

A Clinical Case of Foetal Maceration and Posttraumatic Uterine Rupture in a Bitch

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ABSTRACT

A clinical case of uterine rupture following external trauma and macerated fetuses, which were diagnosed 20 days after parturition and without signs of sepsis in a 10-year-old Bulgarian Scenthound bitch is described. On physical examination, there were no changes in the general condition of the animal. Complete blood counts and blood biochemistry results did not show any deviations from reference values and did not indicate sepsis development. After ultrasonography, foetal debris was observed and radiography confirmed the presence of parts of two fetuses in the abdominal cavity. Median laparotomy revealed macerated foetus (hair and bones) in the abdominal cavity, ruptured left uterine horn near to the bifurcation and a macerated foetus inside the horn. Due to the adhesions between the omentum and the uterus and pathological alterations of the uterine wall in the ruptured area, ovariohysterectomy was performed. The clinical examination had been performed for ten days until the bitch showed good recovery.

Key Words: Rupture, uterus, maceration, bitch

ÖZET

BİR DIŞİ KÖPEKTE GÖRÜLEN KLİNİK FÖTAL MASERASYON VE POSTTRAVMATİK UTERUS RUPTURU VAKASI

Bu klinik vakada; 10 yaşındaki Bulgar Scenthound ırkı dişi bir köpekte, eksternal travmayı takiben oluşan, doğumdan 20 gün sonra teşhis edilen ve sepsis gözlenmeyen uterus rupturu ve fötüs maserasyonu anlatılmaktadır. Yapılan fiziksel muayenede hayvanın genel durumunda bir değişiklik gözlenmemiştir. Total kan sayımı ve kan biyokimyasal test sonuçlarında referans değerlerden herhangi bir sapma veya sepsis gelişimi görülmemiştir. Ultrasonda fötal kalıntılar gözlendikten sonra yapılan radyografide, abdominal boşlukta iki fötusa ait parçalar bulunduğu tespit edilmiştir. Yapılan median laparotomi ile bifurkasyo noktasından yırtılmış sol uterus boynuzu içerisinde masere olmuş ve abdominal boşlukta bulunan (saç ve kemikten oluşan) iki adet fötüs ortaya çıkarılmıştır. Yırtılan bölgedeki uterus duvarında gerçekleşen patolojik değişiklikler ve uterus ile omentum arasında oluşan yapışmalar nedeniyle ovariohisterektomi operasyonu gerçekleştirilmiştir. Tedaviden 10 gün sonra yapılan klinik muayenede hayvanın iyileştiği gözlenmiştir.

Anahtar Kelimeler: Ruptur, uterus, maserasyon, dişi köpek

Introduction

The rupture of the uterus in bitches is an acute, life-threatening condition observed by the end of pregnancy or during parturition that appears most commonly as a result of dystocia (Hajurka et al., 2005; Hayes, 2004; Humm et al., 2010).

The main causes that could lead to uterine rupture are traumas, uterine torsion, pathological alterations of the uterine wall, inadequate obstetric care and application of high doses of oxytocin or prostaglandin F_{2α} (Allcock and Penhale, 1952). Humm et al. (2010) describe a clinical case of a Great Dane with ruptured uterus and septic peritonitis secondary to administration of high doses of oxytocin and manual assistance during parturition. Uterine ruptures in bitches have been also reported as complications following pyometra, obstruction and trauma (Bomzon, 1977; Dunn and Foster, 1977; Morey, 2005; Oelzner and Munnich, 1997).

Foetal maceration has been shown when the aborted foetus could not be expelled by the atonic uterus. Foetuses which were determined in the abdominal cavity after uterine rupture could die and become resorbed or could be retained (Johnston et al., 2001).

The presented clinical case described a rupture of the uterus after an external trauma and foetal maceration in a bitch, without signs of sepsis, diagnosed 20 days after parturition.

Case

History

A 10-years-old female Bulgarian Scenthound dog, 19 kg in weight, was referred for examination at the Small Animal Clinic of the Faculty of Veterinary Medicine, Trakia University in Stara Zagora. The owner reported a 2-day history of yellowish discharge from the external genitalia mixed with hairs. The dog has given birth to one live puppy on 20 days ago and 5 days after parturition, she was injured in a road accident.

Physical examination

Rectal body temperature; 38.9 °C, heart rate; 86 min⁻¹, respiratory rate; 22 min⁻¹. The appetite was preserved and the colour of visible mucosa coats was rose-red. The abdomen was slightly enlarged, soft and not painful upon palpation.

Gynaecological examination

The inspection of the external genitals showed the presence of a thick yellowish discharge (Figure 1), without specific smell, mixed with hairs. The vaginal examination did not reveal any foetuses or foetal debris.

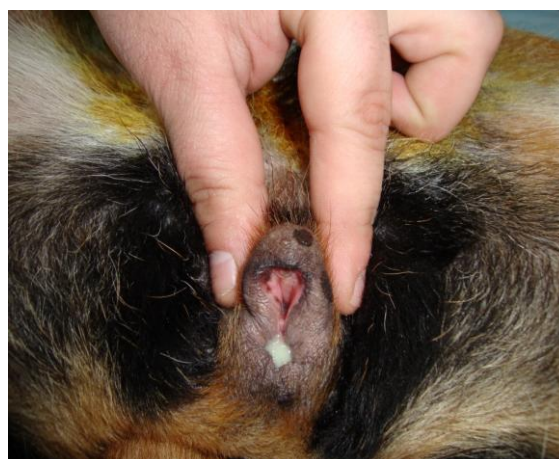


Figure 1. Yellowish discharge from the external genitals.

Şekil 1. Dış genital yolda bulunan sarımtırak akıntı.

Complete blood counts and blood biochemistry results

The hematology parameters were determined on an automated hematological analyzer BC-2800 Vet (Mindray, China). The differential blood cell counts were determined on Giemsa-stained blood smears and the absolute counts of neutrophils, lymphocytes, eosinophils, basophils and monocytes were calculated. The biochemical parameters were assayed on a biochemical analyzer BA 88 (Mindray, China). Blood laboratory tests (Table

1) did not show any deviations from reference values (Kaneko et al., 2008; Weiss and Wardrop, 2010) and did not indicate sepsis development.

Ultrasonography and radiography

Ultrasonography was done on a portable ultrasound system CHISON 600 VET (Chison

Medical Imaging Company, China) with a 5 MHz micro-convex probe. The findings were documented on a Mitsubishi P91E printer (Tokyo, Japan). Transabdominal sonography showed enlarged uterine lumen, hyperechoic foetal debris (Figure 2), without anechoic amniotic fluid. The presence of foetal skeletons was confirmed by abdominal radiography (Figure 3).

Table 1. Complete blood counts and blood biochemistry results in a patient.

Tablo 1. Hastanın total kan sayımı ve kan biyokimyasal testlerinin sonuçları.

Hematology Parameter	Result	Reference Values*	Biochemistry Parameter	Result	Reference values [#]
HGB	122	120-180	Total protein	69	54.0-71.0
HCT	37.1	37-55	Glucose	5	3.61-6.55
RBC	5.99	5.5-8.5	ASAT	28	23-66
MCV	64	60-77	ALAT	25	21-102
PLT (x10 ⁹ /l)	258	200-500	Urea (mmol/l)	3.13	1.67-3.33
WBC (x10 ⁹ /l)	9.6	6.0-17.0	Creatinine (μmol/l)	71.7	44.2-132.6
NS (x10 ⁹ /l)	6.8	3.0-11.5			
LYMP (x10 ⁹ /l)	1.2	1.0-4.8			
EOS (x10 ⁹ /l)	0.2	0.1-1.25			
MON (x10 ⁹ /l)	0.4	0.15-1.35			
BASO (x10 ⁹ /l)	0	0-0.1			

Legend: HGB = hemoglobin; HCT = hematocrit; RBC = red blood cells; MCV = mean corpuscular volume; PLT = platelets; WBC = white blood cells; NS = neutrophils; LYMP = lymphocytes; EOS = eosinophils; MON = monocytes; BASO = basophils

[#] Kaneko et al., 2008; Weiss and Wardrop, 2010

Operative intervention

After aseptic operation site preparation, the patient was premedicated subcutaneously with 0.04 mg/kg atropine sulphate (Atropinum sulfuricum; Sopharma; Bulgaria). Fifteen minutes later anaesthesia was induced by intravenous injection of 0.4 mg/kg diazepam (Diazepam; Sopharma; Bulgaria) and 10 mg/kg ketamine (Ketaminol 10; Intervet; Holland). After endotracheal intubation, general anaesthesia was maintained with isoflurane

(Forane; Abbott Laboratories Ltd; United Kingdom). The operative approach included median laparotomy that revealed macerated foetal debris (hair and bones) in the abdominal cavity after opening of the peritoneum. The inspection of the uterus showed ruptured left uterine horn adjacent to the bifurcation (Figure 4), adhesions between the omentum and the uterus and a macerated foetus inside the uterine horn (Figure 5).

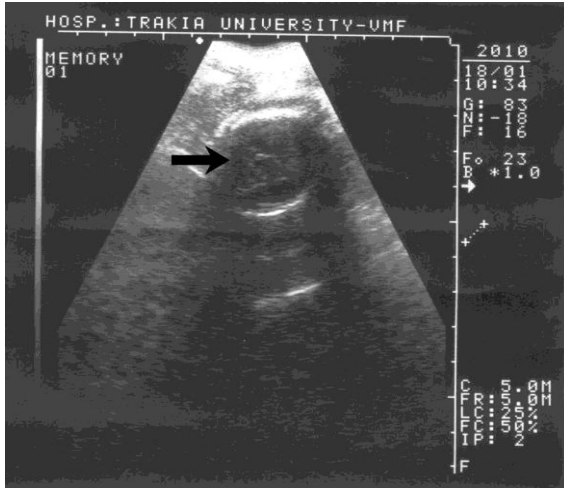


Figure 2. Sonographic visualization of foetal debris.

Şekil 2. Fötal kalıntıların sonografik görüntüsü.

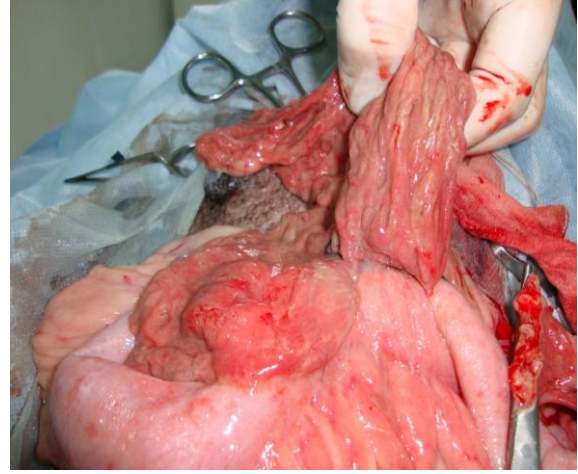


Figure 4. Rupture of the left uterine horn adjacently to the bifurcation and adhesions between the omentum and the uterus.

Şekil 4. Uterusun sol boynuzunda bifurkasyo bölgesindeki ruptur ve omentum ile uterus arasındaki yapışmalar.

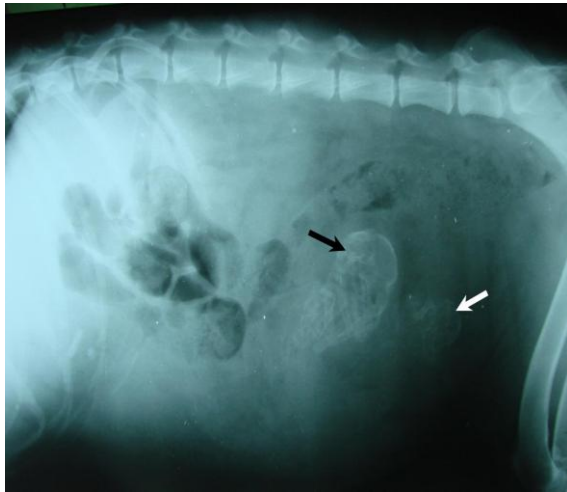


Figure 3. Lateral abdominal radiography showing debris of two fetuses.

Şekil 3. İki fötusa ait kalıntıların bulunduğu lateral abdominal radyografi.

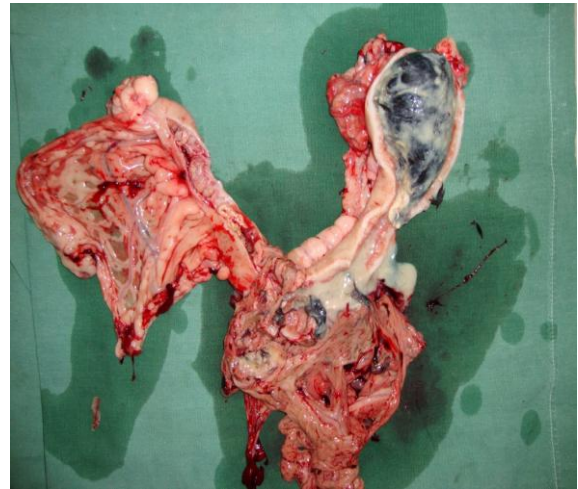


Figure 5. Maceration of a foetus in the left uterine horn.

Şekil 5. Uterusun sol boynuzundaki masere olmuş fötüs.

There was no exudate within the abdominal cavity, or pathological alterations of the peritoneum and the other visceral organs. On the basis of these findings, ovariohysterectomy was performed. The abdomen was washed twice with sterile saline and closed with interrupted No 1 absorbable polyglycolic acid

sutures (Marlin; Catgut GmbH; Markneukirchen), and the skin was sutured with simple interrupted non-absorbable sutures No 0 (Vitalon; Dr Hammer & Co. GmbH; Hamburg). Post-operative treatment included 7-day antibiotic treatment with 30 mg/kg lincomycin/spectinomycin (Lincomycin

Spectinomycin 5/10; Alfasan International; Holland) applied intramuscularly and 3-day administration of non-steroidal anti-inflammatory drug - 2 mg/kg ketoprofen (Ketofen; Merial; Lion; France). A protective Elizabethan collar was placed. Skin sutures were removed ten days later. The clinical examination performed until the bitch showed good recovery.

Discussion

The rupture of the gravid uterus in the bitch is a rare complication. This is supported by the surveys of Darvelid and Linde-Forsberg (1994) and Stolla et al. (1999) who did not report ruptured uterus in 182 and 337 dystocia cases in dogs.

In the opinion of Hajurka et al. (2005) the uterine rupture which occurs just before the parturition, is due to external trauma. They describe a clinical case of a spontaneous uterine rupture in a bitch at parturition, with evisceration of puppy intestines. In the case presented here, uterine rupture has probably occurred following external trauma (road accident) 5 days after the bitch has given birth to one live puppy.

Foetal retention at parturition is considered as a rare condition. Nevertheless, the retention of dead foetuses could induce uterine inertia, intrauterine infection, emphysema or foetal maceration (Johnston et al., 2001).

The occurrence of foetal debris (hairs and bones) in the abdominal cavity allows assuming that in this case, foetal maceration has probably occurred before the rupture of the uterus. Gonzalez-Dominguez and Maldonado-Estrada (2006) reported foetal maceration in a bitch with post-term pregnancy due to application of progestins.

Johnston et al. (2001) believe that cases of foetal retention and maceration are accompanied by uterine discharge of a foul and putrid smell, with signs of toxæmia or septicaemia. In this case, similarly to asymptomatic uterine rupture in a bitch reported by Gonzalez-Dominguez et al. (2010), no signs

of sepsis were present. The patient was with normal rectal body temperature, heart and respiratory rates, preserved appetite and painless abdomen. There were no deviations in complete blood counts and blood biochemical indices, the odour of the genital discharge was not specific or unpleasant, and there were no signs of septic peritonitis after median laparotomy. It could be affirmed that in this case, aseptic foetal maceration was similar with Serin and Parin's report (2009) in a bitch with vaginal discharge due to retention of foetal bones without uterine rupture.

The detection of retained foetal debris was made by the ultrasonography scan and conformed by radiography that showed parts from two foetuses in the abdominal region. Only after the median laparotomy it was observed that a foetal maceration had occurred as well as a rupture of the left uterine horn. Because of the adhesions between the omentum and the uterus and the long time interval since the trauma, we have chosen to perform ovariohysterectomy. According to Serin and Parin (2009), the detection of foetal debris in the uterus is an undisputed indication for this operative intervention.

Conclusions

The presented clinical case provided that the evidence of the simultaneous uterine rupture and foetal maceration in the bitch without worsening of the general condition and sepsis development. Although it was rarely seen in the clinical practice, such conditions are important as the inadequate diagnosis would finally result in a poor outcome.

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