

unilaterally fixed embryos; probability of twin maintenance increases substantially with bilateral fixation.² The standard practice is to attempt to reduce the pregnancy to 1 vesicle after pregnancy diagnosis at days 14 - 15, prior to embryonic fixation. In this case, pregnancy diagnosis was not performed after natural breeding. The prolonged duration of the dystocia and autolysis of the fetuses resulted in severe deterioration of the mare's health. The majority (64.5%) of twin pregnancies maintained past 42 days result in late term abortion.³ This case illustrated the importance of close monitoring of follicular dynamics during breeding, early pregnancy diagnosis, and the need for client education on the importance of adequate breeding management for the welfare of the mare.

Keywords: Twins, abortion, dystocia, diaphragmatic hernia, breeding management

References

1. Chavatte P. Twinning in the mare. *Equine Vet Educ* 1997;9:286-292.
2. Ginther OJ: Relationships among number of days between multiple ovulations, number of embryos and type of embryo fixation in mares. *J Equine Vet Sci* 1987;7:82-88.
3. Jeffcott LB, Whitwell KE: Twinning as a cause of foetal and neonatal loss in the Thoroughbred mare. *J Comp Pathol* 1973;83:91-106.

Vulvar discharge associated with exogenous estrogen exposure in a spayed Weimaraner bitch

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Vulvar discharge in spayed bitches is often associated with infections, chemical irritation, foreign bodies, anatomical defects, neoplasia, or an ovarian remnant.¹ Rarely, the discharge is associated with exposure to exogenous hormones.² A 4-year-old spayed Weimaraner bitch was presented for evaluation of inappetence and intermittent sanguineous vulvar discharge. The patient had elevated rectal temperature and respiration rate. Physical examination indicated presence of vulvar edema and a sanguineous vulvar discharge. Vaginal cytology revealed mainly parabasal cells, occasional intermediate cells, and abundant neutrophils and red blood cells. Ultrasonographic findings were suggestive of an enlarged, fluid-filled uterine stump, and a complete blood count (CBC) indicated leukocytosis, neutrophilia, and monocytosis. A uterine stump pyometra due to ovarian remnant syndrome was suspected and celiotomy performed. The uterine stump appeared grossly cystic and thickened. Histopathological evaluation of the removed uterine stump and ovarian pedicles revealed cystic endometrial hyperplasia and no ovarian tissue. Fifteen days after surgery, the patient presented again with a sanguineous vulvar discharge. Vaginal cytology revealed predominantly superficial cells, indicating estrogen influence.³ Differential diagnoses included ectopic ovarian tissue, exogenous estrogen exposure, or an adrenal

tumor. Further questioning of the owner revealed long-term use of a topical estrogen cream by a member of the household. Serial examinations were performed, and the cytology remained uniform, with predominantly superficial cells, indicating continued estrogen influence.³ Progesterone and anti-Müllerian hormone concentrations were determined to rule out ectopic ovarian tissue.^{4,5} Both tests came back negative. The absence of any clinical signs of adrenal disease coupled with the history of topical estrogen cream use in the household suggested that the patient's clinical signs were likely due to exogenous estrogen exposure. Several recommendations were made to prevent the exposure. Follow-up vaginal cytology and CBC evaluations were also recommended to monitor future estrogen exposure and possible adverse effects on the patient's health.

Keywords: Dog, cystic endometrial hyperplasia, exogenous estrogen, vaginal cytology

References

1. Lopate, C: Reproductive disorders of the spayed bitch. *Clinical Theriogenology* 2014;6:205-217.
2. Serman AA, Mankin KT, Barton CL: Stump pyometra secondary to human topical estrogen hormone exposure in a spayed female Chihuahua. *J Am Anim Hosp Assoc* 2019;55:e556-04.
3. Feldman EC, Nelson RW: Ovarian cycle and vaginal cytology. In: Feldman EC, Nelson RW: editors. *Canine and Feline Endocrinology and Reproduction*, 3rd edition, St. Louis; Saunders: 2004. p. 752-774.
4. Wallace MS. The ovarian remnant syndrome in the bitch and queen. *Vet Clin North Am Small Anim Pract* 1991;21:501-507.
5. Turna Yilmaz Ö, Toydemir TS, Kirsan I, et al: Anti-Müllerian hormone as a diagnostic tool for ovarian remnant syndrome in bitches. *Vet Res Commun* 2015;39:159-162.

Phimosis and preputial abscessation with draining tract in an Angus bull

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A 22-month-old, Angus bull presented for preputial laceration and phimosis with secondary cellulitis and ventral swelling cranial to the scrotum. The bull received 2 doses of ceftiofur crystalline free acid, 1 dose of transdermal Banamine, and a 5 day course of penicillin. A preputial abscess was suspected. Preputial lacerations commonly occur during breeding generally due to tissue rupture secondary to compressive force.¹ Preputial laceration and subsequent prolapse is more common in *Bos indicus* breeds due to do their redundant preputial tissue and pendulous sheaths. However, *Bos taurus* bulls are often capable of fully retracting preputial injuries leading to subsequent abscessation.¹ Prognosis is poor to guarded for return to breeding soundness.^{2,3} The bull was treated daily with hydrotherapy focused on the swelling. Epsom salt poultice was applied over the swelling and a sweat wrap was applied using a support sling. After 6 days of treatment, the abscess ruptured along a draining tract that terminated near the preputial orifice. Hydrotherapy, Epsom salt