Spontaneous rupture of uterus in the bitch at parturition with evisceration of puppy intestine – a case report

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ABSTRACT: A rupture of one uterine horn at the region of small curvature and placentation was observed in a pregnant 8-year old Schnauzer bitch carrying a single foetus. It occurred at its second parturition. The first whelping at the age of 3 years had been without complications and the bitch reared eleven puppies. The uterine rupture occurred at the puppy's umbilical cord. An urgent obstetrical examination revealed one dead foetus in anterior presentation and ventral position. Caesarean delivery was indicated. Evisceration of puppy's intestine through its ruptured abdominal wall at the umbilical cord could be observed through the uterine wall rupture of 1.5 cm in diameter. The bitch underwent hysterectomy and recovered without complications.

Keywords: bitch; rupture of uterus; parturition; single pup syndrome

Rupture of a gravid uterus is an unusual finding in the bitch, but is seen occasionally in the periparturient period in cases of dystocia. Stone et al. (1993) stated that uterine rupture in a pregnant bitch can occur following uterine torsion or trauma. The prevalence of uterine rupture in bitches is not known. Stolla et al. (1999) carried out a 14-year investigation at a university clinic in Germany, and did not observe uterine rupture in any of the 337 bitches with dystocia examined by them. Likewise Darvelid and Linde-Forsberg (1994) failed to detect periparturient uterine rupture in 182 bitches with dystocia. A comparative study was conducted by Ofir et al. (2003) on Israeli women and uterine rupture accounted for 0.035% of 117 685 childbirths. A literary review prepared by Chauhan et al. (2003) in the period of 1989–2001, involving women after preceding caesarian deliveries, showed that the attempt at vaginal parturition during the subsequent pregnancy resulted in uterine rupture in 6.2 per 1 000 deliveries. Ofir et al. (2003) listed the previous caesarean section, malpresentation, and dystocia during the second stage of labour as the principal causes of uterine rupture in women, although in the subsequent study these authors (Ofir et al., 2004) noted no significant differences between the rupture of a scarred and non-scarred uterus.

This case report describes an isolated case of uterine rupture in a bitch pregnant with a single puppy and evisceration of the puppy's intestine through the rupture.

CASE HISTORY

An eight-year old Schnauzer bitch, weighing 20.5 kg, was presented at the authors' veterinary teaching clinic.

The first spontaneous, non-complicated parturition of this bitch occurred at the age of 3 years when she whelped 11 puppies. In the subsequent period she came into heat twice a year (spring and autumn). At the age of 8 years an unwanted mating occurred in spring and the term of delivery was unknown. During this second pregnancy the bitch was examined once by ultrasonography due to suspected pregnancy. No additional examination

Figure 1. The uterine rupture of pregnant bitch horn

Figure 2. The uterine rupture on the small curvature at the region of placentation, and the foetal abdominal rupture with subsequent evisceration of intestine

to confirm the pregnancy and determine the size of litter was performed. The present pregnancy was of unknown gestation length. The owner presented the bitch at the clinic because of changed behaviour (apathy, decreased food uptake). The subseqent examination performed did not disturb the trias. Determination of leukocytes indicated moderate leukocytosis. Vaginal palpation found a foetal head in the partially opened cervix. Presence of a small quantity of dirty green-black discharge was observed. Ultrasonographic examination showed one dead foetus in anterior presentation. Radiographic examination confirmed the ultrasonographic finding. On the basis of examination an emergency caesarean section was indicated. A midline laparotomy was performed. Abdominal inspection indicated a single foetus pregnancy. During an attempt at exteriorisation of the gravid horn, its rupture was revealed at the region of small curvature of the uterus, with evisceration of foetus intestine. The foetal intestine had adhered to the surrounding abdominal organs of the bitch. A standard ovariohysterectomy was performed.

One dead foetus was found in the left uterine horn in anterior presentation and ventral position. The foetal head was lodged close to the partially opened cervix. The uterus was ruptured at its small curvature at the region of placentation, and the foetal abdominal wall rupture occurred at the umbilical cord with subseqent evisceration into the mother's abdominal cavity (Figures 1 and 2). The foetus showed no signs of putrefaction. Foetal remnants were found in the uterus together with a minute quantity of dirty, green-black, odourless liquid. After removing the foetus from the uterus the endometrium showed no signs of irregularity

Figure 3. Opened pregnant uterine horn, with rupture at the placentation site

Figure 4. The non-gravid uterine horn, with a single cystic structure

(Figure 3). Single cystic structures were observed in the endometrium of the non-gravid horn (Figure 4). The dead foetus, a male puppy weighing 330 g, was fully developed. Due to continuing pressure resulting from labour forces, the puppy's head was wedge-shaped. The left and right ovary of the bitch contained 8 and 4 *corpora lutea*, respectively.

Before the operation, prophylactic antibiotics (Benzilpenicillin procaine and dihydrostreptomycin – Intramicín inj. a.u.v., Seva Sante Animale) were admistered to the bitch. During the operation fluid therapy was applied. The bitch made an unremarkable recovery from surgery and was eating and urinating normally within several hours. It was discharged from the clinic 48 hours after initial presentation and showed no complications when it was presented for the removal of sutures 10 days after the operation.

DISCUSSION

Preparturient rupture of the uterus often results from external trauma. Rupture during the whelping is most likely to occur in cases in which the uterine wall is compromised by the presence of infection, a dead foetus, uterine torsion, or careless obstetrics procedures. It can be also caused by excessively large doses of oxytocin (Jackson, 2004a). In our case, the uterine rupture occurred during spontaneous delivery of an oversized foetus in ventral position. Deformation of the foetal cranium, rupture of its abdominal wall at the umbilical region and evisceration of foetal intestine through the rupture of its abdominal wall and maternal uterus bear witness to the force of contractions. Johnston et al. (2001a) warned that ecbolic drugs should not be used if obstructive dystocia is present because uterine rupture may ensue. In our case, although no uterotonics were used, the uterine rupture resulted most probably from extensive pushing by the bitch but which, however, was not observed by the owner.

One- foetus pregnancy has been termed a "single puppy syndrome" (Jackson, 2004 b). It is believed that the single puppy fails to produce sufficient ACTH and cortisol to initiate the birth process. Having outgrown its placental supply of oxygen and nutrients the puppy dies in utero and becomes mummifed or macerated. In our case the parturition started, but because of foetopelvic disproportion it was not completed.

Prior to birth, the dog foetus is normally in the ventral position and rotates through 180° just before entering the pelvis (Jackson, 2004b). Foetal maldisposition may be predisposed and exacerbated by foetal death. The dead foetus is unable to make the small spontaneous movements that can result in correct position and posture. The data presented correspond fully to this case. The foetus had developed in the ventral position during the pregnancy, but after its death, and due to its excessive size, did not rotate to the dorsal position.

The reasons for the single puppy syndrome in bitches are probably pregnancy loss and resorption of embryos. Hysterectomy in the second half of pregnancy showed that 13% of resorptions were present among 98 foetal implantation sites (Robertson et al., 1979). In this case, of the total number of 12 ovulations (8 at the left and 4 at the right ovary), a reduction in fertilisation, to just one foetus occurred. The exact incidence of embryonic or foetal loss is difficult to determine during pregnancy in the bitch. Owners may be uncertain whether the pregnancy was established, since external signs of resorption may be minimal. Reasons for embryonic loss in the dog are both non-infectious and infectious (Johnston et al., 2001b). In this case the owner did not report negative circumstances during the second pregnancy, although the pregnancy proceeded in only one out of 12 ovulations (91.7% loss). On the other hand, this bitch whelped an oversized litter at the first pregnancy (11).

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