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OVARIAN REMNANT SYNDROME IN A CAT WITH ECTOPIC OVARY

Dorin Țogoe, Daniela Brăslașu, Niculae Tudor and Nicoleta Andreea Mincă

University of Agronomic Sciences and Veterinary Medicine of Bucharest, Faculty of Veterinary Medicine, Bucharest, Romania

• Abstract:

Ovarian remnant syndrome is the most recognized complication of female cat neutering. Confident unequivocal diagnosis based on clinical signs, ultrasonography of the entire abdomen and specific endocrine tests (anti-Müllerian hormone [AMH]) is essential prior to surgical investigation and management. This present paper describes the case of 2 years old female cat, evaluated for recurring estrus behavior after ovariohysterectomy and one subsequent exploratory laparotomy in which persistent ovarian tissue was not found at the site of an ovarian pedicle.

Our findings emphasized the importance of a correct diagnostic protocol prior to surgery and the necessity to explore the entire abdominal cavity when evaluate a patient for possible ovarian remnant tissue. Additionally, is necessary to confirm the excision of ovarian remnant tissue by histologic assessment.

• Introduction

Surgical contraception is highly effective and commonly requested due to benefits such as eliminating estrus behaviors and reducing risks of pyometra, pseudopregnancy, and mammary tumors. However, it carries risks like hemorrhage, stump pyometra, ureteral ligation, intraabdominal adhesions, and ovarian remnant syndrome (ORS). ORS occurs when functional ovarian tissue remains post-gonadectomy, leading to recurring estrus signs. Its causes include incomplete ovarian removal, accidental spillage of ovarian tissue, or ectopic ovarian tissue along the reproductive tract. Factors such as surgical technique, surgeon experience, and animal age may also contribute to ORS.

• Materials and methods

- A ***2 years old British Shorthair female cat*** presented at Emergency University Hospital of the Faculty of Veterinary Medicine in Bucharest, because of suspected recurrent estrus behavior. ***The cat was spayed initially 1,2 years ago and presented another short episode of estral behavior after 5 months from the first surgery.***
- Confirmation of the diagnosis suspected based on clinical evaluation was achieved by performing specific hormonal tests, namely ***AMH (antimullerian hormone) and serum progesterone dosage***.

AMH (ng/ml)		P_4 (ng/ml)	
Value	Reference	Value	Reference
0,07	<= 0,01	1,19	< 0,5

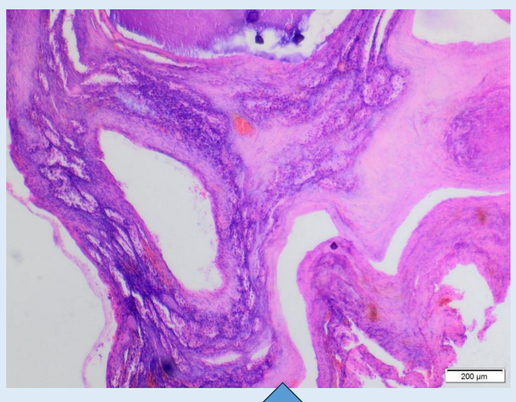
Exploratory laparotomy was decided

Intrasurgically aspect of a reddish firm nodule associated with free border of the omentum

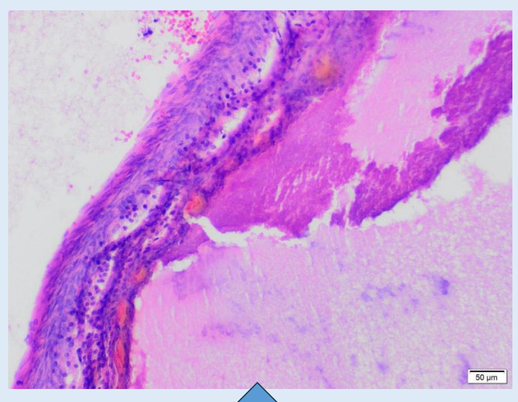
• Results and Discussion

Ovarian remnant syndrome results from an unintentionally incomplete ovarian tissue removal. Particularly for this patient, seems the remnant ovarian syndrome results from an incidental implantation of ovarian tissue rather than an incomplete excision.

- **Histologic examination** of excised omentum nodule, consisted of fibroadipose tissue surrounding an ovarian remnant with numerous degenerated corpora lutea and small follicles in different evolution stages. Margins were infiltrated with numerous lymphocytes and macrophages admixed with mature granulation tissue.



Histological appearance of ovarian cortex with small cystic structure and remnants of degenerated corpora lutea (4x, hematoxylin-eosin stain)



Histological aspect of ovarian cystic wall and follicular fluid (10x, hematoxylin-eosin stain)

Autotransplantation and revascularization of ovarian tissue is a very complex phenomena which include suppression of fibrinolytic activity under ischemic condition, which leads to formation of fibrin deposits. This mechanism was demonstrated by numerous clinical studies in which active fibrin may facilitate the adhesion of an accidental dropped piece of ovarian tissue

Conclusions

Ovarian remnant syndrome is an iatrogenic disturbance where a small fragment of ovarian tissue is accidentally maintained or dropped within abdominal cavity, possible due to improper exposition of the ovarian pedicles.

Clinical diagnosis is challenging because the intensity and pattern of behavioral manifestations could be different compared with intact females.

Laboratory tests greatly improve the diagnosis accuracy. From the author's point of view, qualitative testing of AMH alone in cats is often adequate to confirm the presence of ovarian remnant tissue because cats are considered to be induced ovulators and only a small number of animals present spontaneous ovulations. Anyway, the combined testing of AMH and P4 on a single sample is considered the gold standard diagnosis of ovarian remnant syndrome prior to surgery.

Surgical removal of the remnant ovarian tissue is the best cost/benefit choice. From author's experience, exploratory laparotomy should focus on entire abdominal cavity examination and all suspected tissue located adjacent to ovarian pedicles or uterine stump should be excised and submitted to histological examination to confirm complete removal of remnant ovarian tissue.