

## HYPOSPADIAS AND URETHRAL DIVERTICULUM IN TWO GOAT KIDS: A CASE REPORT

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### ABSTRACT

Hypospadias associated with urethral diverticula are sporadically reported in kids and lambs in Pakistan. During January to June 2012, two goat kids, ranging in age between 3-5 months, were referred to the Surgery Clinic at the University of Veterinary & Animal Sciences, Lahore, Pakistan. The patients showed signs of dysuria, stranguria and urine scalding associated with fluctuating swellings in the penile region; the diagnosis was hypospadias and urethral diverticulum, since urine had leaked into the subcutaneous tissue of the prepuce, forming leaking pockets (diverticula) in both. The opening of the urethra was located at the penile position in both kids. Testicular and penile hypoplasia was observed in one kid, whereas, no other abnormality was observed in the other. In both cases, permanent penile urethrostomy **and diverticulectomy** was performed **in the** region of the defect. **On** opening the diverticulum in one goat kid, **however**, two rudimentary urethral orifices were found, one of which (**a blind pouch**), was closed using a transfixing ligature, **while the other, which communicated with the penile urethra, was surgically opened up for a permanent urethrostomy.** Finally, the urethral epithelium was sutured with the skin using 2-0 Mersilk sutures in a simple interrupted pattern. No post-operative complications were reported by the owners of either animal.

**Key words:** Hypospadias, goat kids, Pakistan.

### INTRODUCTION

Congenital anomalies of the urinary system, such as hypospadias and urethral diverticulum, are reported as sporadic cases in goat kids and lambs (Al-Ani *et al.*, 1998; Dennis and Leipold, 1979; Sharma and Singh, 1995). 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). Many other congenital anomalies usually co-exist, among which urethral diverticula, urethral stenosis, testicular and penile hypoplasia (Alam *et al.*, 2005), and cryptorchidism are more common (Hayes and Wilson, 1986; Rohatgi *et al.*, 1987). 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). This case report describes the clinical findings and surgical treatment of hypospadias associated with penile urethral diverticula in two goat kids.

**Case Presentation:** Two goat kids, ranging in age between 3-5 months, were presented to the Surgery Clinic at the University of Veterinary & Animal Sciences, **Lahore**, Pakistan, with the complaints of anorexia, mild depression, stranguria and dysuria. The

animals showed mild tachycardia (140 beats per minute), however, the rectal temperature and respiratory rates were normal.

On clinical examination, one kid was found to have two urethral diverticula caudal to the tip of the penis, whereas, the other one showed a single inflamed pouch (diverticulum) just beneath the penile tip, with accompanying testicular and penile hypoplasia. Urine dribbling was evident from the prepuce and urethral process **through** the preputial sheath. Urine leakage also occurred from the caudal aspect of one pouch, thus resulting in obvious urine scalding. Abnormalities such as cryptorchidism, hermaphroditism or bifid scrota were not found in either animal, other than penile hypoplasia with a narrowed urethral process. This was suspected to be the cause of stranguria in one kid. Furthermore, this narrowing of the urethral process and penile hypoplasia restricted urethral catheterization in the kid with the single enlarged, **inflamed** diverticulum.

Manual compression of the two diverticula occurring in one kid, revealed subcutaneous urine leakage; due to narrowing of the urethral orifice, only scant amounts of urine could be voided from the external urethral orifice. Contrarily, in the other one, with the single diverticulum, fibrous adhesions between the penis and preputial sheath led to failure of attempts to remove urine from the pouch.

## MATERIALS AND METHODS

Each animal was sedated using Xylaz<sup>R</sup> (Prix Pharmaceuticals, Pakistan), at a dose rate of 0.25 ml per 25 kg body weight. Prior to sedation, atropine sulphate was injected intramuscularly at a dose rate of 0.1-0.4 mg/kg body weight, in order to avoid sinus bradycardia and to reduce gastric **and tracheal** secretions. The site was then clipped, shaved, aseptically prepared using Pyodine Scrub (Brookes Pharmaceutical Laboratories, Pakistan, Ltd.), and finally draped for surgery.

In the kid with two diverticula, penile urethral diverticulotomy was performed after successful urethral catheterization subsequent to amputation of the urethral process. An elliptical skin incision was given on the ventral border of the diverticula. After incising through the subcutaneous tissue, a hypospadiac urethral opening was identified in the caudal diverticulum, and its patency and communication with the urethra were confirmed. The incision was extended over the urethral mucosa, which was finally sutured with the skin, in order to maintain patency of the permanent urethrostomy; simple interrupted sutures using 2-0 Mersilk were applied in this regard.

In the other, 3 month old goat kid with a single but inflamed diverticulum, attempts for urethral catheterization failed completely, due to fibrous adhesions and penile hypoplasia. Hence, in this animal, penile diverticulotomy was performed through a ventral incision over the swollen preputial sheath, and extension of the incision through the subcutaneous tissue, till identification of hypospadiac opening. In this goat kid, two hypospadiac openings, cranial and caudal were identified, respectively. The cranial opening communicated with the external urethral orifice; hence, incisions on the urethral mucosa were extended through this opening, and the skin and urethra finally sutured together through simple interrupted sutures using Mersilk, for a permanent urethrostomy. The caudal opening was rudimentary with incomplete perforation, and was thus sealed through a transfixing ligature placed through the subcutaneous tissue.

## RESULTS

Post-operatively, both kids were monitored through daily administration of **an antibiotic, named Penbionic<sup>R</sup> (M/S Nawan Pharmaceutical, Lahore, Pakistan)** and **an anti-inflammatory medicine, Ketoject<sup>R</sup> (Selmore Pharmaceuticals, Pakistan)** intramuscularly, for 7 days; the suture line was cleaned daily with an antiseptic (Pyodine Antiseptic Solution-Brookes Pharmaceutical Laboratories, Pakistan, Ltd.), and a urethral catheter was left in place for one week by suturing its tip to the preputial skin. Sutures were

removed on the 10<sup>th</sup> post-operative day. The urethrostomy site appeared to be healed without any



Fig. <sup>R</sup> 1. 5-month old goat kid suffering from Hypospadias associated with Two Urethral Diverticula and urine scalding.



Fig. 2. Incision through the diverticula and catheterization through Hypospadiac opening located in caudal Urethral Diverticulum



Fig. 3. Permanent Urethrostomy opening (arrow), created by suturing the urethra with the skin through the single caudally-located hypospadiac opening (5-month-old goat kid). complications, and the animals were reported to be urinating normally.

**Conclusion:** In our experience, hypospadias associated with penile hypoplasia and diverticula, may successfully be treated by diverticulectomy and permanent urethrostomy; however, depending on each case presentation, and the presence of adhesions between the penis and prepuce, amputation of the narrowed urethral process may not always facilitate urethral catheterization. In general, referred cases of hypospadias and urethral diverticula are treated without any reported complications.

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