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Olgu Sunumu / Case Report

Extrauterine pregnancy in a chihuahua bitch

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ABSTRACT

A four-year-old, 5.3 kg multiparous female Chihuahua bitch was presented to the Obstetrics and Gynaecology Clinic, Faculty of Veterinary Medicine, Hatay Mustafa Kemal University for a routine post-partum genital organ examination one day after parturition. Vital parameters were within the normal ranges. On vaginal examination, there was found no fetal structure in the birth canal. Transabdominal ultrasonography showed no distinct signs of a fetus. However, the radiographic examination detected a round, compact form of fetal skeletal structure in the abdomen. An exploratory laparotomy was decided to remove the fetal structure. Complete haematological and biochemistry analysis illustrated neutrophilia, thrombocytosis, and increased C-reactive protein level. During the surgery, a vascularised mass containing the fetus was removed from the abdomen. As a result of dissection and radiographic examination of the mass, it was determined that it contained a fetus. In conclusion, it was concluded that extrauterine pregnancy in bitches is asymptomatic and may be diagnosed by radiographic examination in the postpartum genital organ examination.

Chihuahua ırkı bir köpekte ekstrauterin gebelik

ÖZET

Dört yaşında, 5,3 kg ağırlığında, multipar dişi Chihuahua ırkı bir köpek, doğum sonrası birinci günde rutin genital organ muayenesi için Hatay Mustafa Kemal Üniversitesi Veteriner Fakültesi Doğum ve Jinekoloji Kliniği'ne getirildi. Vital parametreler normal sınırlardaydı. Vajinal muayenede doğum kanalında fetal yapıya rastlanmadı. Transabdominal ultrasonografide fetüse dair bir bulguya rastlanmadı. Ancak radyografik incelemede abdomende yuvarlak, kompakt bir fetal iskelet yapısı tespit edildi. Fetal yapının çıkarılması için tanı amaçlı laparotomi yapılmasına karar verildi. Tam kan sayımında nötrofili ve trombositozis, serum biyokimya analizinde ise C-reaktif protein düzeyinde artış belirlendi. Operasyon sırasında abdomende içerisinde fetüsün bulunduğu vaskülarize bir kitle çıkarıldı. Kitlenin diseksiyonu ve radyografik muayenesi sonucunda içerisinde fetüs olduğu tespit edildi. Sonuç olarak köpeklerde ekstrauterin gebeliğin asemptomatik olduğu ve doğum sonrası genital organ muayenesinde radyografik inceleme ile teşhis edilebileceği sonucuna varıldı.

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1. Introduction

Extrauterine pregnancy refers to establishing pregnancy outside the uterus (1). The leading causes of extrauterine pregnancy include trauma, uterine rupture, the backward movement of the ovum, high-dose oxytocin administration, and uterine anomalies (2). Specific clinical symptoms of extrauterine pregnancy are none (3). Hence, it is generally diagnosed accidentally during ultrasonography, radiography, and computed tomography examinations (4). After the diagnosis, surgical removal of the extrauterine tissue is the most effective treatment option (5). This case report aimed to present extrauterine pregnancy in a Chihuahua bitch.

2. Case Story

A four-year-old, 5,3 kg multiparous Chihuahua bitch was presented to Hatay Mustafa Kemal University Veterinary Faculty Health Practice and Research Hospital for a routine post-partum genital organ examination one day after parturition. Upon physical examination, the bitch was active, alert, and had a good appetite. The bitch had normal vital parameters: a body temperature of 38,2 °C, a heart rate of 92 bpm, and a respiratory rate of 24/min. On detailed anamnesis, it was learned that the bitch whelped two pups at an interval of 24 hours; the first pup was born alive, and the second pup was a stillbirth. In the reproductive history, it was learned that bitch showed estrus every six months, the first and second pregnancies were normal, and no medical and surgical treatment was carried out. In the first pregnancy, five puppies were born alive. Four puppies were born in the second pregnancy, and two died within the first ten days. On the vaginal examination, the birth canal was typical, and no fetal findings were found. Abdominal ultrasonography examination revealed no signs of fetal structures in the uterus and abdominal cavity. However, radiographic examination detected the fetal head and spines in the abdomen (Figure. 1).

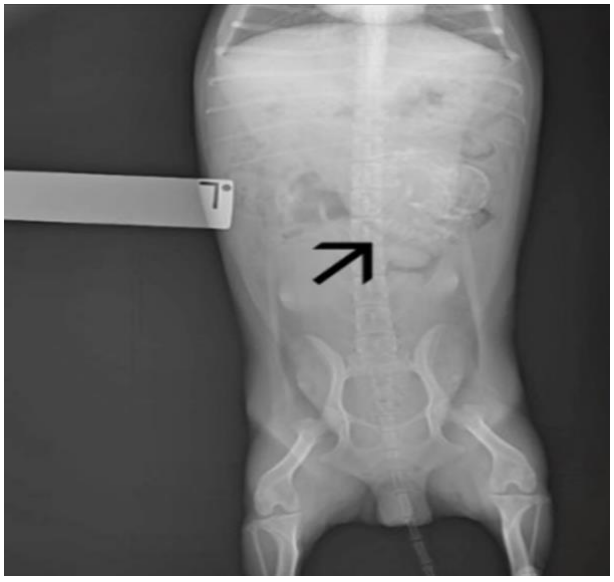

Figure 1: Abdominal ventrodorsal radiography of the bitch, fetal structure (arrow)
Şekil 1: *Köpeğin ventrodorsal abdominal radyografisi, fetal yapı (ok)*

Therefore, an exploratory laparotomy was decided to remove the fetal structure. Blood samples were collected from *v.cephalica* into tubes without anticoagulants for preoperative haematological and biochemical analysis. A complete blood count (CBC) indicated neutrophilia and thrombocytosis. Blood biochemistry analysis showed that values were within normal limits except for the C-reactive protein (Table 1).

Table 1: Haematological and biochemistry parameters of the bitch
Tablo 1: *Köpeğin hematolojik ve biyokimyasal parametreleri*

Parameter	Result	Refereneces Values	Evaluation
WBC (m/mm^3)	16,60	6.0-17.0	N
LYM (%)	9,40	10.0-30.0	↓
NEU (%)	86,70	50.0-80.0	↑
NEU (#)	14,40	3.0-13.60	↑
EOS (%)	0,70	2.0-10.0	↓
EOS (#)	0,10	0.10-1.70	N
RBC (m/mm^3)	6.80	5.50-8.50	N
MCV (fL)	66.30	58.0-73.0	N
HCT (%)	45.60	35.0-55.0	N
MCH (pg)	20	20.0-25.0	N
MCHC (g/L)	30.20	28.0-40.0	N
RDW (%)	9.30	8.0-12.0	N
HGB (g/dL)	13.80	10.0-18.0	N
MPV (fL)	9	5.0-12.0	N
PDW (%)	7.90	6.0-10.0	N
CREA (mg/dL)	0.79	0.30-1.70	N
CRP (mg/dL)	5.20	0.20-0.90	↑
GGT (IU/L)	10.0	1.0-10.0	N
GOT (IU/L)	28.30	10.0-88.0	N
GPT (IU/L)	20.0	10.0-109.0	N
URE (mg/dL)	18.0	10.70-59.920	N
ALB (g/dL)	2.30	2.30-4.40	N
ALP (U/L)	181.0	1.0-280.0	N
CA (mg/dL)	9.20	9.20-11.10	N

WBC: white blood cell; LYM: lymphocyte; NEU: neutrophil; EOS: eosinophil, RBC: red blood cell; MCV: mean corpuscular volume; HCT: hematocrit; MCH: mean corpuscular haemoglobin; MCHC: mean corpuscular haemoglobin concentration; RDW: red cell distribution width; HGB: haemoglobin; MPV: mean platelet volume; PDW: platelet distribution width; CREA: creatine; CRP: C-reactive protein; GGT: gamma-glutamyl transferase; GOT: aspartate aminotransferase; GPT: alanine aminotransferase; URE: urea; ALB: albumin; ALP: alkaline phosphatase; CA: calcium; Normal (N), ↑ (increase), ↓ (decrease).

The bitch was premedicated with xylazine hydrochloride (1 mg/kg b.w., intramuscularly, SID, Xylazinbio® 2%, Interhas, Czech Republic) and ketamine hydrochloride (11 mg/kg b.w., SID, intramuscularly, SID, Ketasol 10%, Interhas, Czech Republic). Then, the bitch was placed on ventral recumbency. After the endotracheal intubation, anaesthesia was induced with 2 % isoflurane and %100 oxygen (Foran® Adeka, Piramal, USA). Midline laparotomy surgery was performed to remove the existing fetal structure in the abdomen. After reaching the abdomen, it was observed that the uterus had the characteristics of the postpartum period, and there was no tear or rupture in the uterus (Figure 2).

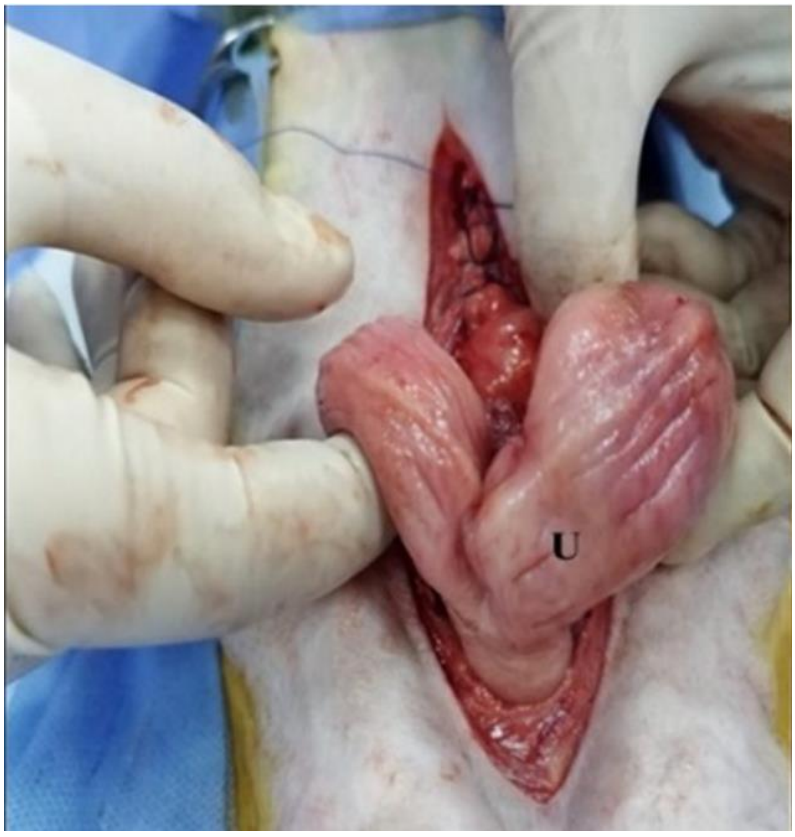

Figure 2: Intraoperative images of the uterus (U).
Şekil 2: *Uterusun (U) operasyondaki görüntüsü*

Upon examining the abdomen, a vascularised mass surrounded by mesenteric adipose tissue was detected in the left abdominal region, adhering to the abdominal wall (Figure 3). On palpation, the mass was firm and adhered to the abdominal wall, but there was no adhesion to other organs in the abdomen, such as the spleen, stomach, and intestines. The mass was removed by blunt dissection from the surrounding mesenteric fat and abdominal muscle tissues (Figure 3).

After the removal of the mass, the peritoneum, muscles, and subcuticular connective tissues were sutured with the continuous locked suture technique, and the skin was sutured with the simple continuous suture method with 2.0 PGA surgical thread (Trusynth, USA). To prevent post-operative pain and infections, a single dose of meloxicam hydrochloride (0.2 mg/kg b.w., subcutaneously, SID, Meloksikam, Bavet®, Turkey) and amoxicillin-clavulanic acid (20 mg/kg b.w., subcutaneously, SID, Synulox, Zoetis, USA) was administered for three days.

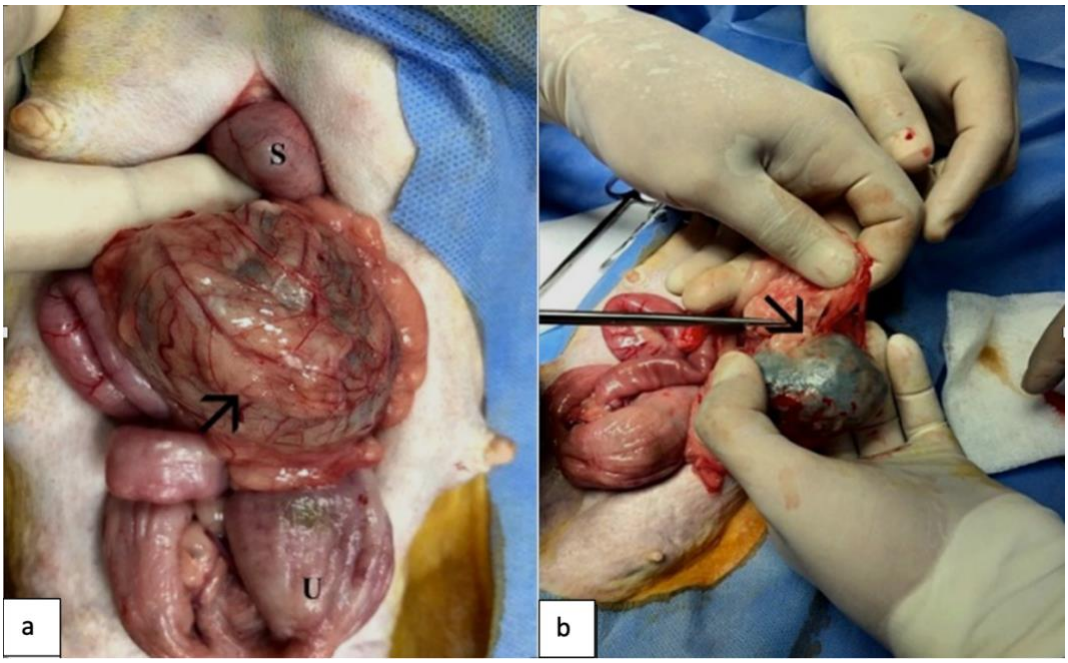

Figure 3: (a): Intraoperative images of the uterus (U), the mass containing the fetus (arrow), and the stomach (S); (b); Blunt dissection of the mass containing the fetus (arrow)

Şekil 3: *(a)Operasyon esnasında uterus (U), fetusu barındıran kitle (ok) ve midenin (S) görüntüsü; (b) fetüsü barındıran kitlenin diseksiyonu (ok)*

After the surgery, a radiographic examination of the mass was performed. In the examinations, the fetal skull, ribs, and vertebrae were detected. Following the incision of the mass, it was found that the fetus was decayed, the fetal extremities and skull were developed, and the hair follicles began to develop in the lower parts of the body (Figure 4).

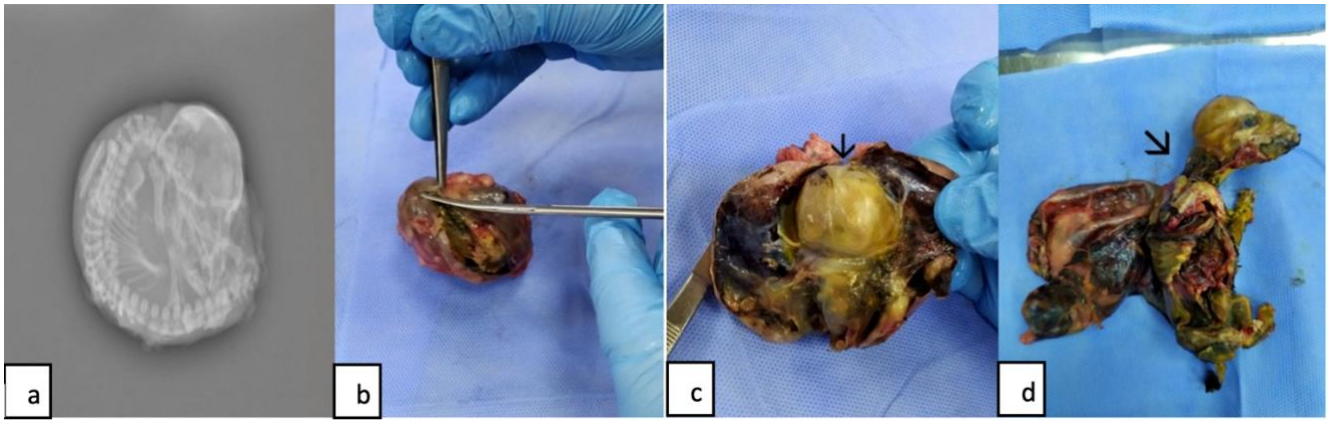

Figure 4: Radiographic image of the removed mass (a). Dissection of the mass (b). Macroscopic view of the fetus in the mass (c). Fetus (arrow)(d)

Şekil 4: *Çıkarılan kitlenin radyografik görüntüsü (a). Kitlenin diseksiyonu (b). Kitle içindeki fetüsün makroskobik görünümü (c). Fetüs (ok)(d)*

3. Discussion and Conclusion

Extrauterine pregnancy is defined as the occurrence of pregnancy outside the uterus. Two types of extrauterine pregnancy are present: tubal and abdominal (1,3). Tubal pregnancy occurs when the mature oocyte fertilises and remains in the oviduct. Abdominal pregnancy, on the other hand, occurs in two different ways: primary and secondary. In primary abdominal pregnancy, the fertilised ovum passes into the abdomen and develops in the abdominal cavity after fertilisation of the mature oocyte. Secondary pregnancy is formed as a result of the uterine rupture and falling into the abdominal cavity for various reasons following the implantation of the fetus into the uterus. Its aetiology includes trauma, uterine rupture, the backward movement of the ovum, high-dose oxytocin administration, and uterine anomalies (1,2,3).

Differentiation of the subtypes of extrauterine pregnancy is made by clinical findings and histopathology. The presence of rupture in the uterus, the localisation of the fetus in the extrauterine region, and the presence of placentation confirmed by histopathological analysis are indicators of secondary extrauterine pregnancy (1). However, observing the scar tissue and rupture in the uterus can remain inconclusive in the differentiation of primary and secondary extrauterine pregnancy (1). Since uterine injuries and regeneration of small tears can occur promptly. In many cases of extrauterine pregnancy, no ruptures or scar tissues were observed in the uterus (4,6). Therefore, the histological presence of placentation is the most accurate evidence of secondary pregnancy cases (7), and all cases without the findings as mentioned above should be called secondary extrauterine pregnancy (7). In this case, no rupture was found in the inspection of the uterus during the intraoperative period. Considering all these, it was thought that the fetus may have fallen into the abdomen, and a secondary extrauterine pregnancy may have occurred as a result of the rupture of the uterus in the previous parturition of the bitch.

In this case report, extrauterine pregnancy was diagnosed by radiography during routine post-partum examination, and there were no specific clinical symptoms related to extrauterine pregnancy. This is compatible with the literature since extrauterine pregnancy cases are generally asymptomatic (1), and the diagnosis is made incidentally with radiography, ultrasonography, and computed tomography taken for various reasons (3,4,5).

The primary treatment approach following the diagnosis is removing the extrauterine tissue by surgical method. It was stated that an ovariohysterectomy operation can be performed together with the removal of the extrauterine tissue (4,5). In the present case, extrauterine pregnancies were diagnosed incidentally by the radiographic examination for the postpartum genital organ examination. No necrosis, haemorrhage, or tear was detected in the ovary and uterus. For this reason, only the removal of the mass was performed without performing an ovariohysterectomy operation.

It was stated that bitches are generally healthy in cases of extrauterine pregnancy (5,8). The severity of clinical findings in the cases varies depending on the adhesion of extrauterine tissue to the abdominal tissues and the necrosis of the extrauterine tissue (9). In some cases, clinical findings related to the gastrointestinal system, such as anorexia, vomiting, and diarrhoea, may be observed due to the adhesion of the mass to the intestines (10). This case report observed that the extrauterine tissue had no adhesion to the abdominal organs. Accordingly, haematological and biochemistry findings were found to be between reference values. A weak increase in the C-reactive protein (CRP) level was only noted. However, this increase seems to be related to the inflammatory process of parturition and shows a trend similar to that of previous studies (11,12).

In conclusion, extrauterine pregnancy is asymptomatic, and haematological and biochemistry analysis shows no distinctive results. It is generally diagnosed accidentally by different imagining techniques in bitches. The transabdominal ultrasonographic examination may not be practical in diagnosing extrauterine pregnancy. Therefore, the radiographic examination must be performed to diagnose extrauterine pregnancy in bitches. Surgical removal of the extrauterine is the primary treatment option.

Conflict of Interests

The authors declare that there was no conflict of interest.

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Analysis and/or Interpretation: Ahmet GOZER
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Critical Review: Ahmet GOZER, Gökhan DOĞRUER

Ethical Statement

An ethical statement was received from the authors that the data, information and documents presented in this article were obtained within the framework of academic and ethical rules and that all information, documents, evaluations and results were presented in accordance with scientific ethics and moral rules.

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