

# A Modified Caslick's Procedure for Closure of the Dorsal Vulva in the Cow

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## Summary

Surgical repair with closure of the dorsal commissure of the vulva in the cow has been used extensively for some time.<sup>1</sup> This elective procedure is used to correct cases of pneumovagina with associated vaginitis resulting from excessive vulvar stretching or tearing during the birth process. Individual poor vulvar and/or pelvic conformation may also predispose to pneumovagina with anterior vaginitis resulting from the pooling of feces and/or urine. These animals are also candidates for this surgical procedure.

## Materials and Methods

The procedure is initiated by clipping the hair over the first movable joint of the cranial coccygeal vertebrae. By properly clipping this area, the injection site can be precisely identified thereby preventing bacterial contamination by digital palpation prior to needle insertion. This minimizes the possibility of ascending meningitis resulting from the epidural block. Surgical preparation of the area for epidural injection consists of three surgical iodine scrubs followed by an application of 70% alcohol on cotton. Four cc of 2% lidocaine and 2 cc of air are injected into the epidural space through a 1.5 inch 18 gauge needle attached to a 12 cc syringe.<sup>2</sup> The needle should remain attached to the syringe during insertion into the epidural space to prevent contamination of the needle hub. Needle placement is best achieved by placement of the operator's forearm on the animal's gluteal region. The needle is inserted at an approximate angle at 15° from the vertical. The syringe plunger is very easily depressed if needle placement is correct. After injection, the needle is withdrawn and a drop of surgical iodine scrub is deposited on the injection site. Anesthesia is achieved when the animal's tail becomes limp. The tail is then secured to the cow's neck.

The surgical site extending from the ventral aspect of the animal's tail to well below the ventral commissure of the vulva is prepared for surgery with three surgical iodine scrubs. The surgeon's hands are then scrubbed with three surgical iodine scrubs and vinyl or latex exam gloves are placed on the surgeon's hands.

The surgical site over the dorsal commissure of the vulva is assessed to prevent excessive tissue removal. Closure of the

**Figure 1.** An example of a cow's vulva prior to the third yearly Caslick's procedure performed four weeks post partum.



vulva should extend ventrally one finger's width below the dorsal aspect of the ischial arch if possible. Excessive vulvar closure will predispose to pooling of the urine in the anterior vagina.

A curved angiotribe or a curved carmalt is then applied to the dorsal aspect of the vulva incorporating the tissue at the mucocutaneous junction. This instrument is placed in such a fashion that the tip is just dorsal to the dorsal commissure of the vulva. Only that amount of tissue to be removed is confined in the clamp. The most ventral aspect of this instrument's application is placed as described earlier. The box lock of the clamp is closed. Using a sharp scissors, the tissue within the instrument is removed cutting on the lateral side of the clamp. Following the tissue removal with the scissors, the box lock is opened and the excised tissue is removed from the jaws of the clamp. The curved instrument is then re-applied to the opposite vulvar lip in the same

manner and the same amount of tissue is removed as described.

**Figure 2.** *Initiation of tissue removal prior to suturing. This procedure becomes slightly more difficult with successive procedures on the same animal.*



After this procedure is completed, suturing is initiated with either an S-curved spay needle three inches in length or a  $\frac{3}{8}$ ths curved cutting edge needle. Either needle is armed with Vetafil®. The suture pattern is a standing figure 8 technique, placing the first suture at the most dorsal aspect of the excised area. Care should be taken to be certain that the suture placement will correctly accommodate apposition and allow for closure of both sides equally at the ventral portion of the excised area. The standing figure 8 suture pattern is initiated by inserting the needle on either the right or the left side through the skin. The needle point is brought out at one half of the thickness of the removed tissue area. The needle is then brought across to the opposite side and inserted at a point of one half the thickness of the removed tissue area and is brought out of the mucosal surface. The suture procedure is reversed on the opposite side by inserting the needle through the mucosal surface. The needle is then brought out at a point one-half thickness of the excised area. The suture is completed by inserting the needle into the opposite side at one-half of the removed tissue area and passing it through the skin. A surgeon's throw and knot with several throws is then placed to complete this individual suture. A total of three to five standing figure 8 sutures are usually required to complete closure. Approximately two inches of suture material is left on each knot to facilitate later identification and suture removal. Sutures are removed in fourteen days.

**Figure 3.** *The standing figure-8 suture pattern. (Note: traction on the surgical site to illustrate this suture pattern created asymmetry.)*



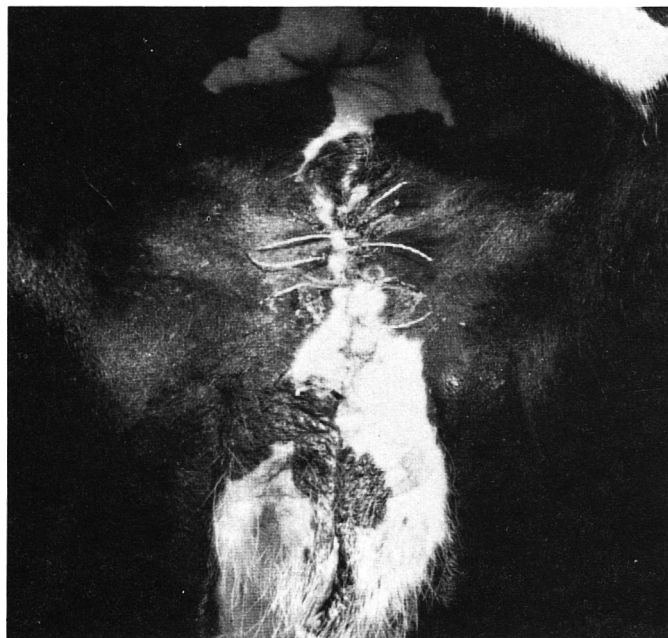
Following completion of the suturing pattern all blood is removed from the suture line by blotting with a clean, dry paper towel or gauze pads. The space between each suture is opened by inserting an index finger inside the vulva and elevating the entire incision line. Nexaband® is then applied between each suture and the apposing tissue should immediately be pressed back together thereby sealing the incision line. Nexaband® should also be applied to each suture where it passes through the skin. The unsutured ventral portion of the vulva should always be examined after the application of Nexaband® has been completed. Overflow of Nexaband® may seal this area and reduce or prevent normal urine flow.

**Figure 4.** *Elevation of the suture line with an index finger prior to application of Nexaband®. Each space between sutures is immediately brought into apposition to ensure closure.*



An antibiotic effective against Gram-negative bacteria should then be administered through a treatment pipette into the anterior vagina.

**Figure 5.** *The completed surgical procedure.*



The advantages of this procedure are that it allows 1) ease of tissue removal, 2) uniformity of tissue removal, 3) ease of suturing, 4) uncomplicated healing with no fecal contamination as a result of the use of Nexaband®, 5) ease of calving without the need of an episiotomy because the healed suture line opens uniformly, and 6) ready resuturing either immediately following parturition or after associated swelling has subsided.

**This surgical procedure has been used extensively for twenty-four years. Nexaband® was used on the incision line following surgery on the most recent 210 animals selected for this procedure with less post surgical swelling. This is attributed to the prevention of fecal contamination by the use of Nexaband®, a cyanoacrylate.**

#### References

1. Roberts, S.J. 1956. *Veterinary Obstetrics and Genital Diseases*. Edwards Bros. Inc., Ann Arbor, Michigan.
2. Held, S.E. 1978. Personal Communication.

## 6th International Congress in Animal Hygiene June 13-17, 1988, Skara, Sweden

The International Society for Animal Hygiene will arrange its 6th international congress from the 13th to the 17th of June 1988. The meeting will take place at the Department of Animal Hygiene, Faculty of Veterinary Medicine, Swedish University of Agricultural Sciences, Skara, Sweden.

The main theme for the congress will be "Animal environment — Animal health". Under this heading different topics will be dealt with, e.g. the role of environmental factors (management, buildings, climate etc.) for the etiology of animal diseases, epidemiological and ethological methods for evaluation of connection between environmental factors and animal health and disease. There will also be a section for free topics.

Scientists and practitioners active in this field are invited to participate in this congress. More detailed information regarding the programme, a form for preliminary application, etc. will be sent out before the end of 1986.

Further information from:

Secretariat

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**Editor's Note:** Dr. John F. Anderson, Department of Large Animal Clinical Sciences, College of Veterinary Medicine, University of Minnesota is the U.S. representative on the executive board. Dr. Anderson is a member of the AABP.