

Spontaneous Uterine Rupture in a Greyhound Bitch during Parturition

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ABSTRACT

A 6-year old, Greyhound bitch was presented with vaginal hemorrhage and dystocia. Physical examination revealed severe vaginal hemorrhage, abdominal pain, pale mucous membranes and the presence of solid structures to abdominal palpation. A hematological test revealed a marked hemorrhagic anemia, and abdominal radiography and ultrasonographic examination showed two dead fetuses in the uterus. Median laparotomy revealed a rupture of the left uterine horn adjacent to the bifurcation, region of weakened uterine wall in the right uterine horn, blood clots and uterine fluids in abdominal cavity without septic peritonitis. The bitch underwent ovariohysterectomy and recovered without complication.

(Key words : uterine rupture, dystocia, vaginal hemorrhage, bitch)

INTRODUCTION

Uterine rupture is an uncommon complication during parturition in bitches.

The uterine rupture in a pregnant bitch can occur as a complication secondary to dystocia, exogenous oxytocin or PGF_{2α} administration for whelping induction (Linde-Forsberg and Ene-roth, 1998).

The prevalence of a periparturient uterine rupture in bitches is not known (Hajurka *et al.*, 2005). Stolla *et al.* (1999), and Darvelid and Linde-Forsberg (1994) failed to detect a uterine rupture in 337 and 182 bitches with dystocia, respectively.

The patient can present clinical signs of abdominal distention and pain, vaginal hemorrhagic discharge, dehydration, hypothermia, shock, reduced uterine activity and sudden reduction of fetal heart rate (Hayes, 2004; Hajurka *et al.*, 2005; Payan-Carreira *et al.*, 2012; Voorwald *et al.*, 2012).

The diagnosis of uterine rupture is possible through the patient's history, clinical signs, laboratory tests, abdominal radiography and ultrasound, and exploratory laparotomy (González-Domínguez *et al.*, 2010; Voorwald *et al.*, 2012).

Failure of an aborting fetus to be expelled, perhaps due to uterine inertia or intrauterine infections leads to fetal emphysema and maceration of fetus (Johnston *et al.*, 2001). Therefore, timely recognition of early signs of obstetrical related complications can help in ensuring a successful outcome for a bitch (Bodh *et al.*, 2014).

This case report describes the incidence of spontaneous ute-

rine rupture during parturition in a bitch.

CLINICAL CASE

A 6-year old, female Greyhound dog weighing 30 kg with a history of dystocia and vaginal hemorrhagic discharge was presented to the Chonnam National University Veterinary Teaching Hospital. The owner reported that the bitch had delivered a previous litter of seven puppies without complication. In the 17 hours before presentation, the bitch had whelped one live puppy, and after the first puppy whelped, 12 hours later, the bitch had whelped 1 dead and 2 more live puppies.

Physical examination revealed severe vaginal hemorrhagic discharge, abdominal pain, pale mucous membranes and the presence of solid structures to palpation.

Hematological evaluation revealed a marked normochromic normocytic mild anemia by reduced hematocrit (26.2 %, reference: 37.3~61.7), number of red blood cell (4.1 M/ μ , 5.65~8.87) and hemoglobin (9.4 g/dl, 13.1~20.5).

Abdominal radiographic and ultrasonographic examination showed two dead fetuses in the uterus (Fig. 1).

On the basis of these results, an emergency caesarean section or ovariohysterectomy (OHE) with intravenous fluid therapy and antibiotics was indicated. The ventral midline laparotomy revealed a mild amount of yellowish colored fluid, blood clots and green colored debris within the abdominal cavity. The inspection of the left uterine horn showed a ruptured uterus adjacent to the bifurcation, and the right uterine horn observed

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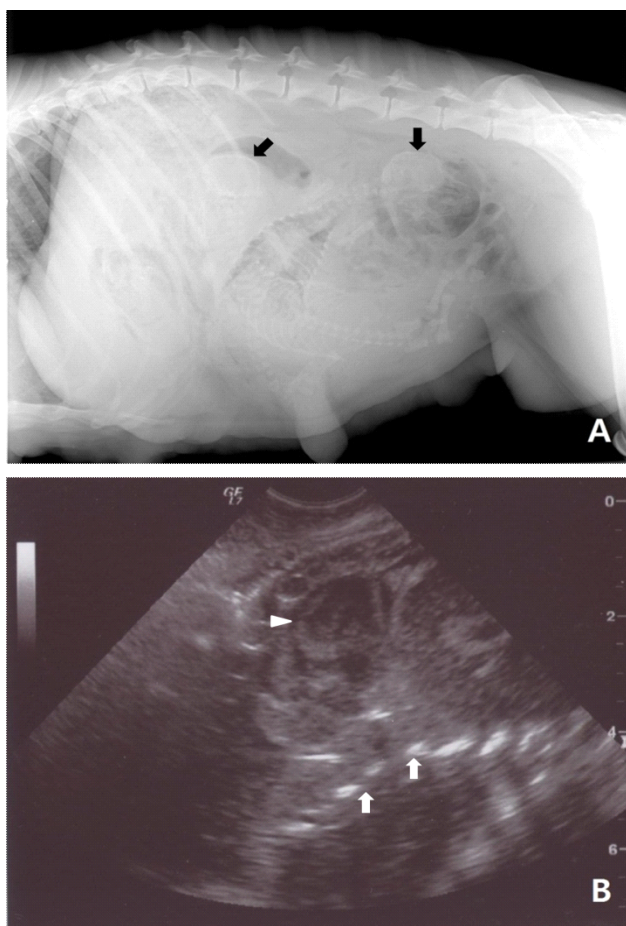


Fig. 1. Abdominal radiography (A) and ultrasonography (B) of this case. (A) There was marked retention of two fetuses (black arrows) in the uterus. (B) There was a confirmed dead fetus without a fetal heart rate and fetal movement (white arrow head- fetal heart, white arrows-fetal ribs).

shortly before the ruptured weakness uterine wall (Fig. 2). Therefore, OHE was performed, and the abdomen was repeatedly washed with warm sterile normal saline and was routinely closed. The dog recovered uneventfully from surgery.

DISCUSSION

In women, uterine rupture is one of the most obstetric complications and most cases of uterine rupture reported in developed countries result from rupture of a previous cesarean section scar, obstructed labor, multiple gestations, high parity and abnormal fetal position (Zeterogu *et al.*, 2005; Murphy, 2006).

Whereas, in dogs, spontaneous uterine rupture during the whelping is a rare condition. Ruptured uterus during the whel-

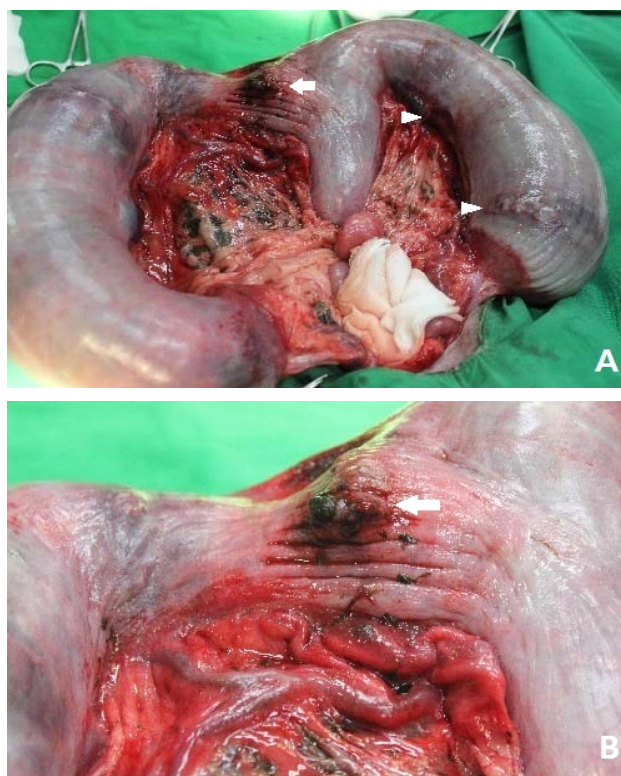


Fig. 2. The rupture of gravid uterus. (A) Gross appearance of the ruptured uterus adjacent to the bifurcation in the left uterine horn (white arrow) and weakened uterine wall in the right uterine horn (white arrow heads). (B) Detail of the rupture point adjacent to the bifurcation in the left uterine horn (white arrow).

ping is most likely to occur when erroneous oxytocin or PGF_{2a} administration, manually assisted whelping, trauma during late pregnancy and normal whelping (Hajurka *et al.*, 2005; Lindforsberg, 2010; Bodh *et al.*, 2014). Among these causes, uterine rupture during normal whelping has been commonly associated with very large litters, causing marked stretching and thinning of uterine wall, and uterine torsion (McEntee, 1990; Davidson, 2003).

In the present case, the uterine rupture during whelping was considered to be the repeated dystocia during subsequent whelping, which might have lead to incomplete uterine rupture causing weakened areas in the uterine wall. Repeated dystocia might have further turned this incomplete rupture into a complete rupture with penetration of the uterine serosa, as described by Bodh *et al.* (2014).

The clinical signs are dependent on the extent of the rupture, the existence of continuous hemorrhage, the contamination of

the abdominal cavity with uterine and fetal fluids, or the retention of a fetus in the uterus (Payan-Carreira *et al.*, 2012).

In this case, we observed the clinical signs of dystocia, severe vaginal hemorrhage, pale mucous membranes and the presence of solid structures to abdominal palpation, and a hematological test revealed hemorrhagic anemia. Also, we confirmed the retention of dead fetuses in the uterus via radiographic and ultrasonographic tests. Therefore, we infer that the gravid uterus was ruptured because of dystocia during labor.

According to Payan-Carreira *et al.* (2012), for a successful treatment of uterine rupture, early and correct diagnosis is important, because of these situations have to be treated as an emergency, and lead to posterior peritonitis and maceration of fetus. The most suitable therapeutic approach for uterine rupture is OHE combined with intravenous fluids and antibiotic therapy, and the detection of fetus in the uterus is an undisputed indication for OHE (Serin and Parin, 2009; Linde-Forsberg, 2010). In this case, we have chosen to perform emergency OHE. At the median laparotomy, it was observed that a rupture of the left uterine horn and weakened areas in the right uterine horn had occurred as well as blood clots and uterine fluids found in the abdominal cavity without septic peritonitis. Especially, the bitch in this case fully recovered without peritonitis development due to an early diagnosis and treatment of uterine rupture during labor.

In conclusion, this report is a presentation of canine uterine rupture results from dystocia during parturition. Early and definitive diagnosis of uterine rupture through clinical signs, radiography, ultrasonography and laparotomy can help in ensuring a successful outcome for a bitch.

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