Case Report

A 7-Year-Old Extrauterine Pregnancy in a Cat

Agata Osenko and Walter Tarello

Pet Connection Veterinary Hospital, Summer Land Building, Al Barsha 1, P.O. Box 450288, Dubai, UAE

Correspondence should be addressed to Walter Tarello; wtarello@yahoo.it

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This paper describes a 7-year-old extrauterine pregnancy in a spayed cat. Three extrauterine fetuses were accidentally found in the abdomen of a 12-year-old domestic short hair cat that had ovariohysterectomy about 7 years before. The animal was under evaluation for a recent history of increased thirst, urination, and poor appetite. Biochemical analysis revealed high plasmatic levels of urea, creatinine, and phosphorus consistent with renal insufficiency. X-ray plates showed three calcified fetuses in the abdomen, apparently unrelated to the reported clinical signs. Despite intensive therapy, the cat died one day later. At necropsy, ovaries and uterus were not found but the presence of three well-developed, mummified, and mineralized fetuses loosely attached to the omentum was evident. Careful dissection of fetuses confirmed the diagnosis of extrauterine pregnancy. To our knowledge, this is the first description of a 7-year lasting ectopic pregnancy in an ovariohysterectomized cat. The absence of related clinical signs seems to confirm that such conditions are compatible with a normal healthy life.

1. Introduction

Extrauterine pregnancy (EUP), or ectopic pregnancy, is caused by the implantation and subsequent development of a fertilized ovum outside the uterus. It occurs in all mammals, including humans, and can be primary or secondary [1].

Primary EUP is the result of fertilized egg implantation outside the uterus, on the peritoneum, omentum, liver, spleen, or uterus surface or in the fallopian tube [2].

Secondary EUP is due to the rupture of the uterine wall, caused by trauma or injury, with subsequent ectopic development of the fetus in the peritoneal cavity [2]. According to recent scientific literature, a true primary EUP can occur only in primates, including humans, rodents, and lagomorphs, because these animals possess a discoid hemochorionic placenta that favors the development of primary EUP [3, 4]. The invasiveness of such ectopic endometrial tissue is considered one of the leading causes of ectopic pregnancies in humans, permitting the fetus to develop to term without the mechanical support of the uterus [5].

It is generally assumed that the type of placenta of other domestic animal species makes it very difficult to develop a primary EUP [3]. Nonetheless, primary EUP has been occasionally diagnosed in other species including horses and

rabbits [4] but mainly in cats submitted to consultation some months after a routine ovariohysterectomy [6, 7].

Differentiation between primary and secondary EUP is often controversial [1, 2], since secondary EUP is common in cats, due to trauma, wounds, and consequent rupture of the uterus [8], and can be often misidentified as primary in non-ovariohysterectomized cats [9].

2. Case Presentation

A 12-year-old domestic short haired female spayed cat was presented on 31 January 2014 because of anorexia, increased thirst, and urination. Biochemistry results were consistent with a diagnosis of renal insufficiency: urea > 130 mmg/dL (16–36), creatinine = 12.9 mg/dL (0.8–2.4), phosphorus = 16.1 mg/dL (3.1–7.5), and glucose = 183 mg/dL (71–159). Two X-ray plates, one lateral (Figure 1) and one ventral (Figure 2), showed the presence of three calcified fetuses in the abdomen, apparently unrelated to the presented symptoms.

Despite intensive therapy, the cat died the next day. At necropsy, ovaries and uterus were not found but the presence of three well-developed, mummified, and mineralized fetuses 4–5 cm in size loosely attached to the omentum was evident

FIGURE 1

(Figure 3). Fetuses were covered with a thin transparent membrane reminiscent of placenta that allowed their direct visualization (Figure 3). Careful dissection of such fetuses confirmed their nature and a diagnosis of extrauterine pregnancy delivered.

The owner adopted the cat in 2006 from a charity shelter (Feline Friends) located in Dubai and she was told that the cat had been spayed before the adoption. The cat never gave birth to kittens nor showed sign of estrus cycle.

The cat was bearing a cut on the left ear confirming that it had been spayed by the Municipality veterinarians. Moreover, the owner was aware of the presence of “something abnormal” in the abdomen because 2 months after the adoption, when she was stroking and petting the animal, she perceived the presence of three roundish hard bodies that led to the suspicion of foreign bodies of unknown origin.

3. Discussion

This is the first description of a 7-year lasting abdominal pregnancy in an ovariectomized cat. The absence of associated clinical signs seems to confirm that such condition is compatible with a healthy life. The discovery of an extrauterine pregnancy is often an incidental finding since the animals involved do not usually show any clinical signs [4], and therefore the ectopic fetus can remain undetected for a couple of months to several years before it is diagnosed [7].

Long-persisting abdominal fetuses frequently become calcified in women and are called lithopedions [4]. In veterinary literature, long-lasting abdominal mineralized fetuses have been described in monkeys [4], dogs, cats [6], and rabbits [10]. Although rare, late diagnosis of primary EUP, up to 2 years after the conception and in the absence of clinical signs, has been reported [5].

The present case, according to the case history, is apparently the longest-lasting EUP reported.

Extrauterine pregnancy is apparently common in cats [1–9, 11]. However, in most cases distinction between primary and secondary is controversial due to the presence of an intact [3], altered [8], or partially missing [9] reproductive apparatus. Consequently, the lack of signs of uterine rupture has been claimed as inclusion criteria for the diagnosis of primary EUP [5].

FIGURE 2

FIGURE 3

The absence of uterus and ovaries in the present case is strongly evocative of primary EUP following ovariectomy, consistent with the history and diagnosis of similar feline cases previously described [6, 7]. Abdominal pregnancy, indicating an implantation of the conceptus in the abdominal/peritoneal cavity, is synonymous with ectopic pregnancy in veterinary medicine. It is the only type of primary EUP recorded in domestic animals [4].

Furthermore, it has been claimed that abdominal pregnancy is truly primary when placentation exists onto a peritoneal or omental surface [11], as in the present cat.

Tubal and, more rarely, corneal, ovarian, and cervical pregnancies are reported to occur only in humans and primates [4].

The development of abdominal fetuses to an advanced stage without an elaborated placentation has been observed in pregnancies following ovariectomy mainly in humans [4] and cats [6, 7]. Abdominal pregnancy associated with full term development of the fetus is documented in humans

[4] and in at least one cat [12] and frequently occurs also in hamsters [13] and guinea pigs [14]. Death of the abdominal fetuses is the usual outcome, as in the case reported here, after a partial development of the fetus, when the placental attachment in an inhospitable abdominal environment no longer provides sufficient nutrition through an inadequate blood supply [13].

Two main explanations have been proposed for ectopic pregnancy in spayed animals. The cause of such rare events is to be found in the physical manipulation of the fallopian tubes during an ovariectomy coincidentally carried out after coitus dislodging the fertilized ova in the abdomen or, alternatively, the fetus retrieved is from a previous unnoticed primary or secondary pregnancy [4, 6, 7].

In this reported case, it seems improbable that three mummified fetuses, 4-5 cm in size, went unnoticed during the ovariectomy performed at least 7 years before by the Municipality veterinarians. There is no scientific evidence that the extrauterine pregnancy was caused by the fallopian manipulation during ovariectomy. However, the absence of uterus and ovaries in the case reported is strongly evocative of primary EUP following ovariectomy.

This is a rare and interesting case of long-lasting multiple ectopic pregnancy in which fetuses, whose presence was known for years, did not cause any disease.

Conflict of Interests

The authors of this paper do not have a direct financial relation with any commercial entity mentioned in the paper that might lead to a conflict of interests for any of them.

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