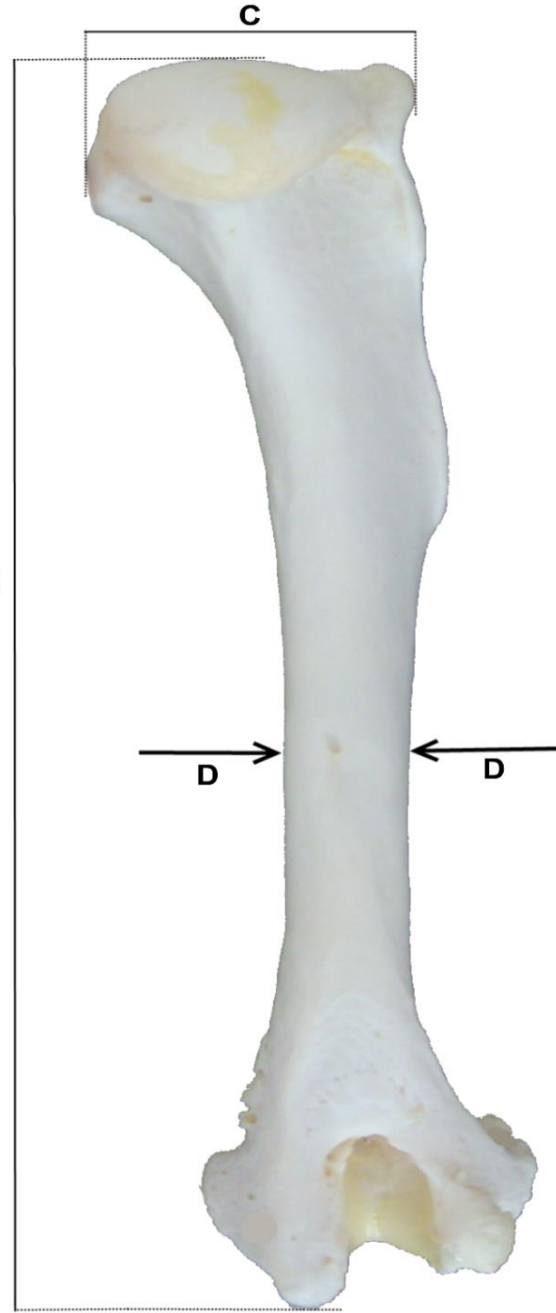


Figure 2 : Back view of the right humerus
 Şekil 2 : Sağ humerus'un arkadan görünümü
 B - Greatest length from caput humeri (head).
 C - Depth of the proximal end. Only in canids.
 D - Smallest breadth of corpus humeri.

the bone measurements of German Shepherd dog which performed maceration appropriate to the literature (14) considering the findings reported by Driesch (1976). The measurements were taken in order to determine the actual size of bones. The photos were taken with a Nikon D80 camera brands. In the study, the terms at the Nomina Anatomica Veterinaria published in 2012 (6) were used as a base.

The hole, foramen supratrochleare, which is shaped by lossing of bone web which is between fossa olecrani, which is in the distal portion of the back of carnivora humerus, and fossa radialis, which is in the distal portion of the front was not shaped on both legs of ten-year-old German shepherd dog (Figure 4). The length between the most extreme point of the cranial portion of the tuberculum majus in the humerus of German

shepherd dog and the most prominent lateral edge of trochlea humeri was measured as on the right side 197.23 mm and on the left side 196.55 mm (Figure 1, A). Also, the most prominent point between caput humeri and condylus humeri was measured and the results were found as on the left side 186.68 mm and on the right side 189.86 mm (Figure 2, B). The measures widest of proximal edge of humerus was found as 52.75 mm on the left side and 49.59 mm on the right side (Figure 2, C). The measurements were taken from the narrowest portion of diaphysis part, which creates corpus of the bone, and were found as 16.18 mm on the left side and 49.59 mm on the right side (Figure 2, D). The measurements were also made in the distal part of the humerus and the widest point between epicondylus medialis and epicondylus lateralis was 41.16 mm on the left and 41.84 on the right while width of the trochlea humeri was 25.32 mm on the left side and 29.22 on the right side (Figure 1, E, F). There were no calcification areas on the bone which was in proximal and corpus of both left and right humerus. However, calcification areas were observed on the various parts of distal portions of both humerus. While these calcification areas observed were 9.17 mm wide and 17.75 mm length on the border with distal edge of the right humerus' epicondylus lateralis and fossa olecrani (Figure 3, H), one more large calcification area of 5,51 mm width and 14,69 mm length which overflowed towards the medial and which was just proximal of the epicondylus medialis of the same humerus was also determined (Figure 3, G). Also, a considerable number of small calcification areas were determined within fossa radialis and fossa olecrani (Figure 3, I). In left humerus, a few small calcification areas were observed just inside fossa radialis.

Foramen supratrochleare generally is not seen in humans and also domestic animals except carnivores. But, rarely this hole can take shape in humans and carnivores. Alike, the mentioned hole was not observed in this study material. Similarly Nickel (1986), Shively and Beaver (1988) was reported foramen supratrochleare was not found in some carnivore. Besides, Kahvecioglu et al. (1999) indicated in their study, which was about the postnatal development of foramen supratrochleare in German Shepherd dogs, that the foramen supratrochleare was formed after birth and shaped in parallel to the fusion of the distal epiphysis of the humerus and the development of puppies, for all that it was found that the foramen supratrochleare was not shaped in 10-year-old German Shepherd dog which formed the study material.

In this case, the absence of foramen supratrochleare on the humerus of 10-year-old German Shepherd dog was presented in detail, it's thought that, this case study will be considered to provide further insight for future research.

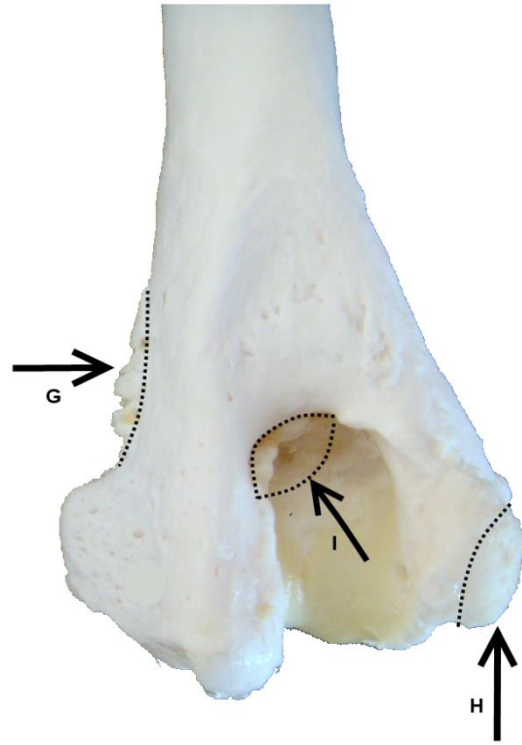


Figure 3 : Calcification areas (G, H, I)
Şekil 3 : Kalsifikasyon alanları (G, H, I)



Figure 4 : Absence of foramen supratrochleare
Şekil 4 : Foramen supratrochleare'nin yokluğu

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