The Pharma Innovation Journal 2023; SP-12(11): 546-548

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(11): 546-548

www.thepharmajournal.com
Received: 08-08-2023
Accepted: 11-09-2023

Bhathra NR
PG Scholar, Department of Veterinary Gynaecology and Obstetrics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

V Prabaharan
Professor and Head, Department of Veterinary Gynaecology and Obstetrics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

Chhavi Gupta
Assistant Professor, Department of Veterinary Gynaecology and Obstetrics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

Corresponding Author:
V Prabaharan
Professor and Head, Department of Veterinary Gynaecology and Obstetrics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

An unusual case of cervical cyst along with pyometra and pyosalpingitis in a crossbreed Jersey cow

Bhathra NR, V Prabaharan and Chhavi Gupta

Abstract
A pluriparous crossbreed cattle presented to LAC-OP -OG a unit of Veterinary Clinical complex, Veterinary College and Research Institute, Tirunelveli with the history of unable to conceive after 5 repeated AI. Transrectal ultrasonography revealed hypoechogenic fluid filled cyst in cervix (31.4 mm), hyperechoic uterine endometrium with thickness 2.64 mm, both ovaries had snow speckled appearance. Ovarian biometry of right and left ovary revealed multiple immature follicles and a dominant follicle (12.44 mm) respectively. Vaginal mucous membrane scoring revealed severe degree of clinical endometritis. The animal was treated with systemic antibiotic therapy (Inj. Enrofloxacin 1200mg IM) and intrauterine therapy with Metronidazole + Povidone Iodine solution (20:1) for 5 consecutive days. Post treatment rectal and ultrasonographic examination was found to be nonresponsive to therapy. Hence owner was advised to cull the animal. This short communication aims to put on record a rare case of coexisting case of cervical cyst, pyometra and pyosalpingitis.

Keywords: Cervical cyst, pyometra, pyosalpingitis, cross bred cow

1. Introduction
Cervical cysts are mucinous retention cysts or epithelial cysts, a common and benign gynaecological condition located at the cervix. The squamous epithelium of the uterine cervix proliferates, covering the columnar epithelium of the endocervical glands; this takes place as a result of the healing process of chronic cervicitis further the columnar epithelium secretes mucous, which then forms retention cysts at the squamocolumnar junction of the cervix (AlJulaih, 2023) [1]. Inflammatory changes in the endometrium interferes in absorbance of prostaglandins in systemic circulation thereby leading to persistent corpus luteum along with closed cervix ultimately resulting in accumulation of exudates in the uterine lumen leads to the formation pyometra. Cow that suffers from pyometra shows few or no signs of illness, but remains infertile (Noakes *et al.*, 2019) [9]. Pyosalpinx can be defined as a blocked dilated pus-filled uterine tube leading to reduced fertility or even cause sterility (Baishya *et al.*, 1998) [2]. Fluid from pyosalpinx provides a physical barrier or mechanical hindrance to fertilization resulting in fertilization failure and causing repeat breeding syndrome (Sadeghi *et al.*, 2022) [7]. The following case is documented as coexisting case of cervical cyst, pyometra and pyosalpingitis.

2. Case history and clinical observations
A pluriparous cross breed Jersey cow presented to LAC-OP-OG unit of Veterinary Clinical complex, Veterinary College and Research Institute, Tirunelveli with clinical history of having regular oestrous cycle but unable to conceive in spite of repeated 5 number of artificial inseminations and animal underwent eutocia to deliver a live male calf 1 year back. Clinical examination revealed all vitals were within physiological limit. Gynaco-clinical examination revealed no vaginal discharge, pale pink moist vaginal mucous membrane, shrunken vulva. Per rectal examination revealed fluctuating mass on the rim of the external os, which was non occluding the birth canal, cervix was partially relaxed and intrapelvic, uterus was intrapelvic, freely movable, asymmetrical, doughy in consistency and flaccid in nature, oviducts were enlarged and palpable, ovaries were enlarged in size, hard in consistency and many immature follicles and a dominant follicle were palpable on right and left ovary, respectively. Per vaginal examination revealed thin - walled fluid filled structure at 9'O clock position on the rim of the external os of the cervix. Cervix was three fingers dilated and had cloudy discharge. Transrectal ultrasonography revealed, hypoechogenic fluid filled cyst in cervix (31.41 mm), hyperechoic uterine endometrium thickness 2.64 mm, uterine lumen filled with anechoic fluid

and floating echogenic particles, left oviduct had hyperechoic wall and anechoic fluid filled pockets in the lumen, both ovaries had snow speckled appearance. Ovarian biometry revealed right ovary with multiple immature follicle (F1: 6.62 mm; F2: 6.99 mm; F3: 3.96 mm) and left ovary had a dominant follicle (12.44 mm). The pale yellowish white, thin cervical mucus of score 2 (discharge with 50% exudate and 50% off-white mucopurulent material) revealed severe degree of clinical endometritis. Based on the ultrasonographic findings the case was diagnosed as a coexisting cervical cyst, pyometra, pyosalpingitis and oophoritis in a cross-breed Jersey cow.

3. Treatment and Discussion

The animal was treated on day 01 with systemic antibiotic therapy (Inj. Enrofloxacin 1200 mg IM), NSAID (Inj. Flunixin 250 mg IM) Inj. Vitamin AD_3E 5 ml IM and intrauterine therapy with Metronidazole + Povidone iodine solution (20:1) for 5 consecutive days. On day 05 of the therapy ultrasonographical examination revealed the same biometrical parameters as of day 01 thus the animal was non-responsive to therapy. Hence the animal was considered as unfit for future breeding and advised for culling**.**

The crossbreed cows have a high productive potential but its productivity is limited by several reproductive problems leading to infertility. Infertile crossbreed cows become an economic liability for the farmer more often than not culled or slaughtered (Das and Khan, 2010) [4]. Cystic affections of the genital tract contribute to infertility in animals. Rao, 1991 [11] reported that cervical cysts varying in size from 1.25-1.75 cm diameter observed in buffalo or even larger cysts being even palpated per-rectally as movable or fluctuating masses in the cervix which is in agreement with this study. The cervix acts as a barrier between the uterine lumen and the external environment and is more vulnerable to both infections and trauma owing to its proximity to the environment. Although the etiology of cervical cysts has not yet been elucidated, trauma during parturition, artificial insemination and obstetrical intervention may be responsible for development of the condition (Schlafer and Miller, 2007) [12] which might be the cause of cervical cyst in this study. Cervical cyst has been associated with infertility in the bovines (Naidu *et al*., 2009) [8], and mechanical interference with the sperm transport into the uterus may be one of the plausible reasons. Further, such cysts may also prevent proper closure of the cervix during pregnancy predisposing the uterus to ascending infections and subsequent pregnancy loss (Rao, 1991) [11].

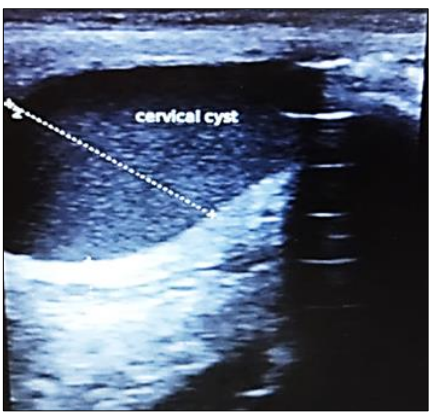

Fig 1: Hypoechogenic fluid filled cyst in cervix of diameter 26.27 mm x 36.56 mm

Fig 2: Hyperechoic uterine endometrium with thickness 2.64 mm x 21.31 mm, uterine lumen filled with anechoic fluid with floating echogenic particle

Most cows with pyometra also have salpingitis with significant bacterial invasion of the oviductal wall. Various species of microorganisms, such as *Trueperella pyogenes*, *Fusobacterium necrophorum*, *Streptococcus* and *Porphyromonas levii*, could potentially invade bovine oviducts as ascending infection from the uterus (Karstrup *et al*., 2017, Owhor *et al*., 2019) [5, 10]. Pattern of the gene expression of cytokines is altered in association with different grades of salpingitis. These alterations in the microenvironment of the oviduct resulted in the abnormal mitochondrial distribution and low fertilization rates in bovine oocytes (Sadeghi *et al*., 2022) [7]. Salpingitis distinctly impairs gamete interaction. In inflamed oviducts, sperm survival time, sperm motility, sperm hyperactivation, detachment, migration and penetration of the cumulus oophorous are reduced and lumen size greatly reduced causing infertility (Owhor *et al*., 2019) [10].

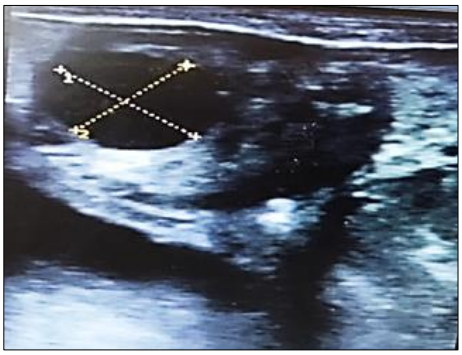

Fig 3: Left ovary has a dominant follicle of diameter 12.80 mm x 12.09 mm

Fig 4: Right ovary with many immature follicle (F1:7mm x6.24mm; F2: 6.58 mm x 7.41 mm; F3: 4.38 mm x 3.54 mm)

Diagnosis of pyometra by transrectal ultrasonography is based on the appearance of increased volume of accumulated echogenic uterine content without fetus and cotyledons, closed cervix and corpus luteum on the ovary (Durant 1999; Sheldon *et al.* 2006) [3, 13]. Pyometra is characterized by the presence of corpus luteum on ovary and accumulation of fluid of mixed echo-density in the uterine lumen and distention of the uterus on ultrasonographic examination (Manns *et al.*, 1985) [6] which is in concurrence with this study. Common treatment followed is administration of PGF_2 α analogue but in this case, there was no corpus luteum on both ovaries and also cervix was partially dilated thus for eliminating the infectious agents from uterus intrauterine therapy, systemic antibiotics and supportive therapy (Noakes *et al.*, 2019) [9] was followed which in this case found to be non-responsive.

4. Conclusion

Hence it could be concluded that treatment of coexisting cervical cyst, pyometra, pyosalphingitis using NSAID in addition to parenteral antibiotic and intrauterine therapy did not manage the inflammatory parameters or elimination of bacteria from the uterus. Moreover, conception failure due to pyosalpingitis and pyometra interfering with the implantation and early embryonic development, cervical cysts impairing sperm entry or deposition causing multiple causes possibly have led to infertility resulting in the culling and slaughter of the animal.

5. Acknowledgement

The authors are thankful to the Director of Clinics, TANUVAS and Dean, Veterinary College and Research Institute, Tirunelveli to support for carrying out this case study successfully.

6. References

1. Aljulaih GH, Puckett Y. Nabothian Cyst. Stat Pearls. Treasure Island Stat Pearls Publishing; c2023.
2. Baishya SK, Das KK, Rahman H, Borgohain M. Antibiogram of bacteria isolated from uterine discharge of repeat breeding buffaloes. Indian Journal of Comparative Microbiology Immunology and Infectious Diseases. 1998;19:130-131.
3. Bon Durant RH. Inflammation in the bovine female reproductive tract. Journal of Animal Science. 1999;77(2):101.
4. Das GK, Khan FA. Summer Anoestrus in buffalo: A review. Reproduction in domestic animals. 2010;45(6):483-494.
5. Karstrup CC, Pedersen HG, Jensen TK, Agerholm JS. Bacterial invasion of the uterus and oviducts in bovine pyometra. Theriogenology. 2017;93:93-98.
6. Manns J, Nkuuhe J, Bristol F. Prostaglandin concentrations in uterine fluid of cows with pyometra. Candian Journal of Comparative Medicine. 1985;49:436-438.
7. Sadeghi M, Azari M, Kafi M, Nourani H, Ghaemi M, Najafi M, *et al*. Bovine salpingitis: Histopathology, bacteriology, cytology and transcriptomic approaches and its impact on the oocyte competence. Animal Reproduction Science. 2022;242:100-102.
8. Naidu GV, Murugan M, Srinivas M, Adlak S. Management of a cervical cyst in a graded Murrah buffalo. Buffalo Bulletin. 2009;28:214.
9. Noakes DE, Parkinson TJ, England GCW. Veterinary reproduction and obstetrics. Edn 10, Elsevier, Edinburgh, Scotland; c2019. p. 428-430.
10. Owhor LE, Reese S, Kölle S. Salpingitis Impairs Bovine Tubal Function and Sperm-Oviduct Interaction. Scientific Reports. 2019;9(1):10893.
11. Rao AR. Reproductive disorders in Indian Livestock, Edn 1, Everest Press, New Delhi, India; c1991. p. 30-31.
12. Schlafer DH, Miller RB. Female genital system, In Maxie M. Grant. Jubb, Kennedy and Palmer's Pathology of Domestic Animals, Edn 5, Saunders Elsevier, USA. 2007;3:538.
13. Sheldon I, Wathes D Claire, Dobson Hilary. The management of bovine reproduction in elite herds. Veterinary journal. 2006;171:70-80.