How to Remove Large Endometrial Cysts With an Improvised Snare: A Simple Technique for Practitioners

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1. Introduction

Uterine cysts are fluid-filled structures in the endometrium that are typically diagnosed by ultrasonographic examination per rectum. Two types of uterine cysts are described: glandular and lymphatic. Glandular cysts are reported to range in size from a few millimeters to 1 cm in diameter and occur with distention of glands as a result of decreased flow of secretions secondary to periglandular fibrosis. Lymphatic cysts are reported to range in size from several millimeters to 20 cm and result from obstruction of lymph channels. It is possible that lymphatic cysts also occur from pooling of lymph in multiparous mares from the gravitational effects of an enlarged, gravid, or post-partum uterus.

The incidence of uterine cysts has been reported to be 22–55%, and it is highly dependent on the population of mares. There is an increase in incidence with age, reflecting senility of the uterus and presence of other endometrial disorders. In one report, mares that were 11 yr of age or older were 4.2 times more likely to have endometrial cysts than those <11 yr of age. Another study of 259 mares in good health found the incidence of uterine cysts to be 22.4%; however, 73.1% of the cysts were found in mares >14 yr of age.

Although uterine cysts result from chronic, degenerative changes in the endometrium, their clinical significance remains controversial. Small cysts seem to be of little consequence, but their presence often suggests other uterine pathology. Larger or more numerous cysts seem to have a greater clinical significance. A single large or numerous smaller cysts may interfere with the mobility of the embryonic vesicle, leading to failure of maternal recognition of pregnancy. In addition, cysts located at the base of a uterine horn may interfere with nutrient exchange if the embryonic vesicle fixes in contact with the cyst. This decrease in nutrient exchange may increase the rate of early embryonic loss. One study reported an increase in embryonic loss when >5 cysts were present. It is speculated that placental exchange may be reduced in mares with numerous, large cysts, which can lead to inadequate placentation. Occasionally, the presence of cysts may interfere with the diagnosis of pregnancy or lead to the misdiagnosis of twin pregnancies.
Deciding whether or not to remove cysts can be difficult. The risk of damaging the uterus during removal must be weighed against the possibility of decreased fertility. Treatment is recommended for mares that fail to conceive over multiple cycles when other causes of infertility cannot be identified, mares with large cysts that may prevent embryonic mobility, or mares that have cysts that may otherwise compromise the mare’s ability to carry a foal to term. Techniques described for managing uterine cysts include manual rupture by transrectal or transcervical palpation, endometrial curettage, puncture by uterine biopsy forceps, snare electrocoagulation, Nd:YAG laser ablation, and repeated uterine lavage with warm hypertonic saline or magnesium sulfate solution. Wolfsdorf described a procedure to remove cysts using a snare fashioned from gigli wire and a steel double-mare catheter.

The objective of this paper is to present a simple technique for removing large, pedunculated endometrial cysts in the mare.

2. Materials and Methods

In the three cases presented, large endometrial cysts were removed using a simple, improvised snare constructed from artificial insemination pipettes and non-absorbable suture material. The mares were selected for cyst removal on a case-by-case basis. Mare #1 had multiple, large, pedunculated cysts throughout the uterine body and at the base of both uterine horns. On embryo-recovery attempts, it was extremely difficult to recover embryo flush media because of the presence of these large cysts. In mare #2, a single, large, pedunculated cyst prolapsed through the cervix from its origin in the uterine body. There was concern that the stalk of the cyst would prevent tight closure of the cervix during pregnancy and decrease the mare’s physical defenses to uterine contamination. Mare #3 had multiple large cysts in the base of one uterine horn. All three mares were treated during the 2008 breeding season, and follow-up information was available for all mares.

A snare was constructed using two artificial insemination pipettes attached parallel to one another using tape and 2 m of #3 polyamide suture material. The suture material was passed up through one pipette and back down the other, leaving a loop at the distal end (Fig. 1). Each snare was cold sterilized in a dilute chlorhexidine solution for 10–15 min before use.

Mares were presented for the procedure in early estrus. Treatment during estrus facilitated passage of the snare through the cervix. Mares were restrained in stocks and sedated with a combination of detomidine HCl (10 μg/kg, IV) and butorphanol tartrate (0.01 mg/kg, IV), and they were administered a single dose of flunixin meglumine (1.1 mg/kg, IV).

Each mare’s vulva and perineum were washed with mild soap and water. A gloved hand was passed into the mare’s vaginal vault, and a finger was inserted into the cervix. Gentle digital pressure was applied to dilate the cervix so that several fingers or a small hand could be placed through the cervix. The snare was then carried into the vaginal vault and through the cervix. The loop of suture material was manipulated around a cyst, and the pipettes were advanced cranially to tighten the snare around the stalk of the cyst. The suture material was moved back and forth in a gentle sawing motion by an assistant until the stalk was severed. The cyst was then manually removed. The procedure was performed one time in mare #2 and was repeated several times in mare #1 and mare #3 to remove multiple cysts (Figs. 2 and 3). Hemorrhage was minimal in all mares. In mare #1, uterine lavage and infusion with antimicrobials (ceftiofur sodium, 1 g diluted in 60 ml of sterile water) was performed after the procedure.

Fig. 1. The supplies needed to construct the improvised snare are found in most practice vehicles.

Fig. 2. Four large endometrial cysts are removed from an embryo-transfer donor mare using the improvised snare.
endoscopy or laser. Finally, this technique can be performed in early estrus, allowing the mares to be bred on the same cycle. However, the technique is limited to large cysts attached to the endometrium by a pedunculated stalk. The same technique would have limited to no efficacy on small cysts with a broad base of attachment to the endometrium.

References and Footnotes

3. Results and Discussion

All three mares were bred using cooled, shipped semen within 72 h of cyst removal. Two of the three mares became pregnant on the treated cycle; mare #1 was flushed 7 days post-ovulation, and an embryo was recovered. Mare #1 returned to the embryo-transfer program in 2009. Embryos were recovered during each of two embryo-recovery attempts performed in 2009. Mare #2 did not become pregnant on the treated cycle but was confirmed pregnant by ultrasound examination at 16 days post-ovulation on the following cycle. No additional follow-up information was available. Mare #3 was presented for ultrasound examination 16 days post-ovulation and was confirmed pregnant with twins. One conceptus was manually reduced, and a single conceptus was present on examination the following day. No further follow-up information was available.

Potential complications of this procedure include hemorrhage or rupture of the cyst with incomplete removal; however, these were not observed in any of the three cases described above. It is important to select only pedunculated cysts for removal, because cysts without a stalk are difficult to snare and may rupture during the application of this technique.

In summary, uterine cysts have the potential to decrease fertility, and some cases may warrant removal. The improvised snare is inexpensive, easy to construct, and disposable, and most practitioners have all the necessary supplies in their practice vehicle. In addition, the technique is simple to perform and requires no special equipment, such as an endoscope or laser. Finally, this technique can be performed in early estrus, allowing the mares to be bred on the same cycle. However, the technique is limited to large cysts attached to the endometrium by a pedunculated stalk. The same technique would have limited to no efficacy on small cysts with a broad base of attachment to the endometrium.