

Management of urinary bladder eversion and perineal laceration in a mare: A case report

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Abstract

A 9 year old Arabian mare was referred to Al Qattara Veterinary Hospital Al Ain, United Arab Emirates with a complaint of hanging of an unusual large mass from the vulva. This mare had unassisted foaling 17 days earlier and a first degree perineal laceration that occurred at foaling was repaired surgically. The mare showed several bouts of colic during the past 10 days and urine was dribbling from the everted mass. The case was diagnosed as eversion of urinary bladder with first degree perineal laceration. The everted mass was replaced back under mild sedation with xylazine and epidural anesthesia. The 1st degree laceration was repaired surgically. The mare had an uneventful recovery.

Keywords: Bladder eversion, mare, perineal laceration.

Introduction

Eversions of the bladder through the urethra have been reported by many workers (Donaldson, 1973; Serth, 1973; Alvarenga, *et al.*, 1995) and

commonly occur during or after parturition in mares (Samper *et al.*, 2007) as urethra in mare is wide and short in length (Dyce and Wensing, 2010). This anatomical feature makes it most vulnerable to eversion. Partial eversion (Peter *et al.*, 1989) and complete eversion (Hentschl and Walton, 1966) of urinary bladder has also been reported in cows. A few workers (Haynes and McClure, 1980; Singh and Bugalia, 2001) have reported eversion of bladder in association with third degree perineal laceration in mare. Other conditions in association with bladder eversion were also documented like hydronephrosis and renal failure (Friesen *et al.*, 1995), herniation of distal jejunum (Peter *et al.*, 1989), uterine torsion and intestinal entrapment in everted urinary bladder (Frazer, 1988) in cows and colic (Wegmann, 1987) in mare.

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Vulvar lip lacerations and perineal injuries may occur due to overstretching during foaling (Held and Blackford, 1997) and graded according to extent of tissue damage. In the present report we describe a case of complete bladder eversion following 1st degree perineal laceration and its surgical correction in a mare.

Case history and description

A 9 year old Arabian mare was referred to Al Qattara Veterinary Hospital Al Ain, United Arab Emirates with a complaint of hanging of an unusual large mass from the vulva. This mare had unassisted foaling 17 days earlier and a first degree perineal laceration that occurred at foaling was repaired surgically. The mare showed several bouts of colic during the past 10 days and urine was dribbling from the everted mass. On physical examination, the mare was straining mildly and was slightly depressed and dehydrated. Her rectal temperature and pulse rate were within normal limits, but her respiratory rate was elevated to 20 breaths/ min. There was tearing of vulval lips and perineal body but anal sphincter was intact. Examination of the protruding mass revealed the structure to be about 18-20 cm diameter; it appeared fluid filled and was hyperemic. The mass, which could be rotated and partially exteriorized, felt firm and edematous but somewhat hollow on deep palpation. Its surface had a mottled dark red color, and was rough and slightly lobulated but devoid of any defects. Vaginal

examination confirmed that the mass was protruding through the urethral opening. The exposed mucosa extended beyond the ventral commissure of the vulva and was confirmed as the everted urinary bladder (Fig. 1). At dorsal surface of everted mass urine dripping from the ureters was noted. The case was diagnosed as complete eversion of urinary bladder with 1st degree perineal laceration.



Figure 1: Everted urinary bladder and 1st degree perineal laceration in mare

Surgical technique

The mare was restrained in standing position and local anaesthesia of perineal region was achieved by caudal epidural block with 8 ml of 2% lidocaine hydrochloride (Lurocaine, vetoquinol, Canada). The prolapsed portion of urinary bladder was washed several

times with diluted povidone iodine and a solution of normal saline mixed with penicillin-streptomycin. The necrotic debris was removed and the mucosal surface was smeared with antibiotic powder and some liquid paraffin was also applied. The mass was squeezed

gently to reduce in size and then manually repositioned back through the urethral orifice (Fig. 2). As reversion of bladder took place completely the urethral opening became visible (Fig. 3) and a purse string suture was applied at the level of urethral orifice using vicryl



Figure 2. Manual repositioning of everted urinary bladder through urethra.

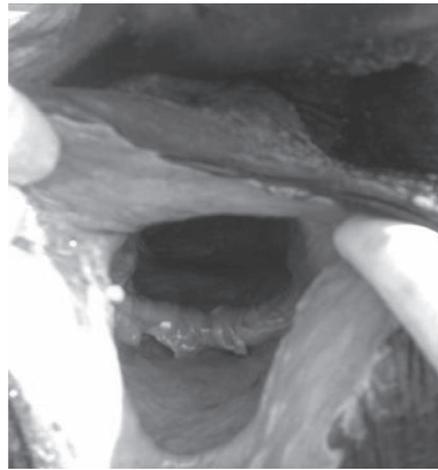


Figure 3. After complete reversion of urinary bladder urethral orifice can be seen



Figure 4. Caslick surgery in mare



Figure 5. Caslick surgery in mare showing vulvoplasty by simple interrupted sutures.

No.2. A thin band of tissue strip approximately 0.5 cm wide was cut with the help of scissors from the mucocutaneous junction of dorsal commissure of vulva in a ventral direction leaving 3-4 cm opening (Fig. 4). The vulval lips were closed together using polypropylene suture material No. 2 in simple interrupted pattern (Fig. 5).

Post operative care

Daily dressing of wound surface was done with help of 5% povidone iodine solution and injection penicillin streptomycin (penstrep, Norbrook U.K.) 20 ml i/m was given daily for 7 days and injection flunixin meglumine (Finadyne, Schering-Plough, Germany) 10 ml i/v was given daily for 5 days along with 3-4 liter 0.9% normal saline and 3 liters of ringer's lactate daily for 3 days. Skin sutures were removed after 15 days.

On the second day onwards the animal did not show signs of straining and colic. Animal started passing urine normally and showed no sign of reversion of urinary bladder and recovered uneventfully.

Discussion

In the present report an immediate repair of perineal laceration was unsuccessful and wound dehiscence was noticed as described previously (Desjardins *et al.*, 1993). Depending on the degree of tissue damage, contamination of wounds and any subsequent swelling or edema, surgical correction should be avoided

immediately. Often a more appropriate closure is possible once the wound has been debrided of any dead tissue and edema has waned. This may take 3-4 weeks. Mares may become constipated, avoiding defecation due to pain associated with the caudal reproductive tract and vaginal contamination with fecal balls results in constant straining and this predisposes the mare to eversion of bladder (Singh and Bugalia, 2001).

Eversion of the urinary bladder occurs in horses after conditions that lead to increased intra abdominal pressure. In the mare urinary bladder is sometimes everted soon after the injury (Beard, 1991; Squires, *et al.*, 1992; Noakes, *et al.*, 2008) but eversion subsequent to surgical repair of third degree perineal laceration 5 months postpartum has been reported (Haynes and McClure, 1980).

First-degree laceration involves mucosa of vestibule and skin of dorsal commissure of vulva causing a change in the conformation of vulva as larger vulval orifice predisposes the mare to wind sucking, pneumo-vagina and uterine infection which are associated with reduced fertility. When these lacerations are limited to the dorsal commissure, adequate repair is usually attained with an episoplasty to prevent wind sucking, pneumovagina and this improves fertility (Van Ittersum and Van Buiten, 1979; Held and Blackford, 1997; Hemberg *et al.*, 2005).

The purpose of surgical intervention for pneumovagina is to prevent the

involuntary aspiration of air and feces into the vagina. A caslick index has been developed to objectively evaluate the need for surgery in mare (McKinnon and Voss, 1993). A vulvometer is used to measure the effective vulva length (L) and the angle of declination (A). The product (LA) represents the Caslick Index. Mares with an index above 100 may benefit from operation and those with an index above should definitely show improved fertility following surgery (Pascoe, 1979). The effect of poor conformation of the perianal area may be corrected by a caslick vulvoplasty operation, developed by Caslick (1937).

Caslick epispioplasty and correction of everted urinary bladder are performed in the standing patient (Beard, 1991) under epidural anaesthesia that enhances handling and correction with reduced straining (Samper *et al.*, 2007). The amount of anesthetic injected is determined by the type of local anesthetic, size and conformation of the horse, and the extent of regional anesthesia required. A total of 6 to 8 ml of 2% lidocaine HCL solution may be required in a mature 450-kg mare (0.26 to 0.35 mg/kg) to anesthetize the anus, perineum, rectum, vulva, vagina, urethra, and bladder (Skarda *et al.*, 2009).

In the present case everted bladder was manually corrected and there was no reoccurrence and no urine pooling was seen. Similar findings were reported previously (Stephen *et al.*, 2009).

The mare was given a course of antibiotics and anti-inflammatory drugs during postoperative period as suggested previously (Singh, and Bugalia, 2001; Noakes *et al.*, 2008) which not only reduces chances of wound infection but also reduce the vaginitis and inflammatory conditions of the vagina, that help in the returning the vagina to the normal shape and contour. The healing was uneventful and the mare had no subsequent problem.

It was Concluded that the eversion of urinary bladder is associated with 1st degree perineal laceration and surgical repair of 1st degree perineal laceration is mandatory.

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