

*Case Report*

**HYPOSPADIA AND ASSOCIATED CONGENITAL GENITAL  
DEFECTS IN A JAMNAPARI KID (CAPRA HIRCUS): A CASE STUDY**

**M. Rajashri<sup>\*1</sup>, K. Ram Chandra Reddy<sup>2</sup>, Surabhi Kesharwani<sup>3</sup>, G. Srinivas<sup>4</sup>,**

**J. Razia Sultana<sup>5</sup> and T. Madhava Rao<sup>6</sup>**

<sup>\*1</sup>Ph D Scholar, <sup>2</sup>Associate Professor, <sup>3,4</sup>M.V.Sc,

Department of Veterinary Gynaecology and Obstetrics

<sup>5</sup>PhD Scholar, Department of Livestock Production and Management

<sup>6</sup>Professor & Head, Department of Veterinary Surgery and Radiology

College of Veterinary Science,

P.V. Narsimha Rao Telangana Veterinary University, Rajendranagar,

Hyderabad, Telangana-500030

E-mail: rsri0835@gmail.com (\**Corresponding Author*)

**Abstract:** Hypospadias generally occur as a result of imperfect closure or fusion of the urethral grooves during phallus elongation. The purpose of this case study is to report rare congenital urinary tract anomaly, hypospadias and other associated congenital genital tract anomalies in a jamnapari goat kid.

**Keywords:** Hypospadias, urethral grooves, congenital, genital tract, anomalies.

### **Introduction**

Congenital defects of the urinary tract are not common in farm animals (Dennis and Leipold, 1979). Hypospadias is a rare congenital malformation of the urethra in domestic mammals. Hypospadias generally occur as a result of imperfect closure or complete lack of fusion of the urethral grooves during phallus elongation (Kahn *et al.*, 2005; Radostits *et al.*, 2007). In a survey of the occurrence of congenital anomalies in goats, the occurrence of congenital hypospadias was 0.066% (Al-Ani *et al.* 1998). Hypospadias is accompanied by hypoplasia of the corpus cavernosum urethra, causing the urethra to open anywhere along its length at one or more locations (Alam *et al.*, 2005). The hypospadias is thus classified on the basis of anatomic localization such as glandular, penile, scrotal, perineal, or anal (Ader and Hobson, 1978; Kahn *et al.*, 2005). The purpose of this study is to report a rare congenital urinary tract anomaly, hypospadias and other associated congenital genital tract anomalies in a kid.

### **Case history and Observation**

A five day old Jamnapari kid (Fig. No.1) was presented to TVCC with the complaints of mild depression, stranguria and dysuria through an opening at abnormal location. Clinical

*Received Sep 17, 2016 \* Published Oct 2, 2016 \* www.ijset.net*

examination revealed a slit-like opening of the urethra on the under-surface of the shaft of the penis just anterior to bifid scrotum each containing a normal sized testis (Fig. No.2). Associated genital defects included underdeveloped cord like penis and absence of prepuceal orifice. Anus was present and defecation was normal.

### **Treatment and discussion**

An attempt was made to locate the urethral opening by means of an infant catheter but in vain. During the course of observation, kid has urinated in a projectile manner from an opening at the perineum. Hence, surgical correction was not attempted as the animal was urinating normally and also there was no discomfort to the kid. Owner was advised to bring the animal for follow-up or if at all any complication arises at later stage.

Formation of the external male genitalia is a complex developmental process involving genetic programming, cell differentiation, hormonal signaling, enzyme activity and tissue remodeling (Baskin, 2002). Disturbance in the process of development might lead to disruption of the fusion of the urogenital folds at different sites along the urogenital tract. Environmental toxicants and xenoestrogens acting during fetal life have been partly implicated in an increasing incidence of hypospadias, as well as other reproductive tract abnormalities (Baskin *et al.*, 2001). The aetiology of hypospadias is not well understood; it seems to be multifactorial and may be related to genetic, endocrinological, and environmental factors (Silver, 2000). One possible explanation for increase in the incidence of hypospadias may be environmental contaminations. Farm animals are constantly exposed to estrogenic compounds which are known for their ability to disrupt reproduction, the so called oestrogenic endocrine disruptors (Kim *et al.*, 2004). Surgical correction was not advised in the present case because it was associated with other congenital abnormalities like of underdeveloped penis and agenesis of prepuceal orifice.

Recently, association between environmental oestrogen-like compounds and hypospadias has been suggested (Sharpe and Skakkebaek, 1993). Karyotype and gonadal histological features can be used to characterize this disorder as an abnormality of sexual differentiation.

There is no conflict of interest that could be perceived as prejudicing the impartiality of the case reported.

### **References**

- [1] Ader, P.L. and Hobson, H.P. 1978. A review of the Veterinary literature and a report of three cases in the dog. *J Am Anim Hosp Assoc.*, **14**: 721–727.

- [2] Alam, M.R., Shin, S.H., Lee, H.B., Choi, I. H. and Kim, N.S. 2005. Hypospadias in three calves: a case report. *Vet Med-Czech.*, **50 (11)**: 506–509.
- [3] Al-Ani, F.K., Khamas, W.A., Al-Qudah, K.M. and Al-Rawashdeh, O. 1998. Occurrence of congenital anomalies in Shami breed goats: 211 cases investigated in 19 herds. *Small Rumin. Res.*, **28**: 225-232.
- [4] Baskin, L.S., Himes, K. and Colborn, T. 2001. Hypospadias and endocrine disruption: is there a connection? *Environ. Health Perspect.*, **109**: 1175-1183.
- [5] Baskin, L.S. 2002. Hypospadias and genital development symposium. Advances in experimental medicine and biology. Proceedings of the Hypospadias and genital development symposium. University of California, San Francisco.
- [6] Dennis, S.M. and Leipold, H.W. 1979. Ovine congenital defects. *Vet. Bull.*, **49**: 233-239.
- [7] Kahn, C. M., Line, S. and Aiello S. E. 2005. Urinary System. The Merck Veterinary Manual, 9th ed. Merck and Co. Inc., Whitehouse Station, N. J., USA, pp. 1249–1287.
- [8] Kim, K.S., Torres, C.R.Jr., Yucel, S., Raimondo, K., Cunha, G.R. and Baskin, L.S. 2004. Induction of hypospadias in a murine model by maternal exposure to synthetic oestrogens. *Environ. Res.*, **94**: 267-275.
- [9] Radostits, O.M., Gay, C.C., Hinchcliff, K.W. and Constable, P.D. 2007. Veterinary Medicine. 10<sup>th</sup> Edn., London, Saunders Co., pp. 573.
- [10] Sharma, S.N. and Singh.J. 1995. The Urinary System. In Ruminant Surgery, Eds. Tyagi, R. P. S. and Jit Singh. CBS Publishers, Delhi, India. pp. 272.
- [11] Sharpe, R. and Skakkebaek, N. 1993. Are oestrogens involved in falling sperm counts and disorders of the male reproductive tract? *Lancet.*, **341 (8857)**:1392-5.
- [12] Silver, R.I. 2000. What is the aetiology of hypospadias? A review of recent research. *Del. Med. J.*, **72**: 343-347.
- [13] Yamada, G.A., Satoh, Y.A., Baskin, L.S.B., Cunha, G.R.C. 2003. Cellular and molecular mechanisms of development of the external genitalia. *Differentiation.*, **71(8)**: 445–460.



**Fig.1: Jamnapari kid with multiple congenital anomalies of the urogenital tract.**



**Fig.2: Jamnapari kid showing hypospadias, cleft scrota and agenesis of prepuce.**