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# Surgical Removal of a Mummified Fetus via Colpotomy

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## Abstract

Fetal mummification is an uncommon, but clinically significant reproductive malady of the bovine. The cow is often culled when a mummified fetus is diagnosed. However, attempts at treatment are justified for cows of genetic merit. Medical therapy with prostaglandins alone or in conjunction with estrogens is the time honored treatment of choice. Surgical removal via hysterotomy is an option when medical treatment has failed. Traditional surgical approaches (ventral midline or flank) typically do not provide adequate exposure to a uterus with a small "mummy". A vaginal approach provides good exposure, and can be performed while the cow is standing. The vaginal approach (colpotomy) has been used in the cow and mare for the removal of ovaries, and is not associated with a higher rate of complication than other surgical approaches. Limited experience with surgical removal of mummified fetuses would indicate that subsequent fertility is similar to cases responsive to medical treatment.

## Résumé

La momification fœtale bien que peu commune chez les bovins est une maladie reproductive cliniquement significative. Suite au diagnostic de momification fœtale, la vache est souvent réformée. Toutefois, il est justifié de tenter un traitement pour les vaches au mérite génétique élevé. La thérapie médicale avec les prostaglandines seules ou conjointement avec des estrogènes représente le traitement le plus souvent utilisé. Lorsque le traitement médical ne fonctionne pas, le recours à l'excision chirurgicale par hystérectomie demeure une option. Pour les veaux momifiés de petite taille, l'accès à l'utérus n'est généralement pas adéquat par les voies chirurgicales traditionnelles (par le flanc ou la ligne médio-ventrale). L'approche vaginale permet une bonne exposition et peut être faite sur la vache debout. L'approche vaginale (la colpotomie) a été utilisée chez la vache et la jument pour l'excision des ovaires et n'est pas associée avec un plus haut taux de complication que les autres approches chirurgicales. Bien qu'il y ait peu d'information à ce sujet, il semble que la fertilité suite à l'excision chirurgicale des fœtus momifiés soit la même que celle rapportée dans les cas où le traitement médical était utilisé.

## Introduction

Fetal mummification is an infrequent finding when cows are palpated rectally to diagnose pregnancy or to elucidate a cause of anestrus. Diagnosis can be made from palpation findings, including an enlarged uterine horn with a palpably hard intrauterine mass devoid of fluid. If the ovaries can be reached, a corpus luteum is often present on the ovary ipsilateral to the enlarged horn. Fetal maceration is a possible differential, and because they are typically of longer duration and create more damage to the endometrium, the prognosis for return to fertility is poorer than for cows with a mummified fetus. A decision to cull or attempt treatment of cows with a mummified fetus is typically made at the time of diagnosis. Because medical treatment is both economical and generally successful, it should always be attempted prior to surgical intervention. A luteolytic dose of prostaglandin F2$\alpha$ or any of its analogues is the medical treatment of choice.[1] An estrogen has been utilized in the past, presumably to aid in cervical dilatation, however, there is currently no estrogen approved for cattle. It is worthwhile to repeat medical treatment several times before resorting to either surgery or culling.

A larger (greater than 12 inches [30 cm] long) mummy can be removed via hysterotomy utilizing either a flank or ventral mid-line approach. Most are so small that these approaches do not provide good exposure. A vaginal approach (colpotomy), as described previously for ovariectomy via colpotomy in the mare[4] and recently for this specific condition by Irons,[3] has provided a good option when medical therapies fail.

## Case Report

Over a four-year period, three cows (Jersey, Holstein and Hereford) ranging from five to eight years of age were referred to the Animal Health Center (AHC) at the College of Veterinary Medicine at Mississippi State University. Each cow had been diagnosed as having a mummified

fetus by the respective referring veterinarian. All had been treated with prostaglandins without success at least once prior to telephone consultation, and again with prostaglandins (25mg IM) following an estrogen injection[b] (5mg, IM). The cows were referred to the AHC for surgical removal of the mummies. On admission to the AHC, a diagnosis of retained, mummified fetus was confirmed via rectal palpation. The owners elected surgery to resolve the problems. Additionally, the mummified fetus in each cow was less than 12 inches long, so exposure through a lateral flank approach would be difficult, but could be accessed through a colpotomy approach.

## Surgical Procedure

Each cow was restrained in a chute. It was assumed that it would be advantageous to fast the cow (removing feed 24 hours and water overnight), but that was not done in every case and no difference was noted. While the level of sedation or tranquilization is dependent on the patient's demeanor, in each case 5mg of aceproma-zine and 10 mg of xylazine was given IV (tail vein). Epidural anesthesia was then administered (5 ml, 2% lidocaine), and the rectum evacuated as effectively as possible. A length of three-inch stockinet packed with cotton was then placed within the rectum. The vulva was cleaned and prepped with povidone iodine scrub,[c] and the vagina prepped by lavaging with dilute chlorhexidine disinfectant solution. Using dampened cotton pledgets, the vaginal vault was dried. A pneumovagina was created by introducing or allowing air in to facilitate the procedure.[2] Creating a pneumo-vagina stretches the vaginal wall and helps control the depth of the incision. With the blade carefully guarded between finger and thumb, a hand was introduced into the vagina and a small stab incision was made in the anterior vagina dorso-lateral (10 o'clock) to the cervix. Then removing the hand and re-entering the vagina without the blade, the incision was bluntly enlarged, first with fingers and then hand until the entire hand was introduced into the abdomen. At this time the uterus was easily palpable, and the horn with the mummy was grasped and retracted through the rent created in the vagina (Figure 1). Once the serosal surface was exposed, an incision was made into the uterus, the mummy extracted, and the uterus closed utilizing an inverting suture pattern with size 0 catgut. The uterus was then replaced. The rent in the vagina was not closed on two of the cows, but was closed with a continuous suture pattern on the other. There was concern that the tenesmus that occurred during the operative procedure might become excessive and lead to post-operative eventration.

## Discussion

This surgical procedure or approach can be performed both easily and economically. It is a practical management option for the cow with a mummified fetus that does not respond to medical therapy, and is of a size that does not lend itself to removal by a flank or ventral mid-line hysterotomy. All three cows in this report resumed normal estrous cyclicity, and uterine involution occurred with a return to a normal uterine size. One cow did not become pregnant after multiple AI attempts, and was culled about a year after surgery. The second cow was lost to follow-up, and the third cow was utilized as an embryo donor. Given the small number and mixed results, it is clear that a guarded prognosis for return to fertility should be made. However there is no reason to believe that these results are worse than those after medical management. This procedure, when utilized as indicated, offers an option to the owner of a cow of genetic merit with this condition.

**Figure 1.** Uterine horn containing mummy exposed through incision made in cranial vagina.

## Endnotes

[a] Lutalyse, Pfizer Animal Health, New York, NY 10017.
[b] ECP Sterile Solution, Pharmacia Animal Health, Kalamazoo, MI 49001.
[c] Betadine® Surgical Scrub, Purdue Frederick Co, Stamford, CT 06901.

## References


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