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Clinical Article

SURGICAL MANAGEMENT OF CONGENITAL DEFECT OF THE EXTRAPELVIC URETHRA AND ATRESIA ANI IN CALVES

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SUMMARY

Two indigenous calves with structural and functional deformity at pelvic region were presented to Veterinary clinical complex, CVAS, Bikaner. Clinical and physical examination revealed atresia ani, hypospadia and rudimentary external genitalia and urethral opening cranial to the bifid scrotum in case-1and hypospadias with rudimentary external genitalia and urethral opening at the ventral perineumin case-2. In both the cases penile and preputial aplasia along with an undescended testis, bifid scrotum, aventrally incomplete sheath with abnormal urethral opening were observed. Skin over the sheath was sutured and urethral patency was maintained in both the case whereas the anal opening was surgically made in case1.

Keywords: Atresia ani, Calf, Hypospadias, Penile aplasia

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Congenital defects are structural or/and functional abnormalities that are present at birth. The frequency of congenital defects in cattle was estimated to be at 0.25% (Leipold, 1983). The most common anomalies are patent urachus, hypospadias, and atresia ani (Temizosylu, 2005). Hypospadias, disorder of sex development, is a sporadic congenital abnormality of the genital region in male ruminants caused by chromosomal aberration and characterized by a non-fused urethra during fetal development. The chromosomal aberration leads to phenotype characters such as hypospadias, growth retardation and ventricular septal defect (Iannuzzi *et al.*, 2020). Affected animals may have other congenitalor developmental anomalies such as undescended, hypertrophied and cryptorchid testis along with hypospadias associated with hypospadias (Alam *et al.*, 2005).

One-day old cattlecalf (case-1) was presented to department of veterinary surgery and radiology, college of veterinary and animal science, Bikaner, Rajasthan with the history of dribbling of urine from an abnormal location and absence of anal opening. In case-2 a six weeks old indigenous mix breed calf presented with signs of urine scalding from ventral perineum. Physical examination of both cases revealed atresia ani, hypospadia and rudimentary external genitalia and urethral opening cranial to the bifid scrotum in case-1 (Fig. 1) and hypospadia with rudimentary external genitalia and urethral opening at the ventral perineum in case-2 (Figs. 2 and 3).

In both cases penile and prepucial aplasia along with an undescended testis, bifid scrotum, a ventrally incomplete sheath with abnormal urethral opening were observed. After physical examination case-1 was diagnosed as hypospadias with atresia ani and case-2 as hypospadias.

In case-1, the calf was sedated with xylazine hydrochloride @ 0.01mg/kg IV. After debridement of edges of post scrotal prepucial defect, skin was closed with simple interrupted pattern by using no.1 silk suture. In prescrotal portion of defect, an opening was left and mucosal urethra was fixed with non-absorbable suture material to skin for passage of urine. Surgery for atresia ani was performed by excision of the bulged portion of skin by circular incision below tail and suturing of anal mucosa with skin usingnon-absorbable suture 1-0 in simple interrupted pattern. In case-2, calf was anesthetized by giving epidural anesthesia (2% Lignocaine) 0.2 mg/kg body weight. Catheterization was done with number8 baby feeding catheter by retrograde method at ventral perineum and proper flow of urine was ascertained. The calf was then placed on lateral recumbency and the caudal abdominal and perineal regions were surgically prepared with 7.5% povidone-iodine surgical scrub. Debridement of the ventrally incomplete sheath was performed and the skin edges were closed with 1-0 non absorbable suture material in cross mattress pattern (Fig. 4).

Postoperatively antibiotic penicillin (20000 IU/Kg) I/M for 7 days and analgesic meloxicam (0.5 mg/kg, once daily I/M) for three days was administered and antiseptic dressing of the suture line was done by povidone iodine. Skin sutures were removed on 10th post-operative day and urinary catheter was removed day 15 post-operation.

Depending on the anatomical location of urethral opening, hypospadias may be classified into three types. The penile form in which the urethra opens ventral and

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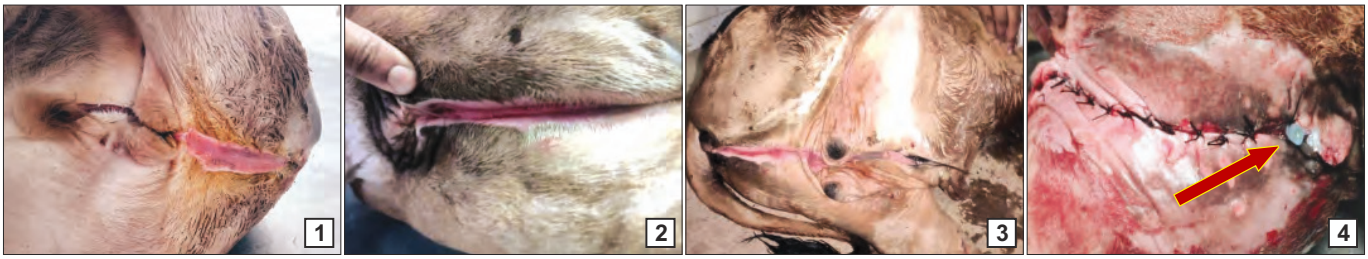

Figs. 1-4. **(1)** Hypospadias with atresiaani(case-1); **(2)** Ventral perineal opening of the urethra in the sheath(case-2); **(3)** Ventrally incomplete sheath and bifid scrotum (case-2); **(4)** Closure of the sheath and urinary catheterization (arrow) (case-2)

caudal to the glans penis that could be proximal, distal, or in the mid shaft of the penis; the second form is scrotal in which the urethra opens between the halves of the divided scrotum and the third is the perineal in which the urethra opens in the perineum (Bleul *et al.*, 2007; Muaz and Javed, 2014). In present study, urethral opening was cranial to the bifid scrotum in case-1 and in case-2 urethral opening was at the ventral perineum.

The clinical findings of present study viz. aplasia of the penis along with an undescended testis, bifid scrotum and ventrally incomplete sheath were similar to that reported by Alam *et al.* (2005). The cause of congenital deformity in present cases was not known, however, it seems to be multifactorial and may be related to genetic, endocrinological, and environmental factors (Sakhaei and Azari, 2009). The male urethra is formed when androgen acts during the urethral formation stage and the female urethra is formed in the absence of its action (Uda *et al.*, 2004).

Post-operative complications such as hypospadias repair include bleeding, hematoma, wound infection, wound dehiscence and urinary tract infection as reported by Stokowski (2004) and Snyder *et al.* (2005) were not observed in present study. The treatment in cases like that of present study is aimed to prevent further complications and ascending urinary tract infection and as these are inherited disorders mostly caused by autosomal recessively inherited genes (Jorgen, 2007), it is advised that such animals should not be used for breeding purpose.

REFERENCES

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.

Bleul, U., Theiss, F., Rütten, M., and Kähn, W. (2007). Clinical, cytogenetic and hormonal findings in a stallion with hypospadias- A case report. *Vet. J.* **173(3)**: 679-682.

Iannuzzi, A., Braun, M., Genualdo, V., Perucatti, A., Reinartz, S., Proios, I., Heppelmann, M., Rehage, J., Hulskotter, K., Beineke, A., Metzger, J. and Distl, O. (2020). Clinical, cytogenetic and molecular genetic characterization of a tandem fusion translocation in a male Holstein cattle with congenital hypospadias and a ventricular septal defect. *PLoS ONE.* **15(1)**: e0227117.

Jorgen, S.A. (2007). Inherited disorders in Danish cattle. *J. Pathol. Micro. Immunol*. **115(s122)**: 1-76.

Leipold, H.W., Huston, K. and Dennis, S.M. (1983). Bovine congenital defects. *Adv. Vet. Sci. Comp. Med.* **27**: 197-271.

Muaz, A. and Javed, S. (2014). An updated review of etiology of hypospadias. *J. Sheikh Zayed Med. Col.* **5(1)**: 569-574.

Sakhaei, E.A. and Azari, O. (2009). Hypospadias in goats. *Iranian J. Vet. Res.* **10(3)**: 298-301.

Stokowski, L.A. (2004). Hypospadias in neonate. *Adv. Neonatal Care.* **4(4)**: 463-472.

Snyder, C.L., Evangelidis, A., Hasen, G., Peter, S.D., Ostlie, D.J., Gatti, J.M., Gittes, G.K., Sharp, R.J. and Murphy, J.P. (2005). Management of complications after hypospadias repair. *Urol.* **65(4)**: 782-785.

Temizosylu, M.D. (2005). Penile urethral diverticulum in a kid. *Ankara Univ. Vet. Fak Derg.* **52**: 185-187.

Uda, A., Kojima, Y., Hayashi, Y., Mizuno, K., Asai, N. and Kohri, K. (2004). Morphological features of external genitalia in hypospadiac rat model: 3-dimensional analysis. *J. Urol.* **171(3)**: 1362-1366.