CASE REPORT

Surgical Management of Preputial Prolapse in Crossbred Bulls: A Report of Five Cases

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Due to pendulous and longer sheaths and excessive preputial skin, certain breeds especially those of the *Bos indicus* or *Bos indicus* cross bulls are prone to prolapse of the prepuce, thus rendering it susceptible to injury or irritation. Prolapse of the prepuce is characterized by the inner lining of its sheath protruding and everting outward, without showing any inclination to retract (Arthur *et al.*, 1996). Small preputial abrasions lead to formation of swelling and edema which in turn exaggerate further preputial prolapse and hence create a vicious cycle, which may worsen the condition and lead to prolapse of additional lengths of prepuce, its trauma or mutilation combined with desiccation of the exposed tissues leading to necrosis (Maxwell and Edmondson, 2009). Preputial prolapses are classified in four categories as per the severity of edema and injury (Prado and Morgan, 2002). The present paper reports category III to IV preputial prolapse which were successfully managed with surgical intervention in five crossbred bulls.

Case History and Observations

In all five crossbred bulls (*Bos indicus* X *Bos taurus*) of age between 5 and 12 years, presented to Devashraya Animal Hospital by Sarvodaya Foundation, Faridabad, Haryana (India) with chief complaint of dysuria and extensive pendulous preputial sheath with prominent swelling (Fig. 1). Clinical examination revealed prolapse of prepuce with edema, fibrosis along with necrotic tissue and multiple lacerated wounds. As per the classification given by Prado and Morgan (2002), all the cases were having preputial prolapse of category III to IV (Fig. 2). All the animals were active and alert with vital parameters recorded within the normal physiological range. It was decided to perform surgical intervention in all cases.

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Fig. 1: Photographs illustrating different case presentation with preputial prolapse

Fig. 2: Photographs depicting prolapsed prepuce category III to IV with lacerations, edema and fibrosis along with necrotic tissue

Surgical Treatment and Discussion

Before the surgery, food and water was withhold for 24 h to reduce the volume of rumen contents, which reduces pressure on the diaphragm and the incidence of regurgitation. Pre-operative antibiotics (Streptomycin-penicillin, Dicrysticin-S, Zydus AHL) @ 10 mg/kg b.wt. and NSAID (Meloxicam) @ 0.4 mg/kg b.wt. were injected intramuscularly 30 min before the start of surgery. Atropine sulphate @ 0.04 mg/kg b.wt. intramuscularly was used as a pre-anesthetic agent, 10 min before sedation. After achieving pre-surgical sedation by injecting Xylazine hydrochloride @ 0.05 mg/kg b.wt. intravenously, the animal was casted in lateral recumbency. All the legs were tied using a casting rope after positioning the animal in right lateral recumbency. Adequate fluid therapy was administered to correct any dehydration and acid-base imbalances.

The surgical site was prepared aseptically by clipping of hairs, scrubbing with diluted povidone iodine solution and draping followed by desensitization of the proposed surgical site by infiltration of 2% lignocaine hydrochloride solution in a circular fashion (ring block) just proximal to the proposed site of incision. A circumferential incision was made just proximal to the proposed site for the amputation of the prolapsed mass in an oblique manner. The oblique incision resulted in an oval orifice, rather than circular to reduce the chances of development of phimosis caused by wound contracture during the healing process. By using synthetic absorbable suture (Polyglactin-910) No. 1, a row of horizontal mattress sutures was applied immediately proximal to the incision line of amputation to check the bleeding from major vessels and for apposition of the tissue. The sutures were applied in an overlapping manner around the entire circumference of the prepuce and were passed from the exposed preputial skin completely through to the preputial lumen and back through both layers of the prepuce. The penis was retracted back manually and hold in the position to avoid penetration or laceration, while applying the sutures to prepuce. The apposition of incised preputial edges was done by using synthetic non-absorbable suture material (polyamide) No. 0 with application of simple interrupted suture pattern (Fig. 3).

Post-operative antiseptic dressing of the surgical wound along with flushing of preputial cavity was performed daily with diluted povidone iodine solution along with the continuation of the same antibiotic and analgesic therapy for a week. Mild to moderate persistence of inflammation along with few blood clots were present at the surgical site for the initial three to four days. All the bulls were recovered uneventfully with removal of non-absorbable sutures on 10th post-operative day without any major complication.

Prolapse of the prepuce is a serious condition in the bull especially with loose and pendulous prepuce found in indigenous breeds and their crosses, and different surgical operations have been described for its correction. This paper outlines a surgical technique that we considered to be a safe and dependable for correcting prolapsed prepuce. Surgical technique followed in these cases lead to uneventful recovery of the animals with comparative less intraoperative haemorrhage and reduced chances of post-operative stricture formation. Karle *et al*. (2011) have reported post-operative stricture formation as the major complication following circumcision technique. Present study showed that the chances of stricture formation during the healing process can be comparatively reduced after giving the oblique circumferential incision in this technique. After resection, the preputial tissue remaining must be twice the length of the free portion of the penis to allow adequate preputial and

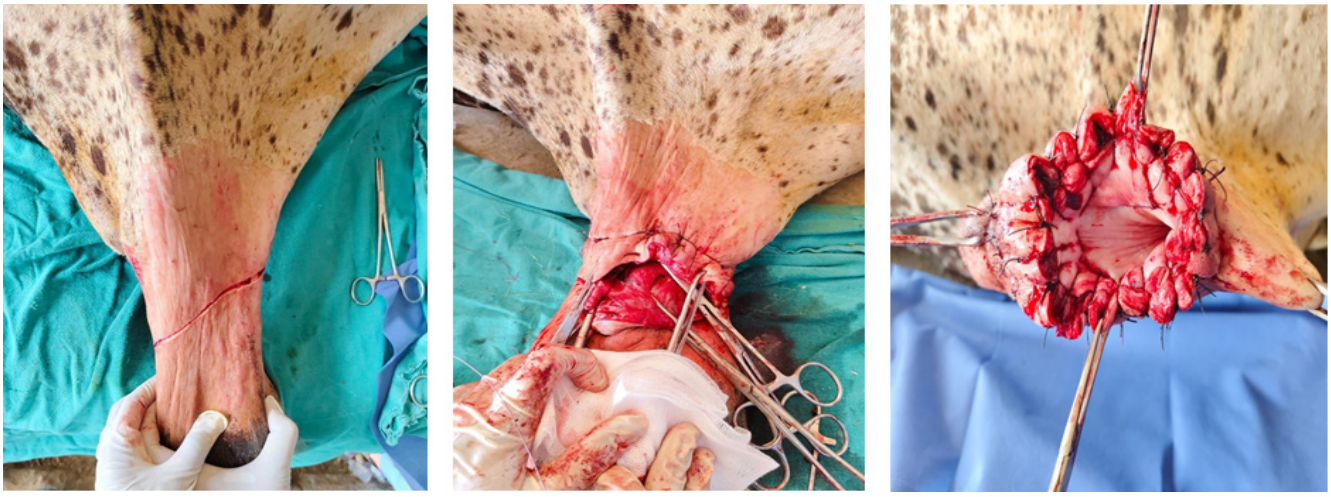

Fig. 3: Intraoperative photographs demonstrating the preputial amputation (circumcision) by giving an oblique incision

penile extension at the time of breeding (Weaver *et al.,* 2005). Soft tissue injury caused by surgical intervention might lead to the development of post-operative inflammation, which was also reported by Padaliya *et al*. (2018).

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