

Left Abdominal Cryptorchidism in a Native Goat

Gülsüm ÖZYİĞİT*

Department of Anatomy, Faculty of Veterinary Medicine, Uludağ University, 16059 Görükle, Bursa - TURKEY

Received: 02.10.2006

Abstract: An 18-month-old native goat with 25 kg bodyweight submitted to the Department of Anatomy from a farm for use in student practicals was diagnosed with cryptorchidism. In macroscopical examination, the cryptorchid testis was near the left kidney. The cryptorchid testis was small, firm, and 31 × 30 mm in size and weighed 11 g, while the right testis, located in the scrotum, was 53 × 29 mm in size and weighed 37 g. Microscopically there was tubular hypoplasia and the capsule of the testis (tunica albuginea) was thicker in the left cryptorchid testis. Cryptorchidism is seen more often in horses, cats, dogs, and pigs compared to other species. This report describes an abdominal left cryptorchid testis in a native goat.

Key Words: Goat, left abdominal cryptorchidism, testis

Yerli Bir Keçide Sol Abdominal Kriptorşidizm Olgusu

Özet: Bu olayda, anatomi uygulaması için bir çiftlikten gönderilen 18 aylık bir yerli erkek keçide sol abdominal kriptorşidizm teşhis edilmiştir. Makroskobik muayenede kriptorşid testisin sol böbreğe yakın olarak yerleşim gösterdiği gözlemlendi. Kriptorşid testis küçük, sert kıvamda, boyutları 31 × 30 mm ve ağırlığı 11 g bulunurken, skrotum içerisindeki normal olan sağ testis 53 × 29 mm ve 37 g ağırlığındaydı. Mikroskobik muayenede kriptorşid testis paransiminde tubuler hipoplazi ve kapsülde kalınlaşma olduğu gözlemlendi. Kriptorşidizm at, kedi, domuz ve köpeklerde diğer türlerden daha fazla görülmektedir. Bu olayda bir keçide sol abdominal kriptorşidizm tanımlanmıştır.

Anahtar Sözcükler: Keçi, sol abdominal kriptorşidizm, testis

Introduction

Incomplete descent of the testis is known as cryptorchidism. Cryptorchidism can be either uni- or bilateral (1), and is usually seen unilaterally (the left testis is retained more often than the right one) (2). However, some studies have shown that left and right testicular retention are almost equal in occurrence (3). Left testicular cryptorchid has intra-abdominal location, while right cryptorchid testis tends to be in the inguinal canal (2). Intersex individuals commonly have cryptorchid testes (3). Cryptorchidism is seen more often in horses, cats, dogs, and pigs compared to other species (2). The condition has low prevalence among the genital abnormalities of goats (4). This report describes an abdominal left cryptorchid testis in an 18-month-old native goat.

Case History

An 18-month-old native goat with 25 kg bodyweight, with no known clinical disorder, was submitted to the Department of Anatomy from a farm for use in student practicals. After the preparation of the cadaver with 10% neutral buffered formalin, routine dissection sets were used for cadaver dissection. When the abdominal cavity was dissected, the left testis was seen to be retained in the abdomen (Figure 1). Normal and cryptorchid testes were fixed in 10% neutral buffered formalin and processed to wax; 5 µm sections were cut and stained with hematoxylin and eosin (H & E).

* E-mail: eren@uludag.edu.tr



Figure 1. Left testis in the abdomen.

Results and Discussion

Macroscopical examination revealed that the cryptorchid testis was near the left kidney. The left cryptorchid testis was small and firm and 31×30 mm in size and weighed 11 g, while the right testis, located in the scrotum, was 53×29 mm in size and weighed 37 g. Microscopically, tubular hypoplasia (Figure 2) was seen in the parenchyma. There was no tunica vaginalis on the cryptorchid testis and its capsule (tunica albuginea) was thicker.

Testis migration from around the kidney to the inguinal ring was at an early fetal age. Although the incidence of cryptorchidism in most species is usually about 1%, for some species it may be as high as 10%. It is usually seen on the left and left cryptorchidism is usually seen intra-abdominal, but, on the right side, there is a tendency for inguinal retention. This condition might be explained by the postponed descent of the left testes compared to the right (2). Cryptorchid testis may be located at any point along its migration path such as near the kidney, in the inguinal canal, or subcutaneously at the external inguinal ring but not completely down in the scrotum, and in the 20% of the left-sided unilateral abdominal cases the epididymis may be located in the

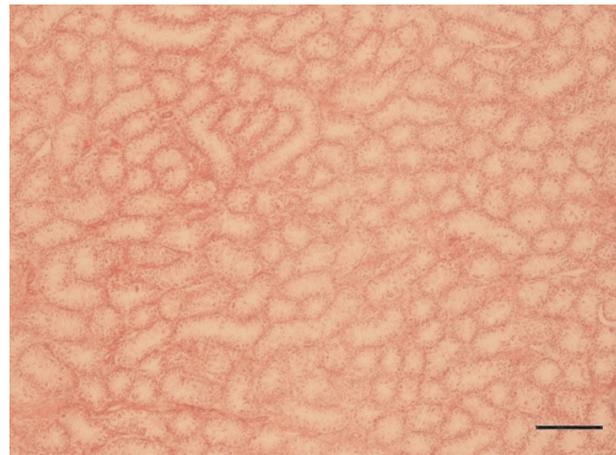


Figure 2. When compared with the normal testis, the seminiferous tubules of the hypoplastic testis have a smaller diameter. H & E, Bar = $37.2 \mu\text{m}$.

inguinal canal even if the testis is in the abdomen (1,2). Some researchers pointed out that renal and urethral anomalies are seen in cryptorchidism cases (5,6) and the likelihood of the retention in the inguinal canal rather than in the abdomen varies from case to case (2). In the present case, both left testis and epididymis were in the abdomen near the kidney and there was no anomaly in the kidney or urethra. The gross and microscopic appearance is related to its location and the age of the affected animal. The affected testis is small and firm, and histologically resembles a severe form of hypoplasia. Hypoplasia of the testis may occur in all animal species and may be associated with cryptorchidism and intersex states (2). Differentiation of testicular hypoplasia from immaturity or a disease or from degeneration is difficult without appropriate history (2). In this case, testicular hypoplasia is associated with cryptorchidism. In unilateral cases, compensatory hypertrophy of the normal testis may occur (2). However, there was no tunica vaginalis and tunica albuginea was thicker in the retained left testis. Abdominal testis does not increase in size with age (2). Testes retained in the abdominal cavity are usually sterile because spermatogenesis requires a temperature slightly lower than the body temperature. The hypoplastic testis may be as small as one quarter of normal size (2). The pathogenesis of cryptorchidism is not clear; however, it is thought to be a hormone-dependent process (2). Normal testicular descent requires both testosterone and Müllerian inhibiting hormone. If testosterone production is abnormal or Müllerian inhibiting hormone is lacking,

failure of testicular descent may occur. The occurrence of cryptorchidism in most species ranges from 1% to 10% (2). Cryptorchidism, the most common internal defect, is particularly common in horses, pigs, and dogs but there are few records regarding goats (4,7). In the present

case, all gross and histopathological features confirmed cryptorchidism. This is a detailed report of left-sided cryptorchidism, an uncommon genital disorder in goats, and the author thinks that this report can be of benefit to investigators studying native goats.

References

1. Colville, T., Joanna, M.B.: The Reproductive System. In: Colville, T. Ed.. *Clinical Anatomy and Physiology for Veterinary Technicians*. Mosby Inc., Missouri, 2002; 318-343.
2. Ladds, P.W.: The Male Genital System. In: Jubb, K.V.F., Kennedy, P.C., Palmer, N. Eds. *Pathology of Domestic Animals*. 4th ed., Academic Press Ltd., London. 1993; 471-528.
3. Acland, H.M.: Reproductive System: Male. In: McGavin, M.D., Carlton, W.M., Zachary J.F, Schreffer, J.A. Eds. *Thomson's Special Veterinary Pathology*. 3rd ed. Mosby Inc., Missouri. 2001; 635-652.
4. Tarigan, S., Ladds, P.W., Foster, R.A.: Genital pathology of feral male goats. *Aust. Vet. J.*, 1990; 67: 286-290.
5. Bishop, M.C., Whitaker, R.H., Sherwood, T.: Associated renal anomalies in familial cryptorchidism. *Lancet*, 1979; 2: 249.
6. King, W.W., Young, M.E., Fox, M.E.: Multiple congenital genitourinary anomalies in a polled goat. *Contemp. Top. Lab. Anim. Sci.*, 2002; 41: 39-42.
7. Dennis, S.M.: Urogenital defects in sheep. *Vet. Rec.*, 1979; 105: 344-347.