

Case Report / Olgu Sunumu

The rarely seen congenital anomaly in a queen: Unilateral ovarian agenesis

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Abstract: Congenital malformations of the reproductive system are rarely encountered in queens and etiology is not known precisely. Agenesis of the ovary is one of the congenital anomalies and usually found incidentally during laparotomy operations. In this case, a 2-year-old female cat referred to the clinic for ovariohysterectomy is described. Before anesthesia and surgery, a routine examination was performed. In physical examinations and results of blood samples did not reveal any problem for the operation. After the pre-operative process, ovariohysterectomy was performed. Ovary and the uterine horn were identified on the right-side. However, only the uterine horn without any abnormality was detected on the left-side. The cat was diagnosed with unilateral ovarian agenesis. Then, a blood sample was taken to determine serum steroid hormone levels. Serum estradiol and progesterone levels were measured as 18 pg/ml and 1.4 ng/ml, respectively. As a conclusion, unilateral ovarian agenesis that is incidentally detected the laparotomy procedures were no adverse effect on sexual activity in queens.

Keywords: Cat, congenital anomaly, ovarian agenesis.

Bir kedide nadir görülen konjenital anomali: Tek taraflı ovaryum agenezi

Özet: Kedilerde üreme organlarının konjenital anomalisi nadiren görülür ve etiyojisi tam olarak bilinmemektedir. Ovaryum agenezi konjenital anomalilerden biridir ve genellikle laparotomi ameliyatları sırasında rastlantısal olarak bulunur. Bu vakada ovariohisterektomi için kliniğe getirilen 2 yaşlı dişi bir kedi sunuldu. Anestezi ve ameliyat öncesi rutin muayene yapıldı. Fiziki muayeneler ve kan örnekleri sonucunda ameliyat için herhangi bir sorun olmadığı belirlendi. Pre-operatif hazırlıklardan sonra operasyon gerçekleştirildi. Sağ tarafta kornu uteri ve ovaryum tespit edildi. Ancak sol tarafta sadece herhangi bir anormallik bulunmayan kornu uteri gözlemlendi. Olgu tek taraflı ovaryum agenezi olarak teşhis edildi. Daha sonra serum steroid hormon düzeylerini belirlemek için kan örneği alındı. Serum östradiol ve progesteron düzeyleri 18 pg / ml ve 1.4 ng / ml olarak ölçüldü. Sonuç olarak, laparotomi esnasında tesadüfen teşhis edilen tek taraflı ovaryum agenezinin kedilerde seksüel aktiviteye olumsuz etkisinin olmadığı belirlenmiştir.

Anahtar sözcükler: Kedi, konjenital anomali, ovaryum agenezi.

It is well known that congenital malformations of the reproductive system are rarely encountered in cats (3). And also, it is not adequately defined in the literature (6) and etiology is not known precisely. In addition, these anomalies are among the causes of reproductive disorders and cannot usually be detected before the puberty. Furthermore, the diagnosis of congenital abnormalities of reproductive organs such as the uterus and ovary relies on direct inspection through various techniques (1). Agenesis of the ovary is one of the congenital malformations and the diagnosis has usually been made incidentally during ovariohysterectomy/ovariectomy or during other

laparotomy operations (9). Ovarian agenesis can affect one or both ovaries and accompany defects (absent or underdeveloped) of the tubular reproductive organs. In some cases, it can result in infertility and permanent anestrus which accompanied by an absence of cyclical behavior. And also, as it is known, treatment is not possible (1). In our knowledge, only one case of unilateral ovarian agenesis written by Pawar and Nadkarni (7) is reported so far.

The material of this case report was a female cat that 2-year-old, Mix Racial and weighs of 3 kg. The cat was fed with dry cat food. Due to prevention for estrus

behavior, the cat was presented for routine ovariohysterectomy to Clinic of Obstetrics and Gynecology, Faculty of Veterinary Medicine, Ankara University, Turkey. As anamnesis, the cat owner reported that the cat was in heat period about 12 days ago, general health was good and has not ever been mated. On pre-operative physical examination, the pulse, rectal temperature, and respiratory rates of the cat were within normal ranges. A venous catheter (24-gauge, Mediflon) were placed in medial saphenous vein to permit postoperative blood sampling and drug infusion. Blood samples were taken for hematology tests. Results of complete blood count and serum biochemistry analysis were shown in Table 1 and Table 2, respectively. The cat was premedicated with atropine sulphate (Atropin 0.2%, Vetaş, Turkey) 0.045 mg per kg of BW subcutaneously followed by induction of anesthesia with Propofol (Fresenius, Fresenius Kabi, Australia GmbH) 6 mg per kg of BW intravenously. General anesthesia was maintained with isoflurane through inhalation. After preparation of the mid-ventral region for operation, a ventral midline celiotomy was carried out through about 2.5-cm incision to the skin at the umbilicus. After confirming, the uterine horns were raised to the abdominal wall. The ovary and uterine horn were identified on the right-side, however, only the uterine horn without abnormality was detected on the other side (Figure 1). The cat was diagnosed with unilateral ovarian agenesis. After confirming the unilateral ovarian agenesis, a blood sample was taken to evaluate hormonal status. Right ovarian pedicle was ligated and transected, right and left uterine horns were transected from slightly cranial to the cervix after application of essential ligations and clamping (Figure 1). The body wall was routinely closed in a simple suture pattern. For all surgery, 2/0 USP PGA suture material was used for ligations and closures. Serum estradiol and progesterone levels were measured as 18 pg/ml and 1.4 ng/ml, respectively. Post-operative treatment regimen included amoxicillin-clavulanic acid dosed at a per os dose of 25 mg per kg BW twice daily for 7 days. The wound was managed with povidone iodine and bandaged with daily changes. Skin sutures were removed 7th days postoperatively. The cat recovered uneventfully.

Ovarian agenesis is extremely uncommon in cats (1) and it was reported that is more often seen in ruminants, pigs, and dogs (7). It can result in permanent anestrous and infertility (1,5) if both ovaries are affected. And also, it can accompany by an infantile genital tract beside absence of cyclical behavior (1). However, the findings of our case don't support this knowledge. Because of serum estrogen concentrations which above 15 pg/ml and serum progesterone concentrations which above 1 ng/ml are evidence of cyclic/sexual activity. Additionally, it is known that most of queens in inter-estrous period have

serum estrogen concentrations below 12 to 15 pg/ml and in follicular phase have serum estrogen concentration above 20 pg/ml (2). In our case, it was thought that the patient in progression phase from inter-estrous period to follicular phase, because serum estradiol and progesterone levels were measured as 18 pg/ml and 1.4 ng/ml, respectively. This anomaly has only been reported in a paper (7), however, there was no evidence/information about the patient' sexual status or past reproductive events. This is the first reported case of ovarian agenesis including sexual activity and serum steroid hormone levels. The prevalence and genital/sexual activity are not reported because it is incidentally detected by laparotomy/ovariohysterectomy. It is too hard to diagnose in those patients suffered from ovarian agenesis had unaffected/normal cyclic activity.

Table 1. The results of complete blood count analysis.

Table 1. Tam kan sayımı analizinin sonuçları.

Parameter (Unit)	Results	Reference
WBC (10 ⁹ /l)	5.8	5.5- 19.5
LYM (10 ⁹ /l)	1.1	1.0- 7.0
MONO (10 ⁹ /l)	0.3	0.2- 1.0
NEUT (10 ⁹ /l)	3.9	2.8- 13.0
EOS (10 ⁹ /l)	0.5	0.1- 99.9
LYM (%)	19.1	15.0- 60.0
MON (%)	5.2	0.5- 11.0
NEU (%)	67.2	25.0- 85.0
EOS (%)	8.5	0.1- 12.5
RBC (10 ¹² /l)	8.56	5.0- 11.0
HGB (g/dl)	14.8	8.0- 15.0
HCT (%)	33.2	25.0- 45.0
MCV (fl)	38.8	39.0- 50.0
MCH (pg)	17.3	12.5- 17.5
MCHC (g/dl)	44.6	31.0- 38.0
RDW _a (fl)	19.7	20.0- 35.0
RDW (%)	15.9	14.0- 18.5
PLT (10 ⁹ /l)	182	200- 500
MPV (fl)	9.5	8.0- 12.0

Table 2. The results of serum biochemistry analysis.

Table 2. Serum biyokimya analizinin sonuçları.

Parameter (Unit)	Results	Reference
Glucose (mg/dl)	99.7	70.0- 110.0
Urea (mg/dl)	37.5	15- 64.2
Creatinine (mg/dl)	1.37	0.8- 1.8
Total protein (g/dl)	5.48	5.4- 7.8
Albumin (g/dl)	2.41	3.5- 4.5
Total bilirubin (mg/dl)	0.11	0.1- 0.2
D. bilirubin (mg/dl)	0.04	-
Cholesterol (mg/dl)	68.0	95.0- 130.0
Triglycerides (mg/dl)	36.2	50.0- 100.0
ALP (IU/L)	14.0	25.0- 93.0
ALT (IU/L)	31.3	6.0- 83.0
AST (IU/L)	15.2	26.0- 43.0
CK (IU/L)	149.9	≤130
GGT (IU/L)	4.5	6.0- 28.0
LDH (IU/L)	125.0	63.0- 273.0
Total calcium (mg/dl)	7.5	20.0- 35.0
Phosphorus (mg/dl)	3.95	4.0- 7.3

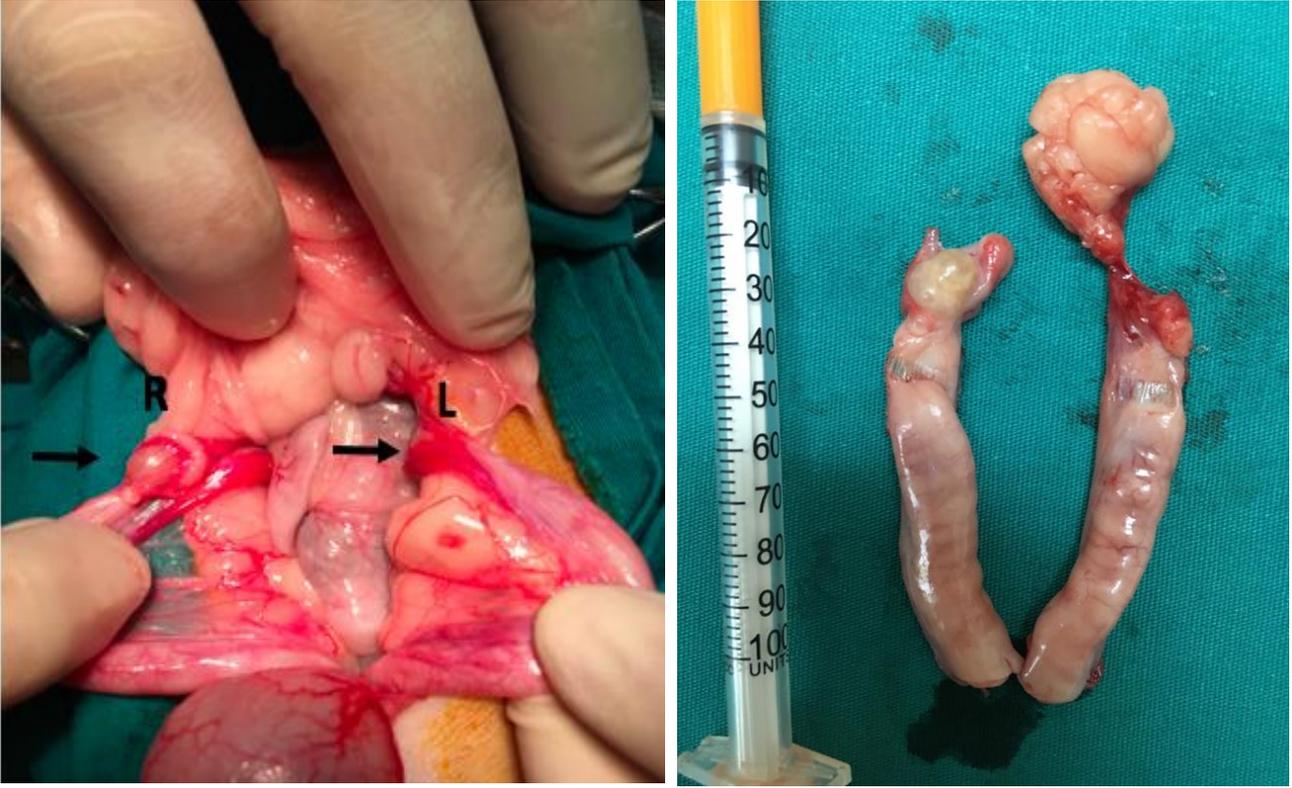


Figure 1. Left (L) unilateral ovarian agenesis in cat.
Şekil 1. Kedide sol (L)- tek taraflı ovaryum agenezi.

Gokulakrishnan and George (3) stated that ovarian agenesis could be directly related to genital malformations such as the absence of the ipsilateral uterine tube or uterine horn, however, no such abnormality was seen in the present case. It was reported that ectopic ovary or a fibrotic part of ovarian remnants may be detected macroscopically at the site of ovary during surgery in some cases (1,5). It is necessary to perform a comprehensive histological investigation examination to reveal whether an ovary is completely absent or not, and presence of concomitant tract abnormalities.

It has been reported that chromosomal abnormalities and autosomal recessive/dominant genes may contribute to the etiology of ovarian agenesis in humans (8). Ovarian dysplasia with a chromosomal abnormality was also reported in a bitch (4). Therefore, karyotyping is generally recommended to obtain considerable information about exact mechanisms underlying this ovarian anomaly (1).

In summary, it was determined that unilateral ovarian agenesis events were no adverse effect on sexual activity in cats. And also, it was thought that it would be a normal pregnancy and parturition process in cats with unilateral ovarian agenesis. We think that this report could be useful for practitioners and our colleagues.

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