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UTERINE TORSION IN A MARE IN THE FINAL THIRD OF PREGNANCY: CASE REPORT

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Abstract: Uterine torsion in mares is an uncommon complication, but one that predisposes to serious complications. Signs of abdominal pain are common and can be confused with disorders of the gastrointestinal tract. Immediate care is important due to the risk of death for mother and fetus. This paper reports the case of a mare referred to the Veterinary Hospital of the University of Franca with signs of severe abdominal pain. After rectal palpation, ultrasound and vaginoscopy, it was possible to diagnose uterine torsion. The decision was made to perform a caesarean section and hysterectomy. During the surgical procedure, the uterine torsion was confirmed, and the fetus was removed without success and the hysterectomy was performed. The mare made a full recovery in the post-operative period and was discharged after eight days in hospital.

Keywords: Cesarean section. Equine. Pregnancy. Hysterectomy.

INTRODUCTION

Uterine torsion is a rare occurrence in mares and an uncommon cause of dystocia. It is characterized by the rotation of the gravid uterus by 180 to 540° and appears to be more common in draught horse breeds than in light breeds (Spoormarkers, 2016). Its incidence is more frequent in mares in their first foal and the majority of cases occur at an advanced or even complete stage of pregnancy (Martens et al. 2008). Animals presenting with uterine torsion usually show mild and often intermittent signs of abdominal pain. Although some mares show more severe signs of colic, the clinical presentation is usually mild and explains why there is a delay of hours or even days between the onset of abdominal discomfort and diagnosis. Rectal palpation is the best way to confirm or exclude torsion and rapid intervention to correct the rotation is essential for a better prognosis and to optimize the chances of survival for the mare and foal (Spoormarkers, 2016; Jung, 2008).

The causes of uterine torsion in mares are not well defined, but include factors such as fetal movement, sudden falls, frequent rolling of the mare or a very large fetus (Martens et al. 2008). In addition to failure to resolve uterine torsion, reported complications of rotation include uterine rupture, premature separation of the placenta, fetal death and premature delivery. Median ventral laparotomy is indicated in mares showing clear signs of readiness for delivery and when rupture or rotation of more than 360° is suspected. Regardless of the technique used, correcting the torsion becomes more difficult as the mare approaches the end of her pregnancy, due to the increased size and weight of the fetus (Vasey and Russel, 2011).

The aim of this paper is to report the case of a Thoroughbred Lusitano mare, seen at the Veterinary Hospital of the University of Franca, who in her first pregnancy had a uterine torsion, which was treated surgically by ventral median laparotomy for caesarean section and hysterectomy.

CASE REPORT

A Lusitano Thoroughbred mare weighing 515 kg, 3 years old, primiparous and 330 days pregnant, was admitted to the Veterinary Hospital of the University of Franca. The referral was made after a suspected uterine torsion on examination by the veterinarian in charge of the property, complaining of restlessness and greater manifestations abdominal pain. These signs were easily observed after the mare was admitted to the hospital, such as sweating, frequent attempts at urination, hunched posture, gaze directed towards the flank and kicks towards the abdomen (Figure 1). Physical examination revealed a heart rate of 52bpm, slightly reduced intestinal motility and mild dehydration. Laboratory tests showed alterations in the blood with leukocytosis of 15,700 uL and in the biochemical profile with fibrinogen 1,300mg/dL and blood lactate 5.17 mmon/L, the reference values being 5,500 to

12,500 uL, 100 to 400 mg/dL and 1.1 to 1.78 mmon/L respectively



Figure 1 - Mare with persistent clinical signs of abdominal pain, such as looking towards the flank, shortly before the surgical procedure.

Transrectal palpation revealed tension in the broad ligament of the uterus, indicative of rotation. Vaginoscopy revealed a completely closed cervix, with no signs of fetal expulsion, and transabdominal ultrasound showed no viable fetal movements or possible gastrointestinal alterations. After fluid replacement, analgesics and infusion of lidocaine without vasoconstrictor for pain control, the mare showed persistent clinical signs and severe abdominal pain. She was referred for a surgical procedure, in which a ventral median laparotomy was performed to carry out a caesarean section and hysterectomy. Pre-anesthetic medications were xylazine at a dose of 0.5 mg/kg, ketamine at a dose of 2.2 mg/kg and ether-glyceryl-guaiacol (EGG) at a dose of 0.5 ml/kg, which were chosen because they had little placental transfer and minimal maternal hemodynamic changes. After induction, the mare was placed in dorsal decubitus, underwent inhalation anesthesia and remained under infusion of lidocaine without vasoconstrictor at 3mg/kg/h and fluid therapy with ringer lactate

throughout the procedure. The procedure began with an incision of approximately 30 cm in the ventral midline, this approach allows greater access to the abdomen, allowing the arms to be inserted into the cavity to locate the uterus and correct the torsion. Once located, the caesarean section technique was performed with an incision of approximately 20 cm, The placenta was immediately isolated outside the cavity in order to prevent the leakage of inflammatory fluid after the placenta was evaluated and placentitis was confirmed, due to the presence of findings such as abnormal coloration, edema and thickening, shown in Figure 2. Soon afterwards, the fetus, which was already dead, was removed without any success in the resuscitation attempt (Figure 3).

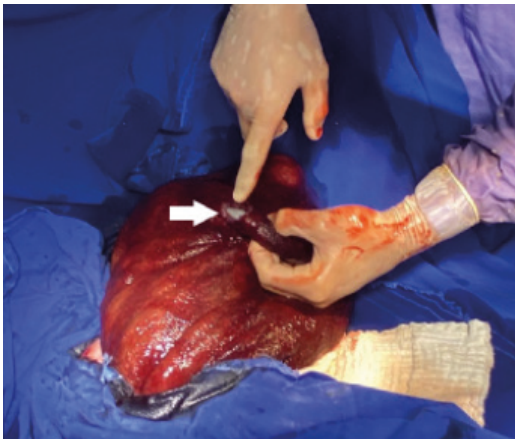


Figure 2 - Abnormally colored placenta and edema in the incisional region (arrow), which made it possible to confirm the presence of placentitis.



Figure 3 - Stillborn fetus, after unsuccessful attempts at resuscitation.

The uterine incision was then sutured with a size 3 polyamide synthetic suture in the Cushing pattern and the uterus exteriorized, making it possible to locate and confirm the 360° rotation shown in Figure 4.

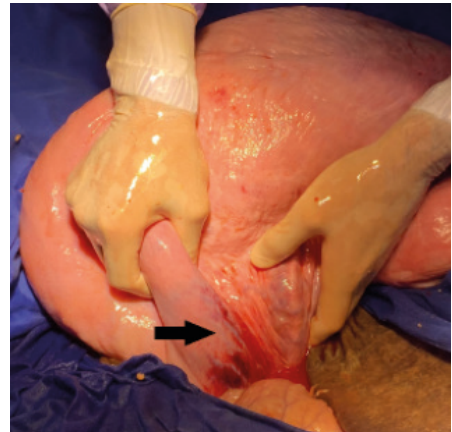


Figure 4 - Injured area (arrow) in the body of the uterus, showing points of ischemia caused by the 360° rotation of the uterus.

Due to the extent of the injury caused by the rotation and in order to avoid possible toxemia and inflammatory responses, we decided to perform a total hysterectomy. The uterine veins and arteries were ligated and due to the great thickness of the uterine stump, transfixations were performed together to close it with size 3 polyamide synthetic suture, as shown in Figure 5, after which the uterus was carefully removed (Figure 6).



Figure 5 - Transfixation to close the uterine stump for later removal.

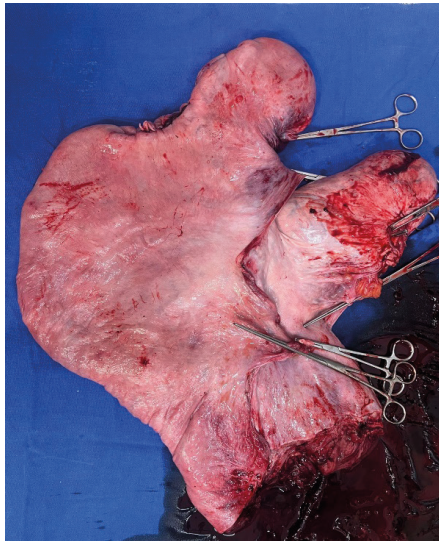


Figure 6 - Uterus removed after the hysterectomy technique, showing damaged areas and points of ischemia.

The muscles were then closed with a size 6 polyglactin 910 suture in a festooned suture pattern and the subcutaneous tissue was closed with the same suture used on the muscles in a Cushing pattern, and finally the skin was closed with staples. The animal was relocated to its stall after full recovery from anaesthesia, and the following physical examinations showed hypochromic mucous membranes and tachycardia. These alterations normalized approximately 48 hours after the procedure, taking into account the blood loss during the long and complex surgical procedure. Following the post-operative period, the therapeutic approach used was an association of benzylpenicillin potassium (40,000 IU/kg/BID) intravenously diluted over 10 days, amikacin sulphate (15 mg/kg/SID) intravenously over 7 days and polymyxin B (4,000 IU/kg) divided into 3 applications every 12 hours diluted intravenously; flunixin meglumine (1.1 mg/kg/BID) intravenously over 8 days; mercaptopon (50ml/BID) diluted intravenously over 7 days; dimethylsulfoxide (400ml/SID) diluted to 5% in lactated ringer's solution and administered intravenously over 3 days; ranitidine (2mg/kg/BID) over 8 days; omeprazole (2mg/

kg/SID) orally over 8 days. A more powerful analgesic protocol was chosen for the first 24 hours after surgery due to the high degree of visceral pain caused by the hysterectomy, with the combination of morphine (0.05mg/kg) every 4 hours intramuscularly, ketamine (1mg/kg) every 2 hours subcutaneously and dipyrone (25mg/kg) every 6 hours intravenously. This was followed for a further 2 days by dipyrone (25mg/kg/BID), ketamine (1mg/kg) every 2 hours subcutaneously and morphine (0.05mg/kg/BID). Lidocaine without vasoconstrictor was used intravenously as a bolus (1.3mg/kg/h) and infusion (3mg/kg/h), according to the animal's pain. The surgical incision was bandaged twice a day, using 10% PVPI and rifamycin spray throughout the hospital stay, as well as ice compresses and massage with dimethyl sulfoxide gel on the extremities to reduce edema and discomfort in the area. After 8 days of intensive hospitalization, the animal was discharged and began to be monitored by the veterinarian in charge of the property to remove the staples from the incision. Approximately 3 months after the surgical procedure, palpation and transrectal ultrasound were carried out to evaluate and examine her reproductive system, in which it was possible to assess that the ovaries had a follicular population, making aspiration possible in the future, and that the uterine stump was well healed and showed no signs of adherence.

DISCUSSION

According to Chaney (2007) it was observed that mares that develop uterine torsion more than 320 days into gestation are less likely to survive (65%) when compared to mares that develop uterine torsion before 10 months of gestation (97%), unlike the case reported in the present study in which the torsion developed 330 days into gestation and the mare made a full recovery.

According to Vasey and Russel (2011), uterine torsion is considered a differential diagnosis of colic syndrome in mares between the eighth and eleventh gestational months. In this report, the clinical signs included colic with manifestations of severe abdominal pain, restlessness, frequent urination, easel posture (lateral opening of the hind limbs), looking at the flank and attempts to kick the abdomen. These signs are persistent and return whenever analgesia is stopped and the treatment is not effective, as are the reports in the literature (Steel, 2002; Yorke et al., 2012).

The diagnosis, as in the present report, according to the literature consulted, is made by palpating the gravid uterus through the rectum, checking for tension in the broad ligaments, spiraling in the direction of the torsion. If the torsion occurs clockwise, the left ligament will be tense and crossed over the uterus, while the right ligament will extend dorsally over the organ (Steel, 2002; Vasey and Russel, 2011).

The literature reports that torsions greater than 270° can cause severe pain and possible uterine rupture (Perkins and Frazer, 1994). This can be associated with the present report, in which the mare had a 360° torsion with clinical signs of severe pain.

According to Frazer et al. (2002), certain degrees of uterine torsion can prevent transrectal palpation, which was not the case in this report, since during transrectal palpation, the veterinarian diagnosed uterine torsion less

than 24 hours after the clinical signs appeared.

The surgical approach, when carried out through the ventral midline, allows better access to the abdominal cavity and consequently also to the uterus. It is often used better assess uterine viability and, when necessary, to carry out a hysterectomy or uterine repair (Doyle, 2002; Vasey and Russel, 2011). It is worth mentioning that, when possible, the fetus can be removed by caesarean section (Leblanc, 2008), as was done in the current report, since the mare was already close to her due date and ultrasound did not show any clear signs that the fetus was viable, so the caesarean section was used to ensure the foal's chances of survival.

A retrospective study shows that fetal survival decreases as gestation time increases, and is higher when uterine torsion occurs before 320 days of gestation, at 72%, than when it occurs after 320 days of gestation, at 32% (Chaney et al., 2007). This corroborates the present report, in which the fetus did not survive and the pregnancy was in its final phase, at 330 days.

CONCLUSION

Uterine torsion poses a significant risk to maternal and fetal life, and the time it takes for care and diagnosis is crucial for a better prognosis for both the mare and the foal. Adequate pre-, trans- and post-operative care was essential for maintaining the mare's life, but did not prevent the fetus from dying.

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