

*Review Article*

**GENITAL PROLAPSE IN BOVINE AND ITS MANAGEMENT**

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**Abstract:** Genital prolapse is a common reproductive disorder in cows and she buffaloes. It is considered as an emergency condition that should be managed immediately in order to avoid complications i.e. edema, trauma, contamination and fatal hemorrhage. The condition is sporadic in occurrence, and easy to diagnose yet its management is not easy, specially in protracted cases. This article discusses principle of 3 R<sup>s</sup> i.e. reduction, reposition and retention.

**Keywords:** Uterine prolapse, cervico-vaginal prolapse, bovine, dystocia.

**INTRODUCTION**

Genital prolapse are most commonly reported in ruminants specially cow, she buffalo, ewe and doe (Patra *et al.*, 2014). It may be defined as inside-out protrusion of one or more urogenital structures (bladder, uterus and vagina) from their normal anatomical position, through the genital (vaginal) opening. Among all prolapse, uterine and vaginal prolapse are frequently observed in cows (Powell, 2007). Vaginal prolapse mostly observed in cross breed cows during pre-partum stage, usually in the last trimester of pregnancy (Roberts, 1971). However Yotov *et al.* (2013) reported post oestral vaginal prolapse in a non-pregnant heifer.

**Uterine prolapse**

Uterine prolapse in cows and buffaloes is a usual outcome of postparturient complication that needs quick attention. It almost always happens within 12 to 24 hours post partum. Uterine prolapse occurs sporadically, dairy cattle appear to be more frequently affected than beef cattle. Major predisposing factor is decreased tone in myometria however other contributing factors can be described as, hypocalcemia leading to uterine inertia which predisposes dystocia (Murphy and Dobson, 2002). Moreover manual traction to relieve dystocia and retention of placenta may initiate uterine eversion of the gravid horns which in

tern leads to complete uterine prolapse after parturition. Uterine prolapse should be considered as an emergency condition therefore rapid response is most crucial part of prolapse management to facilitate replacement, before development of excessive edema, contamination, and mucosal trauma. Additionally, owner should be advised to restrict movement of animal so as to decrease the chance of rupture of uterine artery or avulsion from the internal iliac leading to fatal hemorrhage.

### **Management of uterine prolapse**

A voluminous, congested heavy mass of everted uterus appears outside the vulva, placentomes and possibly attached fetal membranes provide satisfactory diagnosis.

Treatment includes. 1) Animal should be restrained properly to avoid trauma followed by cleansing of the exposed endometrium, preferably with hypertonic solutions or antiseptic solution i.e.  $\text{KMNO}_4$  (1:1000). 2) Low plane epidural anaesthesia prevents straining and facilitates replacement of the uterus. 3) Uterine mass should be lifted in order to allow urination, as during prolapse urethra remains at an acute angle that prevents urination. Therefore lifting the uterus leads to straightening of urethra which allows urination, resulting in additional comfort to animal and reduced straining. 4) Reduction of prolapsed mass can be achieved by using hypertonic solutions i.e aerosol sprays or by using non irritant hygroscopic powders or by use of cold fomentation (dry ice or chilling cold water). 5) Evaluate the surface of the exposed endometrium for trauma, laceration, tearing and perforations, so repair is practiced according to condition. Alternatively, if repair is not possible as in the case of severe necrosis or circumferential lacerations, amputation of the uterus should be considered. Supportive treatment includes administration of  $\beta_2$ -Adrenergic agonist drugs (i.e. clenbuterol, isoxsuprine, ritodrine, and epinephrine) to relax the uterus (tocolysis) which is helpful during reposition (Newman and Anderson, 2005). An intravenous dose of 10 mL of 1:1000 epinephrine alone or diluted with 250 mL of sterile saline administered as a constant rate infusion over 10 minutes (Hopper, 2007). 6). The uterine mass can be manually repositioned by gentle pushing with fist hand simultaneously elevating the mass using palm of other hand. The obstetrician should be patient and not overzealous during reposition. As progress is made, the obstetrician can advance their grip cranial toward the apex of the uterine horn until the uterus is exteriorized. 7). Retention (prevention of recurrence) can be achieved by application of rope truss technique following standard operational procedure described by Kumar (2015). Application of rope truss technique is popular method of retention of genital prolapse in rural areas of India (Sharma *et al.*, 2017).

**Vaginal prolapse**

Wolfe (2009) reported that the vaginal or cervico-vaginal prolapse most commonly occur in the last trimester of pregnancy when placental estrogen production increases. The enhanced estrogen production induces relaxin production leading to relaxation of the pelvic ligaments and adjacent structures, ultimately resulting in edema and relaxation of the vulva and vulvar sphincter muscles. Some cow and buffaloes develop greater relaxation of the pelvic structures near term and with increased abdominal pressure, the loosely attached vagina and the bladder get everted through the vulva. Several predisposing factors responsible for vaginal prolapse can be listed as, atony due to hypocalcaemia, open cervix, slack pelvic ligament and abdominal straining.

**Acute vaginal prolapse**

Initial management including reduction of prolapsed mass and reposition remains same as described under uterine prolapse management however a surfeit of techniques have been described for retention of acute vaginal prolapse including buhner's suture, boot lace sutures and vaginopexy. Above mentioned techniques are used to maintain position of the vagina cranial to the vulva and preferably within the vaginal canal. Retention of birth canal requires restoration of the function of the vestibular sphincter muscles. The sutures must be placed between the hairy to hairless portion of the vulva so that the depth of the suture mimics the effect of the vestibular sphincter muscle. Superficially placed suture may result in insufficient support of the vaginal tissues and persistent or recurrent straining. Persistent straining and recurrent prolapse results in tearing of the vulva (Wolfe and Carson, 1999).

**Chronic vaginal prolapsed**

Chronic vaginal prolapse is mostly associated with tenesmus resulting from constant irritating condition i.e. cervicitis, vaginitis, traumatic wounds on vagina and vulva (Nayak and Samantara, 2010). Retention of chronic vaginal prolapse requires more invasive techniques to stabilize the vagina. The Johnson button and Minchev suture techniques are more suitable for vaginal prolapse associated with excessive sacking of the dorsal vaginal wall. These techniques are invasive therefore continuous post surgical straining may cause rupture of the vagina towards abdomen or moreover causes damage to the sciatic nerve or internal pudendal artery. In these aforesaid methods suture needle (Johnson button) or umbilical tape suture (Minchev) are placed from the dorsolateral aspect of vaginal wall through the sacrotuberous ligament, gluteal musculature, and finally skin. These sutures are

kept in place for 30 to 45 days to stimulate extensive fibrous adhesions, which paves as mainstay to the vaginal vault.

Another easy and least invasive technique is transvaginal cervicopexy, in this method two sutures of no. 3 synthetic absorbable suture are placed over the external os of the cervix after confirming that lumen of the cervix is not penetrated, followed by anchoring to the prepubic tendon (avoid damage to the bladder, urethra, or intestines). Drawback of cervicopexy consist increased chance of urethral damage, increased probability of sepsis of the abdomen or cervix, increased risk of reduction of the lumen of the cervix, and abnormal anatomic positioning. Vaginoplasty and vaginal resection are one of few popular method used for retention of vaginal prolapse. This technique is applied on animal at standing position with low plane epidural anaesthesia. A triangular segment of the dorso-lateral vaginal wall is resected on both sides with the triangles based on dorsal midline followed by suturing of sides. Vaginal resection is performed in the same way as rectal amputation. In this method a vaginal speculum is placed inside the lumen of the prolapsed vaginal canal and then cross-fixation pins are placed through the prolapse mass along with placement of tube to stabilize the segment during surgery. The damaged part of vaginal prolapse is resected followed by end-to-end anastomosis using no. 1 or 2 synthetic absorbable suture material using interrupted suture pattern. Drawback of above discussed method includes contamination, stricture, dehiscence, hemorrhage, abscess, and reoccurrence of prolapse. Moreover animal remains unsuitable for natural service (Meisner and Anderson, 2008).

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