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Case Report

Oophorectomy with Plastronotomy in a Red-Eared Slider

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Abstract

An 8-year-old female red-eared slider *(Trachemys scripta elegans)* was presented to our clinics with appettite loss for 3 months, dyspnea and weight loss. After clinical examination, complete blood counts, radiography, ultrasonography and computed tomography has been used for diagnosis. All diagnostic tests with detailed clinical examination clearly showed that the patient had follicular stasis. Plastronotomy was performed to enter the coelomic cavity under general anesthesia. At least 20 Follicles were removed with oophorectomy and the plastronotomy gap was closed. The patient was hospitalized for a week and then discharged with full recovery. The patient has died 10 days after discharging.

Keywords: *Plastronotomy, Oophorectomy, Turtle, Follicular stasis*

Bir Kızıl Yanaklı Su Kaplumbağasında Plastronotomi İle Ooforektomi

Öz

Sekiz yaşındaki dişi kızıl yanaklı su kaplumbağası *(Trachemys scripta elegans)* 3 aydır iştahsızlık, solunum güçlüğü ve zayıflama şikayeti ile kliniğimize getirildi. Hastanın detaylı klinik muayenesi, kan tahlilleri, radyolojik, ultrasonografik ve tomografik değerlendirmeleri sonucunda hastada foliküler staz olduğu tespit edildi. Genel anestezi altında plastronotomi uygulanarak solöm boşluğuna girildi ve ooforektomi ile en az 20 folikül uzaklaştırıldı ve plastronotomi açıklığı kapatıldı. Hasta bir hafta kliniğimizde hospitalize edildi ve ardından sağlıklı bir şekilde taburcu edildi. Hasta taburcu edildikten 10 gün sonra kaybedildi.

Anahtar sözcükler: *Plastronotomi, Ooforektomi, Kaplumbağa, Foliküler staz*

INTRODUCTION

Red-eared slider is a semi aquatic turtle that belongs to the family Emydidae. In captive, female red-eared terrapins reproductive disorders are relatively common. These reproductive disorders include oophoritis, salpingitis, dystocia, ectopic eggs and follicular stasis. Follicular stasis is the condition in which the follicle remains in the ovary and has not been able to progress to ovulation. Follicles produce anorexia and blockage effects and in some cases follicles are weigh up to 15% of body weight [1,2].

Follicular stasis is mostly seen in female turtles that had a recent exposure to a male prior to isolation [3]. Follicles that neither ovulate nor regress can become calcific or necrotic. Clinical signs includes anorexia, lethargy and appetite loss. Non-ovulated follicules can be seen with different imaging techniques such as radiography, ultrasonography, computed tomography (CT) and endoscopy. Also, blood tests (complete blood cell count (CBC) and blood biochemistry) can be helpful for diagnosis [2].

Proligestone may given for the treatment of the follicular stasis however has not been successful in most cases [6]. For this reason, surgical removal of follicules (oophorectomy) is accepted as more suitable treatment option. An oophorectomy has two major approaches; transplastron and pre-femoral approach to coelom [2-5].

CASE HISTORY

An 8-year-old, female red-eared slider was presented to

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our clinics with 3 months of appetite loss, dyspnea and anorexia. Patient's husbandry conditions and nutrition status were not optimal. The weight of the turtle was 1300 g. Blood for CBC is collected from subcarapacial sinus. The blood smear was made for the blood cell counts. Complete blood cell values were within normal limits *(Table 1)*. Only generalised pulmonary oedema was seen on dorso-ventral, cranio-caudal and latero-lateral radiographic views *(Fig. 1)*. Ultrasonographic examinations (Terason 2000, Samsung, Chine) were performed within right and left prefemoral spaces. 10 MHz multi-convex transducer was used for this

Table 1. *CBC parameters of the red-eared slider (Trachemys scripta elegans)*

Parameters	Patient	Normal Values
WBC (x 10^3/µL)	10	3.2-25.5
RBC (x 10^6/µL)	0.5	0.3-0.8
Hct (%)	30	25-33
Hgb (g/dL)	9	8
Heterophil (%)	35	36
Lmphocyte (%)	43	24

premedication, butorphanol (Butomidor-Richterfarma Austria) 0.4 mg/kg IM and meloxicam (Melox -Nobel Turkey) 0.2 mg/kg IM were administered. After that, medetomidine 0.1 mg/kg IM (Domitor Pfizer USA) was used for induction. Following adequate sedation, patient was intubated with a number 2 non-cuffed intubation tube and anaesthesia continued with 2% isoflurane (Forane-Abbott England). During the surgery, anaesthesia was maintained with assisted breathing.

For the surgical procedure the patient was positioned in dorsal recumbency and surgical area was prepared with povidone iodine (Batticon antiseptic ADEKA Turkey). The area was limited with sterile covers. A sterile orthopedic saw with a fine tip was used for central plastron osteotomy. The area was soaked with isotonic serum to reduce heat necrosis that may occur during the incision. To expose coelomic cavity, three sides of abdominal scute were cut exactly, the fourth side was half cut and considered to work as a hinge. The flap connections were separated using an osteotome and the fourth edge was not touched. The follicles seen in the coelomic space were carefully removed from the incision area. Fine needle aspiration was used for bigger

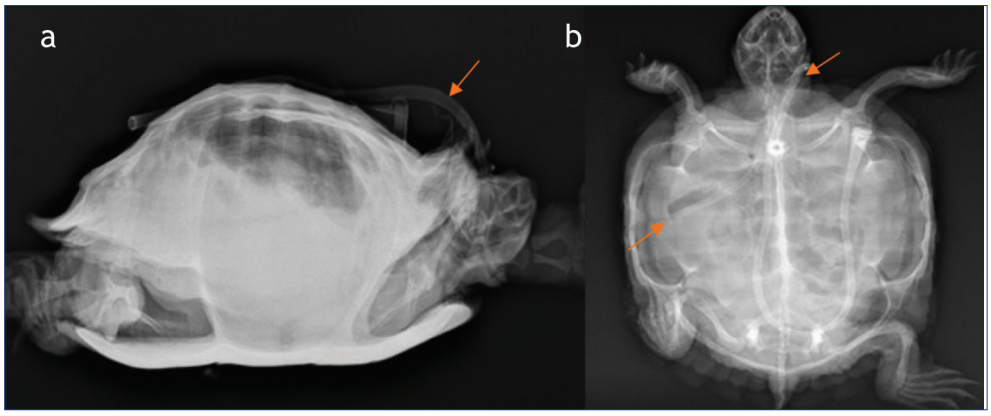

Fig 1. a- LL views of the turtle. Pneumonia was detected and nutrional probe can be seen, **b-** VD view of the turtle

purpose. 1.21x1.47 cm and 1.02x1.26 cm follicles were detected in front of the urinary bladder in ultrasonography *(Fig. 2)*. Computed tomography (Shimadzu AX-180G-2004 Kyoto) also showed multiple follicules and collapsed left lung lobe *(Fig. 3)*.

Because of the anorexia and to minimise the stress of repeated assist feeding, an esophagostomy tube was placed. The patient was fed 2% of its weight each day with a special diet (Oxbow Critical Care). Marbofloxacin (Marbocyl-Novakim Turkey) 2 mg/kg/SID IM, for 5 d and meloxicam (Melox -Nobel Turkey) 0.2 mg/kg/SID IM for 10 d were started initially for the treatment of the pneumonia.

One week later, after the patients clinicial condition has gotten better, the follicles were decided to removed with plastronotomy. For

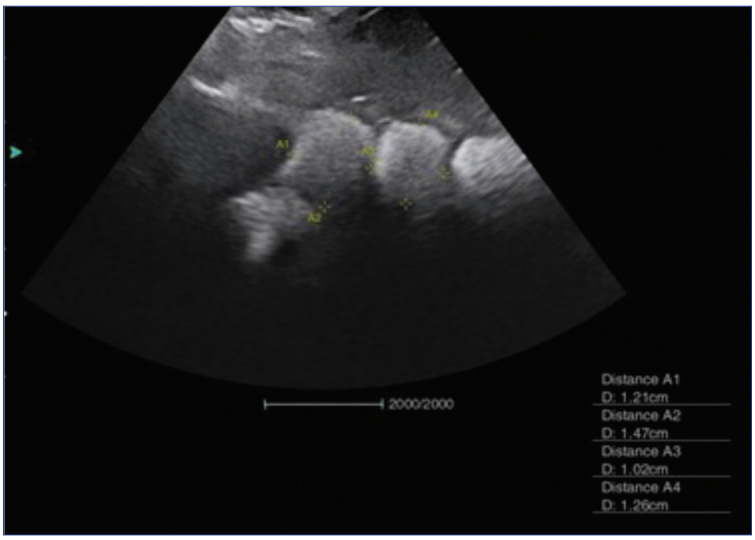

Fig 2. Follicules were seen in USG from prefemoral area. The sizes of the follicules were on the right corner of the figure

Fig 3. CT view of the turtle. Multiple folliculles were detected

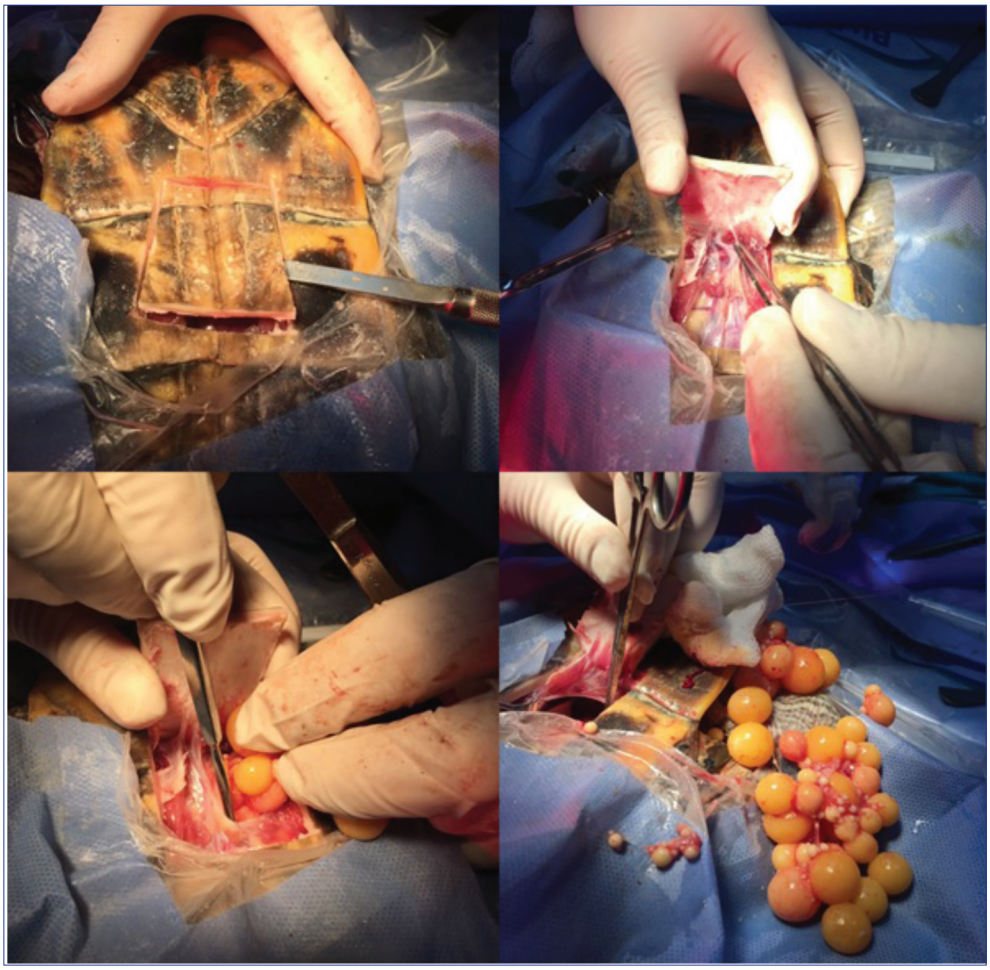

Fig 4. Central plastronotomy, oophrectomy and flap detection

follicules for easier removal. The coelomic membrane was sutured with a absorbable monofilament 4/0 polyglactin 910 (Vicryl Ethicon). The flap was then closed and the plastron was fixed by applying mini-plates and screws on the three opened sides. The plastronotomy area on the three sides was covered with manuka honey and covered with a gauze soaked with isotonic saline *(Fig. 4)*. Intracoelomic 0.9% saline (İE.Ulugay Turkey) was administered preoperatively and postoperatively at a dose of 20 mg/kg. After the anaesthesia, the

patient was extubated and kept in intensive care unit. The postoperative weight of the patient was determined as 1050 g. The patient was hospitalized for postoperative care for five d, and postoperative antibiotics (Enrofloxacin 5 mg/kg for 1 week) and nonsteroidal anti-inflammatory drugs (Meloxicam 0.2 mg/kg for 1 week) were administered and discharged during the period when the patient was fully recovered. However, 10 d after discharging, it was learned from the owner that the patient had died, and necropsy could not be done due to the owner's request.

DISCUSSION

Although the causes of retained follicles are unclear, previously discussed reasons may involved like the absence of stimules from a male. Especially because of this reason in addition with the poor husbandry conditions, reproductive disorders such as oophoritis, salpingitis, dystocia, retained or ectopic eggs and follicular stasis are common in captive turtles [1,5,6]. The accumulation of follicles in the animal can cause anorexia. In some cases, the follicles comprise 10-15% of the body weight [3,4]. In this case report, it was determined that the weight of follicles removed from the turtle constituted approximately 19% (250 g) of body weight.

Although endoscopy is the preferred method; ultrasonography and computed tomography are also an effective methods for diagnosing follicular stasis. However radiography is not a very effective option unless the eggs are calcified [5].

In the case of follicular stasis, the increase in circulating lipid and protein is indicated as the cause of loss of appetite [6]. For the closure of the flap, adhesives such as polymethylmethacrylate, epoxy resin, fiberglass etc. can be used [1,2]. Also, for the stabilization, mini-plate and screw application was better than other methods and there are not any toxic effects when compared to acrylic-like chemicals. In this pathology, the most effective treatment methods are the removal of follicles by prefemoral coelotomy and central plastronotomy. Prefemoral approach, compared to plastronotomy, is considered to be less invasive but its inadequate and requires advanced experience when using in small-sized tortoises. For this reason central plastronotomy was preferred in the treatment of this case [1,2].

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