

Clinical Management of Hydrometra in a Goat: A case report



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List of Abbreviation

Abbreviation	Elaboration
CVASU	Chattogram Veterinary and Animal Sciences University
SAQTVH	Shahedul Alam Quadery Teaching Veterinary Hospital

Abstract

Hydrometra is one of the main reasons for infertility in goats, which is also known as pseudo-pregnancy. A primiparous non-descriptive indigenous doe of one and a half years old; with a distended abdomen was brought to the Shahedul Alam Quadery Teaching Veterinary Hospital (SAQTVH), Chattogram Veterinary and Animal Sciences University (CVASU), with a history of breeding five months and fourteen days earlier. No fetal tissues or palpable mass was felt during the per-vaginal examination or ventral abdominal palpation. Fetal structures and placentomes were not present. All the vital parameters were within the normal range. Ultrasound examination revealed hydrometra which is characterized by anechoic fluid filling the entire uterus; divided by thin hyperechoic trabeculae. A single dose of 250 µg of Prostenol® Inj. (Cloprostenol- Synthetic Prostaglandin F2) were administered intramuscularly (IM). Three days following the initial Prostenol® injection dosage, uterine fluid drainage was seen, and the animal recovered without difficulty.

Keywords: Hydrometra, pseudopregnancy, goat, ultrasonography.

Introduction

Hydrometra is a disease condition of the uterus often known as "pseudopregnancy," which is characterized by aseptic fluid accumulation in the uterus with the presence of a persistent corpus luteum and the inability of the doe to cycle (Hesselink, 1993). It may be visualized by ultrasound as non-echogenic fluid compartments divided by thin tissue walls trabeculae (Hesselink and Taverner, 1994). One of the major factors contributing to anestrous in dairy goats is hydrometra. Its prevalence in small ruminants and other animals was documented by several writers worldwide (Ahmed *et al.*, 2009; Villanueva *et al.*, 2012; Yotov *et al.*, 2009). The prevalence of hydrometra varies from 3 to 5% (7.69%) and is frequently observed in herds of dairy goats. It is a significant cause of goats' infertility (Souza *et al.*, 2013). The etiology and pathophysiology of the condition are still not fully understood (Purohit *et al.*, 2019). The pathogenesis of this disease involves a prolonged progesterone secretion that is likely caused by a malfunction in the luteolytic system, and fluid accumulation is a consequence, not the cause (Taverner *et al.*, 1988). The accumulation of sterile fluids within the uterine lumen causes varying degrees of abdominal distension (Pieterse and Taverner, 1986). Reproductively viable anestrous does may develop the disease both outside and during the breeding season. When the prolonged luteal phase finally ends on its own, the accumulated uterine fluid is released (called the term "cloud burst"). The presence of pseudopregnancy on a commercial dairy goat farm results in significant economic loss since this condition is a major contributor to goat subfertility. (Arokia *et al.*, 2017).

The objective of the present case study was to report ultrasonographic diagnosis and clinical management of pseudopregnancy or hydrometra of a goat.

Materials and Methods

2.1 Case presentation

A one-and-a-half-year-old, local non-descriptive goat in its first parity was presented to the Shahedul Alam Quadery Teaching Veterinary Hospital (SAQTVH), CVASU for confirmation of reproductive status. The owner reported that the animal had been mated five months and fourteen days back and never showed estrous sign again within this five month. The owner of the animal thought the animal was pregnant because the abdomen was slightly distended and pronounced udder enlargement was seen. The animal was reared in semi-intensive housing system and totally mixed feed was provided where no formulated ration was offered. Natural mating was chosen for the doe as buck was available at the herd.

2.2 Clinical examination

Clinical examination revealed that the animal was alert and active and temperature was 101.8°F. Every vital sign was in the normal range. The mucous membrane was pink. Feed intake was less but defecation and urination were normal. Bilateral abdominal distention gave the impression that the animal was pregnant. No fetal parts were felt on ventral abdominal palpation and on per-vaginal examination.

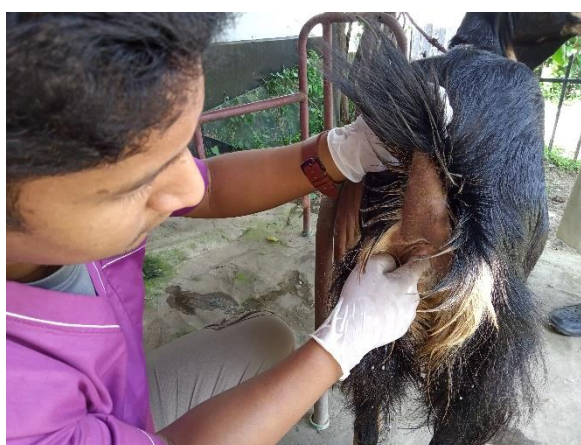


Figure 1: Per-vaginal examination of goat

Results

3.1 Diagnosis by Ultrasonography:

The results of a B-mode ultrasound scan showed a confined cross-sectioned sacculation with highly distended uterine horns and large anechoic regions. Due to the coiling of the uterine horns, the anechoic fluid compartments were divided by thin hyperechoic trabeculae (Figure-3). It was further established to be a non-gravid uterus filled with fluid by the lack of maternal and embryonic/fetal caruncular structures. The condition was identified as hydrometra based on ultrasonographic testing findings.



Figure 2: Ultrasonographic examination of the patient

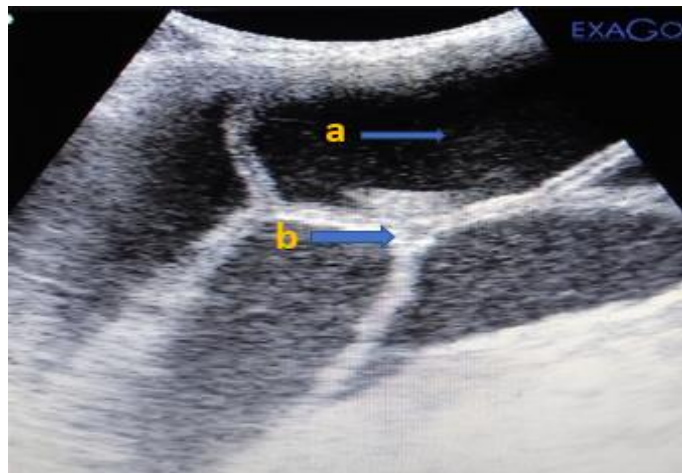


Figure 3: A B-mode ultrasound picture of the uterus with anechoic fluid compartments (a) and hyperechoic trabeculae (b) separating them

3.2 Treatment:

After hydrometra was confirmed, the goat received a single dose of 250 µg of injection of Prostenol® Inj. (Cloprostenol- Synthetic Prostaglandin F2) intramuscularly. On the third day after therapy, a substantial portion of clear mucous discharge was discharged via the vaginal channel, and there was a noticeable reduction in abdominal distension. The animal was recovered from the condition and showed normal estrous behavior. Trans-abdominal ultrasonography, which showed a normal uterine picture, provided as further confirmation of this (Figure-4.).

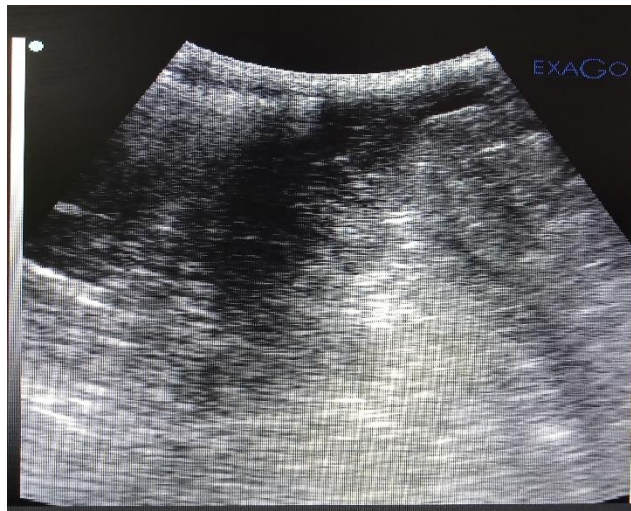


Figure 4: Normal uterine ultrasound image after recovery

Discussion

One of the most important factors that contribute to subfertility or infertility in dairy goats is the hydrometra and due to the absence of partum, the pseudo-pregnant goats are often only identified after five months of expected gestation (Fonseca *et al.*, 2016). Observations and reports of hydrometra in goats in temperate and tropical regions drawn attention (Ahmed *et al.*, 2009; Khan *et al.*, 2015). It is characterized by a septic hypoechogenic fluid accumulation (Moraes *et al.*, 2007) that causes the uterus to enlarge, the persistence of the corpus luteum, the existence of mobile echogenic and relatively thin trabeculae, and the lack of fetal components and placentomes (Almubarak *et al.*, 2016). Although there are no clinical changes in the general state of health, goats behave as if they are pregnant owing to the existence of a pseudo pregnant corpus luteum (Martel, 2001), which is characterized by high levels of progesterone hormone, failure of fertilization, cessation of cyclic activity, and varying degrees of abdominal distension (Noakes *et al.*, 2018). The actual cause of goat pseudopregnancy is yet unknown (Deori *et al.*, 2010). However, early embryonic losses and/or hormonal imbalances have been connected to the onset of this syndrome (Smith, 1980). Since prolactin is a crucial component of the luteotropic complex in goats and is also responsible for the condition's characteristic mammary growth, it has been hypothesized that this hormone may be crucial in the pathophysiology of caprine pseudopregnancy (David *et al.*, 2001).

Ultrasonography is found to be rapid, useful and reliable tool for early diagnosis of hydrometra in goat (Arokia *et al.*, 2017). Early in the 1980s, real-time B-mode ultrasonography was brought into veterinary practice and provided a novel technique for early pregnancy diagnosis (Taverne, 1984). It is currently used to several animal species, not only as a standard clinical procedure for the detection of pregnancy but also to evaluate various physiological and pathological states (Hesselink and Taverne, 1994; Pieterse and Taverne, 1986). The goat was in a dorsal recumbent position while being subjected to a trans-abdominal ultrasonographic test with a 5.0 MHz transducer. In this case, the uterus was severely swollen and had compartments filled with anechoic fluid. There were no placentomes or fetal part echoes discovered. These

findings are consistent with (Hesselink and Taverne, 1994), who stated that the sonographic diagnosis of pseudopregnancy is based upon the detection of fluid in the uterus in the absence of fetuses and placentomes. Treatment for the pseudopregnancy comprises inducing luteal regression by giving a single or double dosage of the luteolytic prostaglandins or their synthetic analogs (Simon *et al.*, 2010; Souza *et al.*, 2013). Pseudopregnancy in dairy goats could be treated with a single dose of PGF₂ α (Salles and Araujo, 2008). It was indicated that only 41% of goats had full uterine drainage after receiving only one dosage of PGF₂ α , and the remaining goats needed a second dose (Hesselink, 1993). In the current observations, after a single PGF₂ α therapy, uneventful recovery with full uterine fluid drainage was seen in goat within 3 days. The term "cloud burst" refers to the abrupt discharge of uterine fluid that often occurs when a pseudopregnancy resolves spontaneously as a result of an ageing corpus luteum (Taverne *et al.*, 1995)

Limitations

Because of his lack of education, the patient's owner was unable to provide the adequate history of the animal's estrous behavior. We attempted to contact the owner throughout the observation time and urged him to bring the animal back to the SAQTVH, but he ignored it sometimes. The much more sophisticated ultrasound technology may also aid in more accurate diagnosis.

Conclusion

One of the significant reproductive disorders in goats that is often misinterpreted for pregnancy is pseudopregnancy. The condition may persist for a long time and have an impact on the goats' fertility. Since ultrasound is quick, precise, and non-invasive, it has been shown to be a helpful tool in the diagnosis and follow-up of hydrometra in goats. Prostaglandin had demonstrated effectiveness in draining uterine fluid from goats with hydrometra. Therefore, a farmer's financial loss may be avoided with an accurate diagnosis and prompt treatment.

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The Author

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Biography

Sirajul Islam Sagor, the eldest child of Abdul. Latif and Mst. Sherin, is completing his Doctor of Veterinary Medicine (DVM) degree at Chattogram Veterinary and Animal Sciences University under the Faculty of Veterinary Medicine. He passed the Secondary School Certificate Examination (SSC) in 2013 from Ghonerchala High School, Sakhipur, Tangail with a grade point average of 4.69 and the Higher Secondary Certificate Examination (HSC) in 2015 from Ghatail Cantt. Public School and College, Tangail with a grade point average of 5.00 out of 5.00. Currently he is continuing his yearlong internship program for the degree of Doctor of Veterinary Medicine. He is keen to become a qualified veterinarian in the future and has a tremendous passion for research.