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Ultrasonographic diagnosis and management of perineal hernia in pregnant Jamunapari doe- a case report

Khadija Begum¹ Azizunnesa Rekha² ¹ Department of Physiology, Biochemistry & pharmacology, Chattogram Veterinary & Animal Sciences University, Chattogram, Bangladesh² Department of Medicine & Surgery, Chattogram Veterinary & Animal Sciences University, Chattogram, Bangladesh.

Correspondence: Khadija Begum (khadijas1514@gmail.com)

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ABSTRACT

A two years old Jamunapari cross-breed doe was brought and registered at Shahedul Alam Quaderi Teaching Veterinary Hospital (SAQTVH) with a history of natural mating of five months. The owners have been complaining of a progressively increasing swelling in the perineal region for the past three months. A swelling at the perineal region that extended caudally to the animal's back was seen during a clinical examination of the patient. Ultrasonography scanning was done to confirm the gravid uterus in the gradually swelling perineal area, assess the gestational age and fetal condition. Hematological screening was done to measure the profiles of different blood parameters. Hormonal therapy (prostaglandin) & dexamethasone along with supplements of vitamins and minerals were given to the animal on that day. Three live fetuses were born after 15 hours of treatment. The planned surgical treatment of the hernia's hole could not be carried out in the perineal area because the patient's owner refused to consent to this surgical technique.

Keywords: Perineal hernia, Pregnant doe, Ultrasonography, Live fetus, Hormone

INTRODUCTION

Ultrasonography has become as an important diagnostic tool in the modern veterinary industry, and its uses are becoming more varied and highly advantageous. Ultrasonography has made it possible for researchers and veterinarians to evaluate and monitor enormous events by investigating, diagnosing, and tracking various aspects of physiological and pathological issues in veterinary practices (reproduction, internal medicine, surgery, and cardiology) in farm, companion, and wild animals (Samir et al., 2021).

A herniation is the protrusion of an organ or tissue through a congenital hole or traumatic wall defect, which causes bodily components to shift to an inappropriate place (Das et al., 2012). A hernia develops when the abdominal wall becomes

weaker and produces a hole called a hernial ring, part of the abdominal cavity's viscera then flows through the hole and bulges out, making the hernia visible on the skin (Singh et al., 2014). Majority of hernias in young animals happened around natural openings like the umbilical and inguinal canal (Misk et al., 2008). The prevalence of hernia can be varied from breed, sex, species etc. where found that 81% of the cases involved ovine species and 72.4% are in females (Amare and Haben, 2020).

Among types of hernia, the perineal hernia, differs from others in that its contents aren't covered by the peritoneum. Additionally, the perineal muscle is weak, which makes it easier for gravid uterus or some viscera of the abdominal and pelvic cavity to droop, which can result in unilateral or bilateral abdominal swelling (Shridhar, 2021), with 59% of

perineal hernias being unilateral and 41% being bilateral (Bellenger and Canfield, 2003). The swelling frequently causes a perineal hernia, which manifests as an abdominal shape ventrolateral to the anus (Kealy, 2011). The history and examination of the hernial area like swelling, discomfort etc. are used as the main diagnostic tools for perineal hernia. Radiography, ultrasound or exploratory puncture can also be used to diagnose & distinguish hernias from others like fibrino-cystic, abscess, and inflammatory swellings (Al-sobayil and Ahmed, 2007). Depending on the size of the hernial ring present at the location, there are many surgical methods for treating hernias. Herniorrhaphy and hernioplasty or both are preferable for treating simple and big or complex hernias respectively (Kingsnorth and LeBlanc, 2003; Whitfield-Cargile, 2011). Medicinal treatment can also be used in case of perineal hernia containing gravid uterus for delivery of fetus and surgical approach can be done in further to remove the herniated part. In the current investigation, a goat perineal hernia containing gravid uterus was successfully managed through medicinal treatment. This is a case that is written for the first time on the diagnosis of perineal hernia by ultrasonography and the treatment and management of it in pregnant goat.

MATERIALS and METHODS

Case history

A two-years-old Jamunapari cross-breed doe weighing 35 kg was brought to the Shahedul Alam Quaderi Teaching Veterinary Hospital (SAQTVH), CVASU, Chattogram, Bangladesh with the complaint of gradual swelling in the perineal region from last three months. The doe was also unable to deliver the fetus despite having reached the end of the gestation period. In addition, the owner stated that the swelling had started loosely and grown gradually in the perineal area without any trauma as the pregnancy advanced. The doe's appetite had decreased recently, but her urination and defecation were both regular.

Clinical examination

A general examination revealed mild dehydration and evidenced rectal temperature of about 103.9 F, pulsation: 104/min, and pink, moist mucous membrane indicating the vital signs were normal. However, the doe developed perineal swelling and abdominal distension brought on by pregnancy (Figure 1). Cervix was closed and there was no vaginal discharge during the vaginal examination.



Figure 1. Herniated gravid uterus

Ultrasonographic examination

A real-time ultrasound examination was done to detect the content of herniated region. The ultrasonography scanning revealed that the gravid uterus containing amniotic fluid with fetus was herniated from its location to perineal region. Three fetuses were observed and their viability were confirmed by observing fetal heart rate (Figure 2a). The gestational age was calculated by measuring the Trunk Diameter (TD) (85.2 mm) (Figure 2b) revealed 148 days of pregnancy.

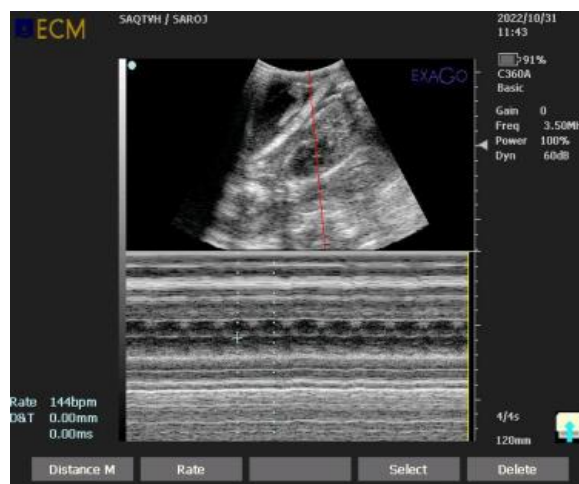


Figure 2a. Heart rate of the fetus

Blood sampling and hematological screening

Blood collection was done to perform a hematological and biological examination of the Jamunapari doe. Hemoglobin and PCV, calcium, phosphorus, magnesium, glucose and total protein level in blood was measured where every parameter was in normal range except calcium and magnesium level, was in below the range (Table 1)

The case was determined to be a perineal hernia containing gravid uterus on the basis of the

anamnesis and the findings of clinical and ultrasonic examination.



Figure 2b. TD measurements of fetus

Table 1. The value of different blood parameters-

Parameters	Calculated value
Hemoglobin (Hb)	8.2%
Packed Cell Volume (PCV)	27%
Calcium	6.08 mg/dl
Phosphorus	7.14 mg/dl
Magnesium	1.73 mg/dl
Glucose	97.84 mg/dl
Total protein	5.91 mg/dl

Treatment

The doe was treated initially with Prostaglandin 250 µg (Inj Prostenol®, ACI Ltd, 1 ml equivalent to 250µg IM), Dexamethasone 4 mg (Inj Dexa vet®, Techno drugs Ltd, 4 ml IM), Calcium boro-gluconate (Inj. Cal-D-Mag Vet®, Renata Ltd. 35 ml IV) with normal saline (Inj. NS, ACME Ltd, 500 ml IV), vitamin ADE (Inj. Renasol ADE, Renata Ltd. 3.5 ml IM) for inducing delivery of fetus. After 15 hours of treatment, the animal was delivered to three live fetuses (Figure 3). Calcium boro-gluconate with normal saline was also suggested for 5 days of post parturition. Physical condition of the doe was improving after delivery but the herniated part remained slightly swollen. We offered the owner to remove the herniated part surgically as there is a chance to occur again and for improving the animal's condition but the owner refused surgery. The patient was in follow up and continue the post parturient treatment for 5 days. After the treatment, animal was goodly well and the feeding condition, posture and gait was normal.



Figure 3. Herniated part and fetus after delivery

DISCUSSION

Hernia can damage an animal's production and ability to reproduce. The uterus can herniate through the perineal hernia ring in pregnant animals, causing the organ to dislocate and may cause dystocia (Jettennavar et al., 2010). Congenital susceptibility, structural pelvic diaphragm weakness, hormonal imbalance, or ripping of weak abdominal muscles owing to abdominal expansion associated with pregnancy are some suggested reasons for perineal hernia (Das et al., 2012). In the present case, it was observed that the perineal swelling had increased as the pregnancy progressed. Although the reason could not be pinpointed with certainty, it was presumably caused by the rupture of weak abdominal muscles.

The hernial swelling was discovered during the clinical examination in the perineal area of the studied pregnant doe. The fetal heads and extremities were discernible during palpation. The ultrasonographic examination was performed in the current investigation and found live fetal heart rate and movements, can be used to diagnose the fetal components (Salci and Guner, 2016).

Although surgical repair is mostly required in cases with perineal hernia including the uterus (Salci and Guner, 2016) but medical treatment was applied in the current situation. Since prostaglandin F2α (PGF2α) or its analogs and dexamethasone have been used successfully to induce parturition in goats, they were utilized in the current investigation to induce luteolysis (Pollock et al., 2021). Additionally, it is advised against using PGF2α injection to induce parturition until at least 144 days have passed in the pregnancy since it might decrease the survivability of triplet or quadruplet offspring who might be born with

small-sized heads (Ott, 1986). Calcium was suggested during and after delivery in the studied doe as it is essential for the contraction of all smooth, cardiac, and skeletal muscles which helps for inducing parturition and for reduction of periparturient diseases like retained placenta, dystocia etc. Peri-parturient hypocalcemia causes metabolic and oxidative stress in does as well as the retardation of uterine involution in postpartum periods (Bayoumi et al., 2021).

CONCLUSION

Pregnancy can cause an increase in abdominal size with heavy weight, which can cause muscles to rupture and herniate. Perineal hernia, which can occur in ruminants and is different from abdominal, inguinal, and umbilical hernias, was clearly identified in the pregnant doe in the current investigation. It was simple to identify uterus with perineal hernia using ultrasonic testing. Goat dairy enterprises can effectively utilize prostaglandin and dexamethasone to induce parturition, even in the perineal hernia.

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