Case Report

Uterus didelphys in an ewe as a cause of dystocia

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Abstract

A 2-year, full-term ewe was presented for straining and failure of parturition to progress. Vaginal delivery was achieved but resulted in a full thickness cervicouterine tear secondary to abnormal reproductive tract anatomy. Ewe was euthanized and determined to have uterus didelphys via field necropsy. This incidental finding demonstrated that pregnancy can be carried to term despite substantial anatomic abnormality, highlighting the importance of a thorough reproductive tract examination prior to assisted delivery.

Keywords: Sheep, dystocia, congenital anomaly, uterus, cervix

Background

In the embryo, female genital tract arises from paramesonephric (müllerian) ducts to form oviducts, uterus, cervix, and vagina in the absence of müllerian inhibitory substance and testosterone. Paramesonephric ducts fuse caudally to form the uterine body, cervix, and cranial vagina, creating a single lumen.[1] Uterus didelphys (uterus bicorpor bicollis) is a rare congenital abnormality of the female reproductive tract, consisting of a divided uterine body, double cervix, and a single or double vagina.[2,3]

In uterus didelphys animals, if fertilization is achieved via ovulation from the ovary ipsilateral to cervix, pregnancy in the corresponding uterine horn can be established that can be carried to term but the outcome may not be ideal. A case of pregnant uterus didelphys ewe is presented, highlighting challenges associated with delivery of a fetus.

Case presentation

A 2-year, Hampshire ewe was presented for sustained and unprogressive labor. Based on recorded natural breeding dates, the ewe was determined to have a full-term pregnancy. The ewe had been actively straining for 1 hour at home after they had observed vaginal discharge. Based on history, it was determined that ewe was entering stage II of labor.

On physical examination, the ewe appeared stable, temperature was 38.6°C (38.3-39.8°C), respiratory rate was 92 breaths per minute (15-35 bpm), and heart rate was 152 beats per minute (70-80 bpm). Rumen contraction rate was 3 strong contractions in 2 minutes (1-2 per minute). Ewe's FAMACHA score was 2/5 (1: normal and 5: anemic) and body condition score was 2/5. Ewe's udder was fully developed with expressible colostrum.

Treatment

Ewe's perineum was disinfected, followed by vaginal palpation that revealed a small vulvar opening and abnormal anatomy within the vagina. The left side vagina had a small, firm, palpable depression in the vaginal wall (later identified as a tightly closed external cervical os). There was a second opening on cranial vagina's right side, presumed to be a partially dilated (3 fingers diameter) cervix. The cervical tissue was soft and pliable. Based on palpation, a diagnosis of 'ring womb' (failure of cervical dilation) was made. The owner opted for vaginal delivery, and so manual dilation was performed. After 10 minutes of gentle manual dilation, the chorioallantoic membrane protruded from the vagina. Once this membrane was ruptured, front legs and fetal head were palpable within the cervix. A head snare was carefully applied to the fetus. After manipulation of fetal head and forelimbs through the incompletely relaxed cervix, a dead fetus was delivered.

Outcome

Attempts to resuscitate the fetus were unsuccessful. Vaginal palpation of the ewe after delivery identified a full-thickness

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dorsal tear at the cervicouterine junction. Ewe was euthanized because of its limited value and poor prognosis for survival. Field necropsy was performed, and reproductive tract was exteriorized. A single vestibule and vulva (Figure 1), a septum in the cranial vagina was visible as a dorsoventral tissue fold, and 2 cervices leading to individual uterine horns were identified, characterizing uterus didelphys. The necropsy also revealed an extensive full-thickness uterine tear in the right uterine horn (where the fetus was) caudal to the cervix (Figure 1).

On the left, cervix, cervical rings, mucosa, and nonpregnant uterine horn were intact. However, the right cervix and vaginal mucosa had submucosal hemorrhage and some multifocal superficial tears (Figure 2).

Discussion

Reproductive efficiency (fertilization) may be compromised in animals with uterus didelphys if bred via artificial insemination because of the possibility of semen being deposited in the contralateral cervix to the ovulated ovary.[2,3] However, in natural breeding, because semen is deposited in the cranial vagina, fertilization and establishment of pregnancy is possible.

Abortion, premature delivery, retained fetal membranes, and infertility are considered more common in cows with uterus didelphys, than in normal cows, because they have a unicornual placentation of the fetus.[2] In comparison, there have been reports that the ovine placenta has the ability to adapt and maintain fetal nourishment in utero despite a reduction of the placentome

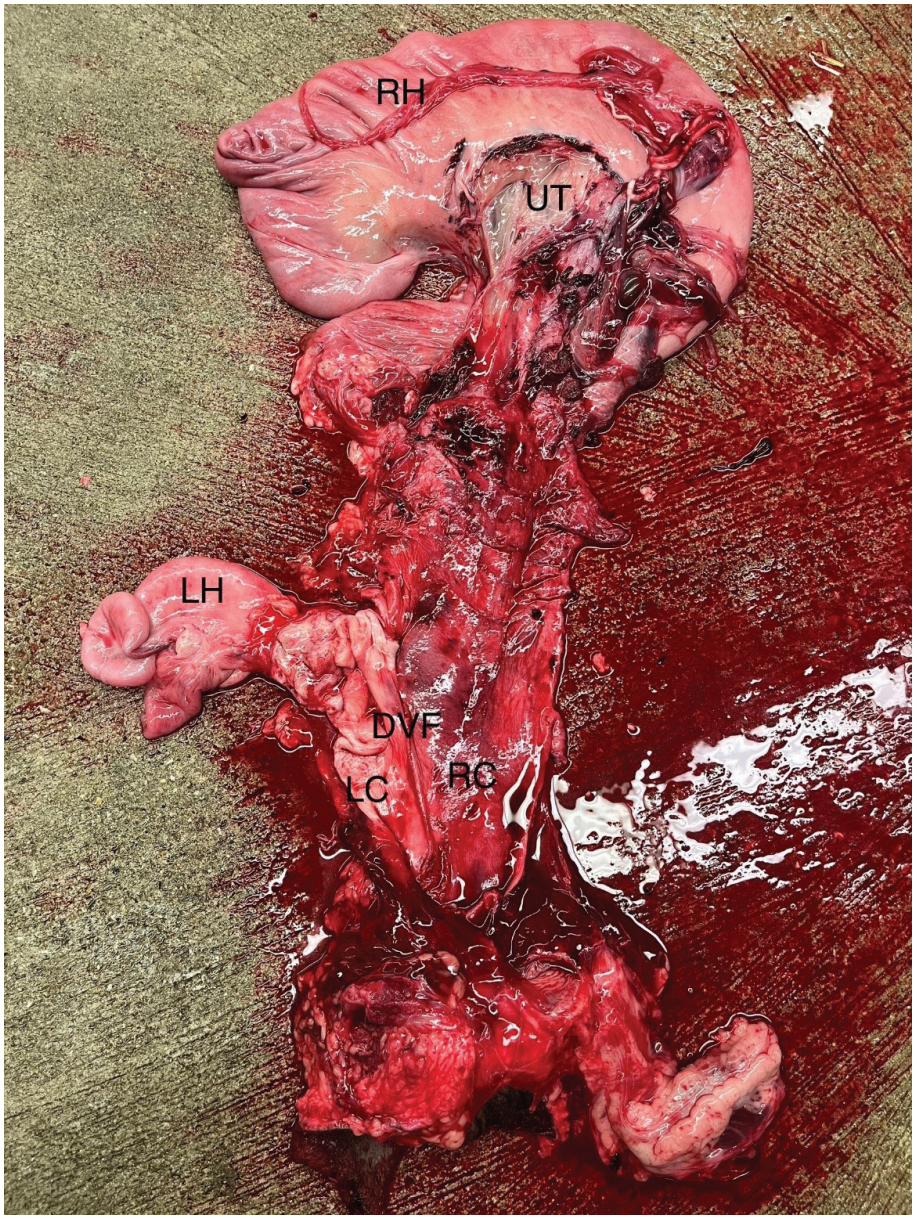

Figure 1. Postmortem image of the reproductive tract (note the uterine tear in right uterine horn and in nonpregnant left uterine horn, both cervices, and caudal vagina). DVF: dorsoventral fold; LC: left cervix; LH: left uterine horn; RC: right cervix; RH: right uterine horn; UT: uterine tear

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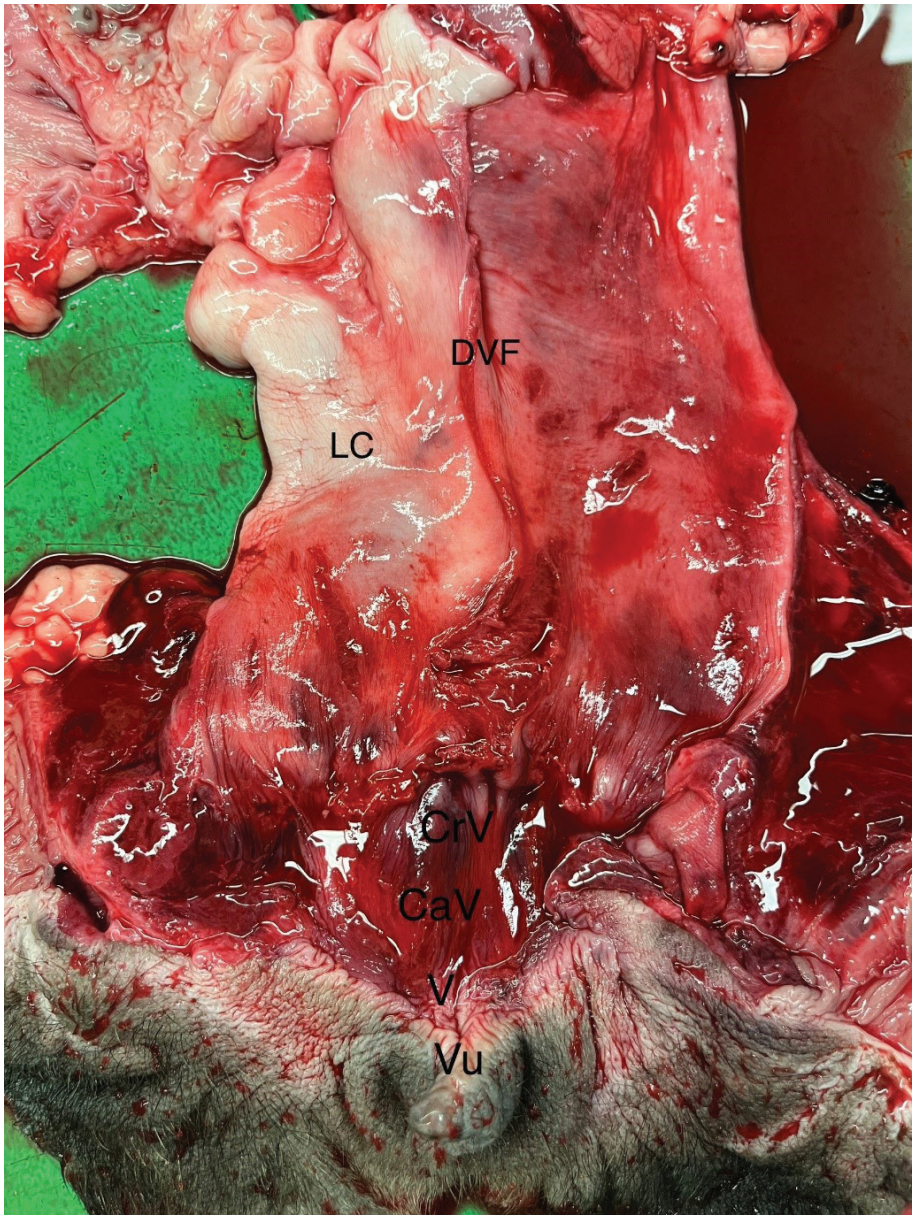

Figure 2. Postmortem image of caudal reproductive tract; left cervix, divided cranial vagina with submucosal hemorrhage, caudal vagina, vestibule, and vulva. CaV: caudal vagina; CrV: cranial vagina; DVF: dorsoventral fold; LC: left cervix; V: vestibule: Vu: vulva

numbers associated with a unicornual pregnancy. Pregnancies have been maintained by compensatory placentome growth.[4] Uterus didelphys also results in a reduction in available space in the uterine cavity. This space restriction with unicornual placentation may be detrimental to fetal growth in multiple pregnancies (twins and triplets).[4] In the present case, naturally bred ewe conceived and maintained a singleton pregnancy to term, despite uterus didelphys. Although the outcome was unfavorable for both dam and fetus, it highlighted the potential for pregnancy with such a congenital anomaly. Fetus was of normal size for a singleton lamb and would likely have been delivered without assistance in a dam with normal anatomy. In a large sheep abattoir survey (33,506 tracts were examined), the prevalence of congenital abnormalities was 3.3% and uterus didelphys was 0.02%.[5]

The outcome for this ewe might have improved if a decision to perform cesarean surgery was made after initial vaginal palpation determining failure for full cervical dilation. The decision made at examination is often fraught with complicating factors; nevertheless, in this case, cesarean surgery might have resulted in a live dam and fetus. However, economics (value of the animal and cost) and animal ability to breed back are important factors to make such decisions. Furthermore, the feasibility of providing cesarean surgery should be considered. Ewe was a primiparous, unproven, grade dam. It is possible that the congenital anatomical abnormality would not have been identified during surgery, in which case, the ewe might have been rebred presenting similar problems at next lambing. In a survey of congenital abnormalities of ewes at abattoirs in England, there was 1 parous sheep with uterus didephlys.[5] This highlighted the importance of taking time during cesarean surgery in primiparous animals to assess reproductive anatomy and advise clients on the risks of rebreeding if the dystocia was not a result

of fetopelvic mismatch or a malpresentation. Certainly, this type of anatomic abnormality compromises the life of ewe and fetus, and it will depend on the obstetrical skills of the clinician to detect and resolve them appropriately.

Conflict of interest

None to report.

Learning points

- Reproductive tract should be completely examined in dystocia cases
- Congenital anomalies of the reproductive tract can support pregnancy to term
- During caesarean surgery in primiparous ewes, examine the uterus for normal anatomy

References

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