

Surgical Management of the Infertile Cow

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Urovagina

Urine pooling in the cranial portion of the vagina is termed urovagina and is an occasional cause of infertility in cows. The urine contamination of the vagina and cervix causes a chemical vaginitis and cervicitis and may lead to secondary bacterial infection (2 out of 7 cows cultured positive, both for *E coli*). Also, the urine is spermicidal. Chronic infertility is the common complaint. Approximately 70% of affected cows have an abnormal vulvar conformation. Abnormal conformation is more commonly seen in older cows (mean age of urovagina cows was 7.9 years) and may be over represented in embryo donors (86%). Surgical correction is done with the cow standing and with epidural anesthesia (lidocaine 2%, maximum 0.5 cc / 100 lbs; or xylazine epidural @ 0.05 mg/kg). A "V" shaped incision is made starting lateral to the urethral opening and at the ischial arch and continuing cranial to the urethral opening and then back to the ischial arch of the opposite side. A "shelf" is created by suturing the incisions together in two layers. The first layer (ventral shelf) is constructed by the ventral most margin of the incision. The dorsal shelf is created by suturing the dorsal margins of the incision together. I prefer to use No 2-0 monocril or PDS in a continuous suture pattern. Accurate tissue closure is critical to prevent the formation of a fistula through the shelf (usually in the cranial 1/3 of the incision). Of 14 cows undergoing surgery for urovagina, 11 (79%) were able to conceive or have viable embryos collected. Two cows had persistent urine pooling.

Unilateral Ovarian or Oviduct Pathology

Ovariectomy is indicated for the treatment of irreversible unilateral ovarian, oviductal, or uterine horn pathology so that opportunities for pregnancy or embryo collection can be improved. Ovariectomy may be performed via colpotomy if extensive dissection is not

required or the ovary is not tremendously enlarged. Colpotomy is performed with the cow standing with epidural anesthesia. Paralumbar fossa celiotomy and ovariectomy may be performed if the ovary is enlarged (an ovary with granulosa cell tumor measured 25 x 15 x 10 cm in a 15 month old Holstein heifer) or severe adhesions are present.

Chronic Vaginal Prolapse

Although Buhner's suture and other methods of fixation give temporary relief from vaginal prolapse, chronic vaginal prolapse, such as seen in older embryo collection cows after years of hormonal therapy, requires more invasive techniques to stabilize the vagina. I do not use the Johnson button or Minchev techniques because these techniques are traumatic and may result in tearing of the vagina into the abdomen because of chronic straining after surgery. I prefer to perform either cervicopexy or vaginoplasty. Vaginoplasty is extremely effective in the elimination of vaginal prolapse, but prevents the cow from being used in natural service or going through normal parturition. This technique is done with epidural anesthesia with the cow standing. A triangular segment of the dorsal lateral vaginal wall is resected on both sides with the triangles based on the dorsal midline. Then, the sides are sutured closed together. The vaginal wall resection should only leave enough room for embryo flushing equipment to be passed through the vagina. Cervicopexy may be performed by transvaginal or transabdominal route. Two sutures of No 3 vetafil are placed through the cervix (being careful not to penetrate the lumen of the cervix) and are anchored to the prepubic tendon (being careful not to entrap the bladder, urethra, or intestines). The cow should be rested for 30 days after surgery before insemination or breeding activity is resumed. I only recommend treatment of chronic vaginal prolapse when there is a history of chronic hormonal manipulation. Other vagi-

nal prolapses have a high heritability and these cows should be culled.

Perineal Lacerations

Complete perineal lacerations occur during dystocia and most commonly affect heifers (10 of 15 cows). Surgical correction of perineal lacerations should not be attempted until the margins of the initial wound have granulated or healed. Often, these cows are presented for infertility without owner awareness of a recto-vaginal fistula. Failure to reconstruct the perineum may result in permanent infertility (one cow was followed for 24 months after diagnosis and failed to re-breed). Surgical closure of the defect is highly successful (71% of cows with complete laceration and 75% of cows with recto-vaginal fistula returned to breeding soundness after surgery). Reoccurrence of the laceration or fistula

at subsequent calving was not observed in any cow. Perineal repair is done in a one-stage procedure under epidural anesthesia with the cow standing. I prefer to use No 2-0 PDS or No 3-0 monocryl in an interrupted circumferential suture pattern for repair. The cow should be rested for 30 to 45 days before attempting re-breeding.

References

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Abstract

Role of infected, non-diseased badgers in the pathogenesis of tuberculosis in the badger

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The lungs and kidneys of 15 badgers which had no visible lesions of tuberculosis but from which *Mycobacterium bovis* was isolated from pooled collections of lymph nodes were serially sectioned. Lesions of tuberculosis were detected by histopathology in the lungs of 13 and in the kidneys of one of them. The lesions were mostly typical early stage granulomatous lesions but

seven animals had fibrosed lightly calcified lesions which were considered to be the primary foci of infection. These lesions suggest an early containment phase of arrested development previously not observed and provide further evidence on which to propose a hypothesis for the pathogenesis of tuberculosis in the badger.