

Scientific Report

Surgical correction of urethral diverticulum in a female pseudo-hermaphrodite crossbred calf

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Summary

A 40 kg crossbred calf of one month age was presented to the Institute Referral Polyclinic, with a history of dysuria, stranguria along with a fluctuant swelling in the mid-perineal region. On physical examination, a diverticulum was observed which on aspiration revealed urine. It was reported that urine outflow was from a tiny orifice at the proposed natural site of the vulva. Dissection of the skin over the diverticulum revealed hypoplastic penis with adhesion of the preputial sheath along with penile hypospadias. Permanent perineal urethrostomy and diverticulectomy was performed in the region of the defect. The urethral layer was sutured along with the skin using 1-0 Polyamide sutures in a simple interrupted pattern. No postoperative complication was reported till one year of surgery and animal was urinating properly.

Key words: Calf, Pseudo-hermaphrodite, Urethral diverticulum

Introduction

Pseudo-hermaphrodite is defined as an intersex condition characterised with gonads of one sex but external genitalia of the opposite sex, which may vary in degree. It may be classified as either male or female pseudo-hermaphrodite based on the gonads present. The male pseudo-hermaphrodite is much more common than the female pseudo-hermaphrodite (Youngquist and Threlfall, 2007; Smith, 2009). Hermaphroditism occurs most commonly in goats and pigs and less commonly in horses and dogs and occasionally or rare in cattle (Chauhan *et al.*, 2012). Freemartins and female pseudo-hermaphrodites are the most commonly reported intersex conditions in heifer cattle (Padula, 2005). The cause of this condition is not particularly identified since there are many. Translocations of Y chromosome, gene mutation, aneuploidy and sex chimerism are responsible for male pseudo-hermaphrodite. The case of female, pseudo-hermaphroditism occurs as a result of mutation of autosomal recessive gene (Youngquist and Threlfall, 2007; Smith, 2009). Hypospadias and urethral diverticulum rarely occurs in ruminants (Alam *et al.*, 2005). Imperfect closure of fusion of the urethral grooves during phallus elongation leads to hypospadias, in which penile urethra opens ventrally and caudally to its normal opening at any level from the perineum to the tip of the penis (Radostits *et al.*, 2007). It is classified as glandular, penile, scrotal and perineal based on anatomical location

(Ader and Hobson, 1978). This anomaly usually coexists with other malformations (Singh *et al.*, 1989). Surgical correction can be attempted if it is not associated with other malformations (Bokhari, 2013). In this study clinical examination of a rare case of female pseudo-hermaphrodite, hypospadias and urethral diverticulum is described along with its successful surgical correction.

Case description

A one-month-old crossbred calf weighing about 40 kg was referred to Institute Referral Veterinary Polyclinic and brought from the Institute Dairy Farm with a history of dysuria, stranguria along with swelling in the mid-perineal region (Fig. 1). Low urine outflow was observed from a tiny orifice presented at the proposed natural site of penis. A rudimentary scrotum and multiple teats were also present at the ventral perineal region (Fig. 2). On physical examination diverticulum along with subcutaneous fluctuating swelling was observed, aspiration revealed urine, surgical intervention was then undertaken. For this, necessary permission was taken from Institute Ethical Committee. The animal was sedated using Xylazine[®] 0.1 mg/kg/i.m combined with caudal epidural anesthesia given by using Lignocaine HCL 2% (5 ml) in order to anaesthetize the perineum. The animal was kept on lateral recumbency. Mid-perineal site was clipped, shaved, painted with povidone iodine solution and thus

aseptically prepared for surgery. An elliptical skin incision was made on the ventral boarder of the diverticulum. Dissection of skin revealed hypoplastic penis with adhesion of preputial sheath along with penile hypospadias. After incising through the subcutaneous



Fig. 1: Mid-perineal swelling below the anus in a crossbred calf



Fig. 2: Scrotum as well as multiple teats present at ventral perineal region



Fig. 3: Permanent perineal urethrostomy and diverticulectomy; skin and urethral layer was sutured



Fig. 4: Postoperative view of surgical correction

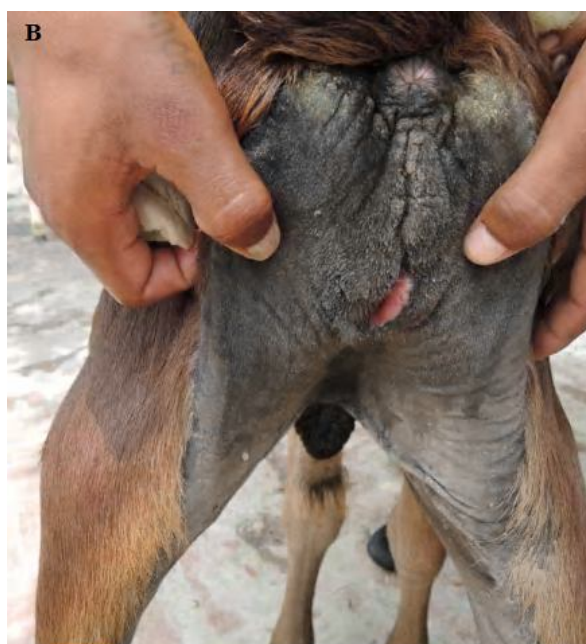


Fig. 5: Urethrostomy site healed without any complication (A), and Vulvar orifice after complete healing (B)

tissue, a keen dissection was extended to free the adhesion of hypoplastic penis to the preputial sheath. Then the urethral diverticulum was exposed and resected close to its caudal end. At the region of defect permanent perineal urethrostomy and diverticulectomy was performed (Fig. 3). The urethral layer was sutured with the skin using 1-0 Polyamide sutures in a simple interrupted pattern. Animal was given broad-spectrum antibiotic and analgesic for 5 days after the surgery. Surgical site was dressed regularly with antiseptic solution and antibiotic ointment (Fig. 4). Sutures were removed on the 12th postoperative day. Urethrostomy site healed without any complications and the animal was urinating properly (Figs. 5A and B). No postoperative complication was reported till 3 months postsurgery.

Discussion

In this case the animal was classified as a typical female pseudo-hermaphrodite, since it had normal teats in the inguinal region. It was observed that a perineal diverticulum was extended in the mid-line of the entire length of perineum. Tuft of hair covered the preputial opening present at the cranial end of the diverticulum. The fibrous adhesions between the penis and preputial sheath along with narrowing of the urethral orifice led to failure of attempts to remove urine from the diverticulum. The skin was inflamed and thickened because of subcutaneous leaking pocket filled with old urine and it could be aspirated from the ventral aspect of the diverticulum. Permanent perineal urethrostomy and diverticulectomy were performed and were found to be a suitable surgical technique for this case as urine outflow was normal and there was no complications postoperatively even after three months of surgery. If hypospadias coexists with other malformations, surgical intervention is not normally recommended (Singh *et al.*, 1989). Whereas, in this case the surgical correction was successful in the treatment of urethral diverticulum

associated with hypospadias in female pseudo-hermaphrodite crossbred calf. Abd-El-Hady (2014) also reported surgical intervention in a pseudo-hermaphrodite calf. It is therefore concluded that if urethral diverticulum is not associated with other malformations, surgical correction can be attempted.

Conflict of interest

There was no conflict of interests with respect to authorship or the publication of this article and there was no financial and personal relationship with other people or organization regarding publication of this article.

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