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Case Report

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Mucometra due to Follicular Cyst in an Ongole Cow- A Case Report

Anthony Raju Kangonu[1*], Chandra Prasad Borra[2], Srinivas Manda[3]

[1]PG Scholar, Department of Veterinary Gynaecology and Obstetrics, NTR College of Veterinary Science, Gannavaram, Sri Venkateswara Veterinary University, Tirupati, India

[2]Assistant Professor, Department of Veterinary Clinical Complex, NTR College of Veterinary Science, Gannavaram, Sri Venkateswara Veterinary University, Tirupati, India

[3]Professor, Department of Veterinary Gynaecology and Obstetrics, NTR College of Veterinary Science, Gannavaram, Sri Venkateswara Veterinary University, Tirupati, India

***Address for Correspondence:** Dr. Anthony Raju Kangonu, PG scholar, Department of Veterinary Gynaecology and Obstetrics, NTR college of veterinary science Gannavaram, Sri Venkateswara veterinary university, Tirupati, India
E-mail: vetanthony1693@gmail.com

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ABSTRACT

Background: An eight-year-old Ongole cow was brought to the large Gynaecology ward, Department of VGO, NTR College of Veterinary Science, Gannavaram with a history of irregular cloudy vaginal discharge. The local veterinarian did not appreciate the growth of the gravid uterine horn during repeated per-rectal examinations in 30-day intervals.

Methods: On rectal examination, the right uterine horn was distended with fluid. On real-time ultrasonography, the ovaries were diagnosed with the presence of large anechoic follicles on both left and right ovaries. The cow was diagnosed as mucometra due to follicular cyst and treated with ovsynch plus CIDR protocol using 20µg of GnRH and cloprostenol sodium of 500 µg and CIDR device containing progesterone of 1.9 gms.

Results: Re-examination after one month revealed the persistence of cysts on both the ovaries and the distended right uterine horn.

Conclusion: The treatment was not successful because of the longstanding follicular cysts and thickening, and unresponsiveness of uterine endometrium. The prognosis of the present case was guarded.

Key-words: Follicular cyst, Mucometra, Ongole cow, Ovsynch plus CIDR, Ultrasonography

INTRODUCTION

Cystic ovarian (OC) condition is the important cause of infertility in milch cattle and is defined as enlarged anovulatory follicle-like structures persisting for 10 or more days in dairy cows. Nowadays it is explained as follicular structures that are present on the ovaries with a diameter of not less than 17 mm for more than 6 days in the absence of CL [1]. A cystic follicle can persist as a dominant structure effectively preventing follicular growth and can be replaced by another cystic follicle or regress. [2].

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Long-term continuance of follicular cysts leads to hypertrophy of the endometrial glands, resulting in mucometra [3]. Failure to ovulate leads to cyst development, interfering with normal ovarian function. Grossly, Ovarian cysts are of two types, follicular cysts, and luteal cysts. These cysts can be discerned by examining progesterone concentration in milk and blood plasma. Ultrasound examination of wall thickness can be useful in differentiating these cysts [4]. The oestrous cycle is not blocked by the cystic condition of the ovaries, which is frequently accompanied by other alterations in the ovaries and by damaged endometrium. Follicular cystic condition showed unusual subepithelial layer density in the uterus [5]. The hallmark of mucometra or hydrometra is the build-up of mucin like substance in the uterus. Mucometra is frequently linked to higher progesterone stimulation in ovine and caprine, but in cows, mares, and bitches, it is due to increased

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progesterone or oestrogen stimulation [6]. The echogenicity of the uterine content is the Eco graphical distinction between mucometra and pyometra. Unlike sterile mucus, which appears anechoic, purulent mucus exhibits some degree of echogenicity [7]. However, in the present report, the consistency and mucoid content of the uterine fluid prompted a diagnosis of mucometra. The mucometra was accompanied by endometrial hyperplasia and dilation of the endometrial glands, which can be concluded to be caused by persistent follicular cysts.

CASE PRESENTATION

An eight-year-old pluriparous Ongole cow was presented to the Department of VGO, Gannavaram, Krishna district with a history of irregular cloudy discharges and a calving history of 2 years and artificial insemination was performed six months ago. The local vet did not notice any uterine horn enlargement even after repeated rectal examinations in the 30-day interval. The clinical parameters (temperature, pulse, and heart rate) were within normal range. Physical examination of the animal revealed bull-like appearance (masculine physical traits) of the cow and an enlarged tail head was noticed due to the relaxation of sacrosciatic ligaments (Fig. 1).

Fig. 1: Enlarged tail head due to relaxation of sacrosciatic ligaments

Per-rectal examination, revealed enlargement of the right uterine horn and distended with the absence of foetal membrane slip and fremitus. Ultrasonography of the uterus and ovaries revealed the presence of cystic follicles with an average diameter of 1.5 cm on the left ovary (Fig. 2) and multiple follicles on right ovary (Fig. 3) with a fluid of mixed echogenicity accumulated in the lumen of the uterus (Fig. 4).

Based on the findings the case was diagnosed as mucometra due to persistent follicular cysts.

Fig. 2: Ultrasound image of left ovary showing large follicle with an average diameter of 1.5 cm

Fig. 3: Ultrasound image of right ovary showing multiple follicles

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Fig. 4: Ultrasound image of uterus filled with fluid of mixed echogenicity indicating mucometra

TREATMENT

The present case was treated with Ovsynch plus CIDR protocol. The animal was given an intramuscular injection of 20 µg GnRH (Pregulate, 4 µg/ml) on the 0th day, insertion of a CIDR device containing progesterone of 1.9 gms on the 0th Day, 500 µg of cloprostenol sodium (Pragma 250 µg/ml) intramuscularly along with CIDR removal on 7th day and 20 µg of GnRH (Pregulate, 4 µg/ml) on 9th day. A total 10 gm of KI was given per oral for 5 days and Repronol (vitamin E and Se) at a dose of 5 ml was given twice intramuscularly within 10 days. Transrectal ultrasonography was done one month after the treatment, and the follicles on both the right and left ovary remains unchanged.

DISCUSSION

However, in the present case, the consistency and mucoid content of the uterine fluid prompted a diagnosis of mucometra. Treatment of follicular cysts with progesterone impedes the endocrine environment required to maintain the follicular cysts and results in the restoration of ovarian cyclical activity [1]. Ultrasound-guided ablation is a safer method, which avoids adhesion and bleeding in the ovary. The estrogens produced by the follicular cysts have a preventive effect on ovulation. Therefore, ablation of the cyst will destroy the estrogen source, leading to new follicular waves and ovulation [8]. The mucometra was accompanied by endometrial hyperplasia and dilation of the endometrial glands, which can be concluded to be caused by persistent follicular cysts. A similar case was also reported by [9], in which mucometra was associated with follicular cysts.

Follicular cysts can be treated with GnRH, which causes the release of luteinizing hormone (LH) and luteinization of the cyst. The luteinized cyst can be sensitive to PGF2α, and regress about 8-9 days later with the administration of PGF2α [10]. In the present case, an attempt was made to bring about ovulation by intramuscular injection of GnRH. However, the follicles on both the left and right ovary are persistent.

Circulating progesterone levels are enhanced with the treatment using a CIDR device is effective in rectifying follicular cyst conditions [11]. Exposure of exogenous progesterone to cows with unresponsive hypothalamus restores the ability of E2 to induce the release of LH in a surge-like manner [12,13]. In the present case, this line of treatment was not attempted due to the thickening of the endometrium and oedema of the endometrial glands, which would be unable to respond to gonadotropin stimulation.

CONCLUSIONS

Mucometra may be confused as early gestation, but it can be discerned by the absence of fetal membrane slip and ultrasonic examination of the reproductive tract. The present case report is mucometra due to follicular cyst, its diagnosis and management. The ACTH hormone released, because of stress causes increased levels of progesterone, at sub luteal dose even after the luteolysis for several days leading to the formation of persistent follicles. Nowadays confinement of an animal in its shed for longer periods without any exercise leads to a lot of stress for animals. However, the treatment for the present case was not successful due to the persistence of the cysts on the ovaries for longer periods and damage to the endometrial glands. The prognosis of the present case was grave.

The follicular cysts occurred after postpartum and eventually rebound to normal ovarian activity if the proper diagnosis was made at the early stages. Misdiagnosis at the early stages of cystic condition leads to mucometra or hydrometra resulting in worsening the reproductive potential of the animal. The etiological factors like Stress full conditions to the animal, lack of exercise, and high protein diet should be corrected to bring about good results.

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CONTRIBUTION OF AUTHORS

Research concept- Manda Srinivas
Research design- Manda Srinivas
Supervision- Borra Chandra Prasad
Materials- Kangonu Anthony Raju
Data collection- Kangonu Anthony Raju
Data analysis and Interpretation- Kangonu Anthony Raju
Literature search- Kangonu Anthony Raju
Writing article- Kangonu Anthony Raju
Critical review- Borra Chandra Prasad
Article editing- Borra Chandra Prasad
Final approval- Manda Srinivas

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