

Surgery for the Urine Pooling Cow

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Before considering surgery for the urine pooler one must first understand why urine pooling is detrimental and what constitutes a diagnosis of a urine pooler. Doing surgery for a urine pooler is of no benefit if the cow has other pathology which is causing her infertility unless these other problems are treated concurrently or in place of urine pooler surgery.

Typically a urine pooler is an older cow which might be expected to have a pendulous uterus. This type of individual often has a tipped pelvis and may have somewhat of a horizontal vulvar conformation. In our study most of the cows were or had been embryo donors.¹ This could indicate a correlation with hormonal therapy but more likely reflects the value of the cow and the continued effort to make a diagnosis and treat this valuable cow. A urine pooler typically has a history of infertility characterized by frequent breeding and no confirmed pregnancies.

Examination reveals a pendulous uterus which is often pulled over the brim of the pelvis on rectal examination. Also on rectal examination, urine (usually in quantities of 1-2 quarts) can be manually expressed from the anterior vagina with rectal message. There may or may not be urine present in the uterus at the time of the examination.

A vaginal exam reveals a varying quantity of urine pooled in the anterior vagina, a more anterior position of the urethral orifice than would be considered normal and often a vaginitis secondary to the urine pooling. On vaginal examination it is important to check for other causes of infertility such as a prolapsed cervical ring or a cervical tear. A uterine culture and / or an endometrial biopsy may be indicated as part of the initial evaluation.

Surgical Procedure

There has been a surgical procedure described to create a fold of tissue in the vaginal floor just anterior to the urethral orifice.² This procedure utilizes a horizontal mattress suture to gather a fold of vaginal mucosa just anterior to the urethral orifice. This fold serves as a dam to help prevent anterior gravitation of the urine within the vagina. Although this procedure may benefit some cows, it has not given satisfactory results in cows with a severe tipping of the pelvis or a very anterior position of the urethral orifice.

The surgery which we prefer for urine pooling in the

bovine is similar to the technique described for the equine by Brown and Colahan.³ The urethroplasty for caudal extension of the urethra is performed with the cow in the standing position. Local anesthesia is achieved by sacrococcygeal epidural injection of 5-7 ml of 2 % lidocaine. It is important to evacuate the fecal material from the rectum and to pack the rectum with a large piece of roll cotton. These two steps help prevent contamination of the perineal area during surgery. The fluid within the vagina is manually evacuated and the vagina is rinsed with a mild solution of tamed iodine. Once epidural anesthesia is complete, the tail is tied to the side of the animal. The total perineal area is clipped and prepped in a routine manner.

The vulvar lips must be retracted with stay sutures, held by an assistant, or by use of a speculum such as a Caslick's mare speculum. The vaginal mucosa is incised in an elongated horizontal "U" along the floor of the vagina with the apex of the incision located about 1 cm anterior to the urethral orifice (Fig. 1). The sides of the incision extend caudally on either side of the urethral orifice to approximately 2 cm from the vulvar lips. It is important that the two sides of the incision are each about 2 cm from the ventral commissure of the vagina. If these incisions are closer to the floor of the vagina the resultant urinary tube will be too small and may cause excessive straining in the post operative period. The submucosa along the incision is undermined by sharp dissection to produce 2 mucosal layers.

The ventral edges of the right and left incisions are then apposed with 2-0 absorbable suture material with a swaged, taper needle in a continuous Lembert suture pattern (Fig. 2). These sutures need to be placed close together and pulled snug to create an intimate apposition of tissue which will prevent urine leakage which is very detrimental to healing and usually leads to fistula formation. This layer of closure essentially creates the urethral extension. The right and left dorsal mucosal layers are then apposed with the same suture material in a simple continuous or horizontal mattress pattern (Fig. 3). This creates the new ventral vaginal wall. With this extension the urine will now be discharged about 2 cm from the vulvar lips and will not spill or gravitate back into the vagina.

It needs to be noted that the most anterior end of the incision (just above the urethral orifice) is very critical in both the dissection and suturing. This area is very thin, between the urethra and ventral vaginal floor, and is often so far cranial in the vagina that dissection and suturing are

FIGURE 1



FIGURE 2

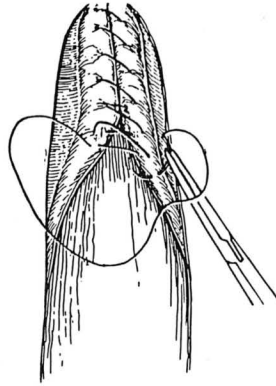
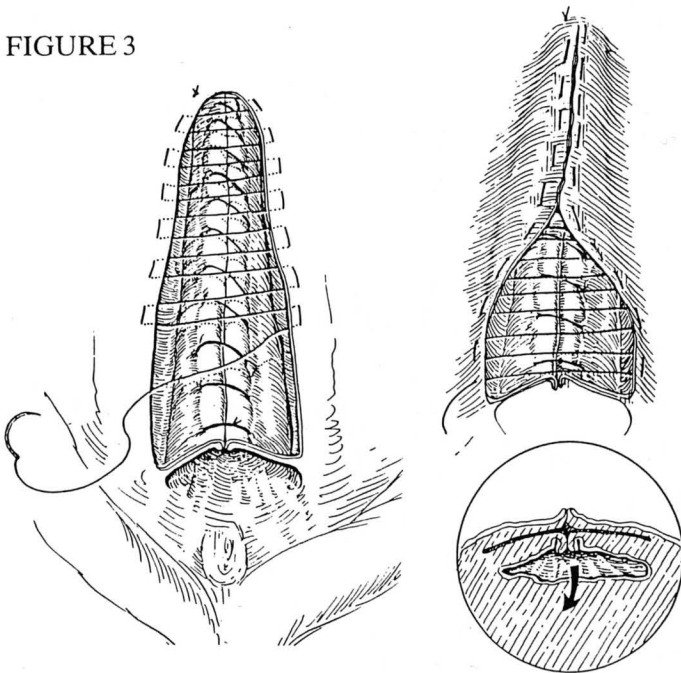


FIGURE 3



difficult. However, this is also the area that is most prone to failure and if a fistula develops in this area the surgery will not be successful.

Post surgically the cow's micturition needs to be observed closely, although if a tube of sufficient diameter has been created this should be no problem. One is often tempted to place an indwelling catheter post operatively, however, the irritation caused by the catheter may cause dehiscence or straining. The use of an indwelling catheter is therefore not advisable. Post operatively, antibiotics are probably indicated, although, the literature cites using antibiotics or not using antibiotics as being up to individual preference.

As horizontal vulvar conformation may predispose a cow to vaginal contamination with feces, the surgeon is often tempted to perform a Caslick's in conjunction with the urethral extension. Please note that a Caslick's procedure in itself impedes the flow of urine and can be counterproductive to a urethral extension. Therefore, it is advisable to wait and see if the urethral extension totally solves the problem or if more surgery is needed. If a Caslick's must be performed it should be a very minimal Caslick's and not extend down over the newly created urethral orifice.

Although it is necessary for correction of the urovagina before successful breeding to take place, complete evaluation of the cow's reproductive tract should be performed before surgery. The presence of chronic vaginitis, cervicitis, endometritis, cystic ovarian disease and other reproductive problems must be assessed to allow a more accurate prognosis for future breeding soundness. Surgical failure of the urethral extension is often a result of these secondary complications. Therefore, if they are not fully evaluated and treated concurrently, a successful outcome cannot be expected.

Bibliography

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