Diagnosis and treatment of a functional follicular cyst in a Persian queen cat: A case report

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Key words:
Follicular ovarian cyst, cystic ovarian disease, cat

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Received: 12 January 2015
Accepted: 27 April 2015

Abstract:

In the present report, diagnosis and treatment of a case with follicular ovarian cysts in a 5-year-old Persian queen cat is described. In response to palpation of spines, the queen cat presented herself in lordosis and danced up and down with her rear legs. Trans-abdominal ultrasonography examination showed 2 cysts in the left ovary of the queen. Serum estrogen assay indicated elevated level of 17 β-estradiol concentration (105 pg/ml). However, progesterone concentration was normal (0.3 ng/ml). Accordingly, the queen was diagnosed with functional follicular cysts. The queen was treated with an administration of hCG intra-muscularly. Thirty (30) days after the administration of hCG, an injection of equine chorionic gonadotropin (eCG) (50 IU) was given intra-muscularly. Natural mating was done with a fertile Persian tom cat. In conclusion, it seems that treatment of functional follicular cysts can be applied to preserve fertility in cats.

Case History

The interest in pedigreed cats has been growing around the world over the last years. The widespread appeal of pedigreed cats means that veterinarians and breeders must be familiar with the unique characteristics of feline reproduction and breeding management, to design and carry out successful breeding programs. The domestic cat is used widely in biomedical research and is important as a model for reproductive studies of rare or endangered Felidae (Wildt et al., 1986; Wildt et al., 1987).

Ovarian cysts, commonly arising from mature or atretic follicles, fail to ovulate and persistently remain in the ovary, thereby inhibiting re-establishment of folliculogenesis and consequently rendering the queen sub fertile (Gharagozlou et al., 2014). Follicular cysts are thin-walled ovarian structures, which could be single or multiple and may be unilateral or bilateral (Johnston et al., 2001). The most common type of ovarian cyst is the functional follicular cyst, which secretes estrogen (Johnston et al., 2001). Follicular cysts could cause behavioural disorder like prolonged oestrus, bone marrow suppression and uterine hyperplasia due to prolonged elevation of oestradiol. Follicular cysts could be diagnosed based on behavioural signs, ultrasonography and evaluation of serum oestradiol (Gelberg et al., 1984; Johnston et al., 2001).

In cases of follicular cysts, medical therapy is aimed at inducing ovulation or luteinization using either gonadotropin releasing hormone

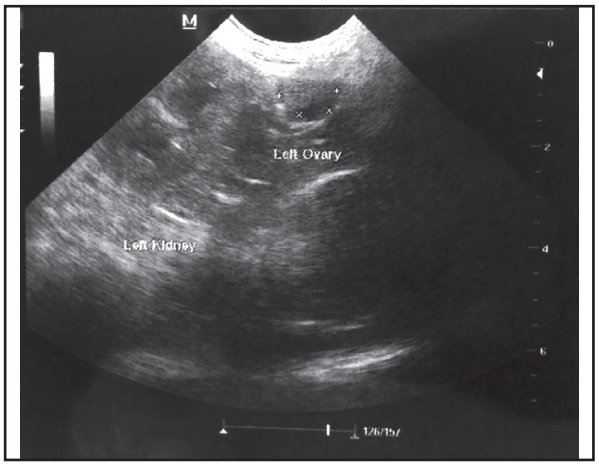

Figure 1. Left ovary containing follicular cysts in the queen.

(GnRH) or human chorionic gonadotropin (hCG) (Ortega-Pacheco et al., 2012). Administration of gonadotrophins (like equine chorionic gonadotropin (eCG)) induces estrous behavior and ovarian activity (Wildt et al., 1978). In the present report, diagnosis and treatment of a case with follicular ovarian cysts in a Persian cat is described.

Clinical Presentation

A 5-year-old, intact female Persian cat was presented to the Paradise Pet Clinic, with approximately 3 months history of prolonged behavioural oestrus expression in June 2014. The queen had three normal litters more than 2 years earlier and had been bred two times without conceiving. Prior to the incidence of persistent oestrus, the queen had regular 10-day length oestrus expression in each cycle during the breeding season. In response to palpation of spines, the queen presented herself in lordosis and danced up and down with her rear legs.

Diagnostic testing

Trans-abdominal ultrasonography examination showed 2 cysts (9 mm and 18 mm in diameter) in the left ovary of the queen (Figure 1). The normal diameter of follicles is between the range of 2.5–3.5 mm in cat (Bristol-Gould, Woodruff 2006).

Blood samples were collected for analysis of serum 17β-estradiol (DiaSorin, Stillwater, MN, USA) and progesterone (DiaSorin, Stillwater, MN, USA). Serum estrogen assay indicated elevated level of 17β-estradiol concentration (105 pg/ml), but progesterone concentration was normal (0.3 ng/ml). Accordingly, the queen was diagnosed with functional follicular cysts.

Moreover, blood samples were collected from five cyclic queens in the oestrus to compare the normal values of 17β-estradiol and progesterone with those in the queen with functional follicular cysts. Serum 17β-estradiol and progesterone in normal oestrous queens were 50.8±7.41 pg/ml (range, 39–78 pg/ml) and 0.24±0.19 ng/ml (range, 0.11– 0.45 ng/ml), respectively.

The queen received an administration of hCG (500 IU/kg; Pregnyl®; Schering-Plough, Germany) intra muscularly. Following the injection of hCG, behavioural disorder subsided and disappeared within 7 days. Thirty (30) days after the administration of hCG, an injection of equine chorionic gonadotropin (eCG) (50 IU/kg im; Folligon®; Intervet, Holland) was given intra muscularly. Thereafter, the queen cat was inspected daily for oestrus signs. Natural mating was done with a fertile Persian Tom cat.

Pregnancy diagnosis was implemented on Day 25 after mating, using trans-abdominal ultrasonography and pregnancy was positive. Pregnancy continued without complication and four kittens were delivered via caesarean section at 9 weeks gestation.

Assessments

Oestradiol was higher in the queen with functional follicular cysts than that in normal oestrous cats. High intrafollicular concentration of oestradiol (>6,000 pg/ml) has been previously reported in a cat with cystic ovary (Johnston et al., 2001). Another case with high

concentration of serum oestradiol in the cystic ovary has been reported (Gharagozlou et al., 2014). Oestradiol could influence endometrial morphology and induce endometrial hypertrophy (Boomsma, Verhage 1982; Boomsma et al., 1982). In chronic cases, symmetrical bilateral alopecia and bone marrow suppression may occur; it also predisposes to cystic endometrial hyperplasia (CEH)-pyometra complex (Ortega-Pacheco et al., 2012).

The treatment of choice for ovarian follicular cysts is ovarian hysterectomy. However, when a single cyst is suspected, laparotomy and cyst rupture may be attempted. Medical treatment includes the induction of ovulation by allowing breeding (in queens) or hormonal therapies with a GnRH and/or hCG. By using medical treatment, the response may allow for differentiation of follicular cysts with granulosa-theca cell tumor or other tumors.

Acknowledgments

The present study was supported by the Theriogenology Association, Faculty of Veterinary Medicine, University of Tehran.

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مجله طب دامی ایران، ۱۳۹۴، دوره ۹، شماره ۳، ۲۲۱-۲۱۹

تشخیص و درمان کیست فولیکولار فعال در گربه پرشین: گزارش موردی

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(دریافت مقاله: ۲۲ بهمن ماه ۱۳۹۳، پذیرش نهایی: ۷ اردیبهشت ماه ۱۳۹۴)

چکیده

در این گزارش، تشـخیص و درمان یک مورد کیسـت تخمدانی فولیکولی در یک گربه پرشین ماده ۵ ساله شرح داده می‌شود. گربه مورد نظر در ملامسه ناحیه پشت کمر، موقعیت لوردوزیس را به خود گرفته و پاهای عقب را بالا و پایین حرکت می‌داد. بررسی سـونوگرافی ناحیه شـکم دو کیست در تخمدان چپ گربه نشان داد. ارزیابی اسـتروژن سرم خون، غلظت بالای ۱۷ بتا_استرادیول (۱۰۵ pg/mL) را نشان داد. با این حال غلظت پروژسترون نرمال (۰/۳ ng/mL) بود. بر این اساس، گربه مبتلا به کیست فولیکولار فعال تشـخیص داده شد. حیوان مذکور با گنادوتروپین جفتی انسان (hCG) به صورت داخل عضلانی تحت درمان قرار گرفت. ۳۰ روز پس از تجویز hCG، یک تزریق گنادوتروپین جفتی اسـب (eCG) (۵۰ واحد بین المللی) به صورت داخل عضلانی انجام شـد. جفت‌گیری طبیعی با یک گربه نر پرشین بارور انجام گرفت. در نتیجه، به نظر می‌رسد که درمان دارویی کیست‌های فولیکولار فعال را می‌توان به منظور حفظ باروری در گربه سانان به ک ار گرفت.

واژه های کلیدی: کیست تخمدان فولیکولی، بیماری تخمدان کیستیک، گربه

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