

# Odd Reproductive Problems of Small Ruminants

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## Abstract

Sheep, and especially goats, tend to have some fairly strange reproductive issues that while not especially common, do occur with a high enough frequency that the small ruminant practitioner will likely be presented with some of these cases. This session will discuss odd reproductive issues of primarily female sheep and goats including ring womb, atypical udder development, and pseudopregnancy, as well as a few other issues.

## Résumé

Les moutons, et plus spécialement les chèvres, montrent des conditions relativement étranges liées à la reproduction qui bien qu'elles ne soient pas très communes sont quand même assez fréquentes pour que le praticien des petits ruminants en voit des cas à l'occasion. Cette présentation discutera de conditions reproductives inusitées principalement chez la brebis et la femelle chèvre incluant la dilatation incomplète du col, le développement atypique du pis, la pseudogestation de même que certaines autres conditions.

## Ringwomb

### Epidemiology

Ringwomb is a condition of incomplete cervical dilation that occurs in both sheep and goats and results in dystocia. There are currently no consistent predispositions such as breed, age or body condition score, although individual reports will note some of these as being distinct. The precise etiology of ringwomb is not known, but there is data suggesting a possible genetic link transmitted as an autosomal recessive gene.<sup>2</sup> The lack of release of hormones that soften the cervical collagen or the lack of response of this collagen to the hormones has also been suggested. In the 1990's, there was some thought that the condition was infectious, but the pathophysiology of an infectious disease resulting in incomplete cervical dilation just didn't make sense. Other suggested etiologies are excessive estrogens in the feedstuffs or moldy feeds. Sheep that have had previous cases of ringwomb may or may not have repeated events. Iraqi researchers<sup>3</sup> reported that 24% of 136 goats referred to their clinic for dystocia had ringwomb. A West Virginia study noted a rate of 20.5% (24/117) in lambing ewes from a single herd.<sup>2</sup> In sheep, the condition is reported to occur more often in multiparous ewes although the author has seen more

cases in primiparous ewe lambs as noted by Menzies and Bailey.<sup>2,4</sup> The condition has been reported to occur more often in primiparous does than older does.<sup>3</sup>

### Diagnosis

There does not appear to be a "definitive" test or definition for ringwomb, other than incomplete dilation of the cervix; thus, there is little doubt that some of the cases reported as ringwomb in the various articles and reports may not actually be ringwomb. Ringwomb may be diagnosed by insertion of the hand in the birth canal and finding a thin "ring" of the cervix that is not dilated. This cervical ring may be grasped between the thumb and index finger. Often the nose and feet of the lamb (kid) will be present in the dilated portion of the cervical ring, which tends to be around 1 to 2 inches (2.5 to 5 cm) in diameter. Many times, the initial presentation is the presence of placental membranes hanging from the vulva without fetal presentation, or simply observed straining without progress.

### Treatment

Various treatments (hormone and mineral) have been used with and without apparent success (anecdotal success abounds), with "success" being defined as full dilation of the cervix. The use of estrogen has anecdotally been reported to be effective, but may result in severe, sometimes fatal, metritis. No studies were found that clearly documented the efficacy of any product. Although manual dilation has been possible on rare occasions, it is not advised, as the outcome of pulling a lamb or kid through the incomplete cervical dilation may result in tearing and subsequent fatal hemorrhage of the dam and the possible demise of the neonate. In a 1992 study of goats, manual dilation was successful in two of 16 cases.<sup>1</sup> The preferred method to address ringwomb is to perform a cesarean section. Unless the ewe or doe is toxic, cesareans can be performed relatively inexpensively and allow the best outcome for both dam and neonate.

## Abnormal Udder Development

Sheep rarely have unusual udder development, while udder abnormalities appear to be fairly commonplace in the goat.

### Witches Milk

Witches milk is a milky secretion that may on occasion be expressed from the mammary gland of the

neonate. This secretion is thought to be due to the stimulation of maternal hormones and is usually of little consequence.

#### *Precocious Udder Development*

Precocious udder development is a condition without a clear etiology of young, unbred goats. Although some enlargements may be due to fat, some glands actually produce milk. Although mastitis is always a concern, another concern expressed by goat farmers is that the udder may be lopsided, thus making the goat less desirable as a show goat. Once mastitis is ruled out, use of prostaglandin F<sub>2α</sub> (PGF<sub>2α</sub>) may be attempted. If this fails, a follicle-stimulating hormone (FSH) product may be attempted. Whatever the case, do not encourage milk production by milking the goat. Cease grain supplementation. If an animal is not for show purposes, doing nothing other than observing may be the best course of action. If the goat is a pet and treatments are unsuccessful, and the udder is creating a problem, then mastectomy and/or ovary removal may be necessary.

#### *Pseudopregnancy (Cloudburst Pregnancy)*

Goats are one of the species that develop false pregnancies. Essentially, there is an accumulation of fluid in the uterus resulting in a distended abdomen. Several theories have been developed for why this condition occurs, but the confirmed etiology is unknown.<sup>7</sup> The condition can occur with or without exposure to a buck. Udder development may also occur. Near the end of the typical gestational period, the doe spontaneously releases the fluid (cloudburst). Does may display typical mothering behavior (searching for kids). The incidence rate is around 2 to 5%. Affected does do not demonstrate signs of estrus or cycling and should have a persistent corpus luteum. After confirming the lack of presence of feti and/or cotyledons via ultrasound, PGF<sub>2α</sub> (2.5-10 mg IM) will resolve the false pregnancy. Does typically remain fertile.

#### *Spontaneous Lactation*

The consensus among AASRP-listers seems to be that spontaneous lactation in does is relatively common and often of no consequence. Thoughts on why this happens include estrogens from feedstuffs or estrogen from a malfunctioning ovary. It has also been noted that some does, that have not been exposed to the buck, will spontaneously begin lactation every spring with eventual lactation cessation in the fall, all without any serious consequences. Treatment for spontaneous lactation consists of one of the following: 1) do nothing, 2) try hormonal therapy, 3) mastectomy, 4) ovariectomy, 5) ovariectomy, or 6) a combination of options 3 and 4 or 5.

On rare occasions, spontaneous udder development occurs due to an ovarian neoplasia. These tumors may be granulosa cell tumors or adenocarcinoma, which may make the doe exhibit male traits and odor. Diagnosis may be suggested by ultrasound and possibly radiography, but definitive diagnosis is by abdominal exploratory and biopsy. Metastasis may occur but if not, treatment is ovariohysterectomy. A six-year-old crossbred female doe was presented to the University of Tennessee veterinary hospital for udder development and milk production of one year's duration despite never having been bred. Precocious udder development was diagnosed as the doe showed no other signs. Because hormonal therapy was ineffective and the udder was large, a bilateral mastectomy was performed. Approximately two months later, the doe presented with anorexia, excessive urination attempts, and depression. Two abdominal masses were palpable in the right flank. On ultrasound, both kidneys appeared to be enlarged. Both BUN (246 mg/dl, normal range 10-25) and creatinine (12.8 mg/dl, normal range 0.4-1) were significantly elevated. The doe was euthanized and necropsy revealed adenocarcinoma of both ovaries. Both ovaries were grossly enlarged. The left ovary was roughly 1.75 x 1 x 0.75 inch (4.5 x 3.5 x 2.2 cm). The right ovary contained multiple cysts and measured 4 x 4.25 x 2.75 inch (10 x 11 x 7 cm). The neoplasia had metastasized to various other organs compromising urine flow, which resulted in marked hydronephrosis and hydroureter. Ovarian neoplasia should be considered as a differential for abnormal udder development, especially in mature does.

#### **Freemartins**

Freemartins are rare in goats, presumably because the differentiation of the fetal reproductive organs occurs before placental fusion or placental fusion simply does not commonly occur. Approximately 6% of doelings born with a buck kid are expected to result in a freemartin.<sup>5</sup> Freemartinism is rare in sheep because vascular anastomosis occurs with much less frequency than this occurrence in cattle. The reported incidence of freemartins in sheep is 1%, although this incidence is reported to be rising.<sup>6</sup> The author has never diagnosed a case of freemartinism in sheep, despite having raised sheep for over 25 years. The availability of blood tests to diagnose freemartinism in sheep and goats is limited, but a vaginal length of 2 inches (5 cm) or less is considered highly suspect. Interestingly, the origin of the word "freemartin" is not entirely clear, but may be traced back to the butchering of cattle around Martinmas (11 November). Farmers would tend to slaughter the unproductive (non-fertile/freemartin) cattle rather than feed them during the winter months. However the word 'martin' is a generic term for cattle that can be traced

back to the thirteenth century, and 'ferry'/'farrow' are English and Scottish words meaning barren or dry cow.

### Conclusions

The exact etiology for ringwomb is unclear, however, the best course of action is a cesarean section. Abnormal udder development in goats seems to be a fairly common and the majority of cases do not typically require any action.

### References

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