

# Surgical Management of Poly-Cystic Ovarian Disease in a Bitch

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## Abstract

The presented case was of a 6 year old spitz bitch with vaginal bleeding for more than one month and non-pruritic bilateral symmetrical alopecia. Hematological examination, vaginal cytology, ultrasonographic examinations were conducted to confirm multiple follicular cysts in right ovary. Ovariohysterectomy was conducted under standard surgical procedure. Histopathological studies revealed cystic wall lined with granulosa cells and degenerating cumulus oophorus cells without the presence of oocyte. Parenteral antibiotic and analgesic were administered for 5 days postoperatively.

**Keywords:** Follicular Cyst; Ovary; Spitz; Ovariohysterectomy

## Abbreviations

CEH: Cystic Endometrial Hyperplasia; GNRH: Gonadotropin-Releasing Hormone; HCG: Human Chorionic Gonadotropin; TLC: Total Leukocyte Count; RBC: Red Blood Cells; PMN: Polymorphonuclear Leukocyte.

## Introduction

Ovarian follicular cysts are fluid-filled structures in the ovary with a distinct wall that may be secreting estrogen with subsequent estrogen-mediated effects on the female canine reproductive tract and extra-reproductive system [1]. Mature ovarian follicles in dogs average from 5 to 8mm in diameter. Ovarian follicles greater than 8 mm in diameter present during proestrus or estrus prior to ovulation or follicles of any size present during late estrus (post-ovulation) diestrus or anestrus are defined as follicular cysts [2]. Thin walled single or multiple cysts are found containing clear serous fluid [3]. The condition was often reported in large breeds of dogs. The diagnosis and clinical management of follicular cysts in a spitz female dog is reported in the present study.

## Case History and Clinical Examination

A 6-year-old intact female spitz was presented to the Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Bhubaneswar with the history of prolonged period of vaginal bleeding for more than one month. There was progressive non-pruritic bilateral symmetrical alopecia at the perineal region. The bitch was treated at local veterinary dispensary with antibiotics and haemostats for about three weeks at regular intervals.

On clinical examination, the abdominal cavity was found distended; no wounds or masses were observed at vulva and caudal vaginal regions. On manual examination, vaginal mucosa was found to be edematous and rose pink in colour. Vaginonscopy was performed and no abnormalities were found such as tumour. Hematological examination showed haemoglobin percentage at 8.8%, TLC at 34000/mm<sup>3</sup> with neutrophil 78%. Vaginal cytology revealed presence of mostly cornified cells, RBCs and less percentage of PMN leucocytes which indicates elevated serum estrogen concentration. Ultrasonography examination showed focal hypo-echoic to anechoic cystic structures caudal to right kidney within

the ovary. The structures measured a size of about 10 cm in diameter.

### Treatment and Discussion

Based on the clinical and haematological findings along with vaginal cytology and ultrasonography report it was diagnosed as a poly cystic ovarian disease. Hormonal therapy with GnRH or hCG has been reported with limited success [4]. Therefore, it was decided to conduct ovariohysterectomy under standard surgical procedure (Figure 1).



**Figure1:** Multiple follicular cysts in right ovary.

The patient was anaesthetized with combination of atropine sulphate @ 0.04 mg/kg body wt. IM (Tropine – Neon Laboratories Ltd., Mumbai), xylazine hydrochloride @ 1 mg/ kg body wt. IM (Xylaxin - Indian Immunologicals Ltd., Hyderabad) and ketamine hydrochloride @ 10 mg/kg body wt. IM (Ketmin - Themis Medicare Ltd., Haridwar). 05 percent dextrose normal saline was administered via intravenous route and an incremental dose of ketamine hydrochloride was administered to maintain the anaesthesia. Patient was placed on right lateral recumbency. The surgical site (left flank) was prepared aseptically. After exposing the abdominal viscera by laparotomy, the uterine and ovarian blood vessels were properly ligated and the ovaries and uterus were completely removed. The abdominal wall was closed with catgut No. 2 (Ethicon, Johnson and Johnson Ltd., Baddi, India) as per standard procedure. Chloramphenicol antibiotic powder (Paraxin capsules) was sprinkled over the suture area and skin was approximated with horizontal mattress suture pattern using silk thread No.2 (Ethicon, Johnson and Johnson Ltd, India). On gross examination, right ovary had multiple follicular cysts. It contained clear, serous fluid. Histopathological studies revealed the cystic wall lined with granulosa cells and degenerating cumulus oophorus cells.

Antibiosis of ceftriaxone and tazobactam combination @ 25 mg/ kg IM (Intacef Tazo - Intas Pharmaceuticals Ltd.,

Ahmedabad) and analgesic pentazocine @ 1 mg/ kg IM (Fortwin - Ranbaxy Laboratories Ltd., Gurgoaon) were administered for 5 days. The cutaneous wound was dressed with 5 % povidone iodine solution (Betadine – Win Medicare Ltd., New Delhi) daily and local application of povidone iodine ointment until healing. The skin sutures were removed on the 10th day and the bitch recovered uneventfully. Vaginal edema was reduced by 7th day with growth of new hair at the site of alopecia by 15th-20th day (Figure 2).



**Figure2:** Excised distended uterine horn and polycystic ovary.

Cystic ovarian structures in dogs include follicular cysts, luteal cysts, germinal cysts, cystic corpora lutea, cystic germinal cell tumors and paraovarian cysts [5]. Paraovarian cysts are similar to ovarian cysts but located in mesovarium. The follicular cysts may be single (37.5% - 65%) or multiple (35% - 62.5%) with no communication between individual cysts. Either or both ovaries may develop follicular cysts and incidence varies from 3% to 62%. They are more prevalent in nulliparous bitches and in bitches above 5 years of age. They contain up to 250 to 750 ml of clear, serous fluid. Cysts are usually lined with granulosa cells and remnants of degenerating cumulus oophorus cells without the presence of oocyte. Serum estrogen concentration varies from 3 to 143 pg/ml with subsequent estrogen mediated effects on the dog's reproductive tract and extra reproductive systems. Concurrent diseases like cystic endometrial hyperplasia -pyometra complex is also reported in 75% of dogs. The persistent estrus associated with cystic follicles is a primary cause of cystic endometrial hyperplasia (CEH) and severe cases of CEH are associated with infertility. Rapid intervention (surgical or hormonal) will limit the severity of CEH (Jubb and Kennedy, 1970). Common complaint is estrous cycle irregularity, prolonged estrus such as vulvar swelling, presence of excessive serosanguinous vulvar discharge, irregular inter-estrus interval, variability in physiological changes. Differential diagnosis from ovarian neoplasia can be done by age of occurrence, signalment and histopathology.

## Summary

Diagnosis of cystic ovaries in bitch can be done by ultrasonography or exploratory surgery and treatment when unsuccessful with human chorionic gonadotropin or GnRH injection, the treatment of choice is always Ovariohysterectomy.

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