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Incidence of endometritis in repeat breeder graded Murrah buffaloes belonging to coastal Andhra Pradesh

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Abstract
The present investigation was conducted to assess the causes of repeat breeding in Graded Murrah buffaloes (n=85) which were belonging to region of coastal Andhra Pradesh. The characterization of repeat breeding in Graded Murrah buffaloes based on the clinical condition of the reproductive tract, revealed that buffaloes had cystic ovarian degeneration (2.35%), cystic endometrium (1.18%), endometritis (74.11%), mucometra (1.18%), uterine/ovarian tumours (1.18%), ovario-bursal adhesions (1.18%), had kinked or fibrosed cervix (17.64%) and uterine adhesions (1.18%) among 85 repeat breeder buffaloes screened. Amongst the buffaloes with history of failure of conception, the most predominant cause was endometritis with an occurrence of 74.11 per cent.

Keywords: Andhra Pradesh, buffalo, cystic ovarian degeneration, endometritis, repeat breeder

Introduction
Reproductive efficiency in buffaloes considerably reduced due to the inherent problems like delayed sexual maturity, poor estrus expression or silent estrus in the female particularly during summer months, prolonged postpartum interval in turn increased inter-calving period, diseases of genital system and infertility [1, 2]. The occurrence rate of endometritis in buffaloes was much more common than cows (Moghaddam and Mamoei, 2004) [3], which might be due to improper closure of vulval lips, poor hygienic environment, vaginal stimulation for milk letdown and wallowing habit [4]. Postpartum endometritis is most commonly recorded in dairy buffaloes and cows as compared to other domestic animals. Endometritis is classified into clinical and subclinical endometritis based on the rectal examination of genitalia, characteristics of cervico-vaginal mucus and endometrial cytology [5, 6].
The etiology of repeat breeding appears to be multifactorial and include uterine infections and reproductive tract abnormalities, hormonal dysfunction and nutritional inadequacies, and poor breeding and health management. Clinical evaluations often depict the preponderance of genital infections (endometritis) in repeat breeding buffaloes [7].

Material and Methods
The study comprised of screening of postpartum Graded Murrah buffaloes (n=85) with the history of failure to conceive even after three consecutive artificial inseminations (AI) with good quality frozen semen from a fertile sire. The buffaloes were maintained by farmers under varied nutritional and management conditions and were fed with paddy straw, fresh green fodder (CO3, CO4 and Para grass) and concentrate feed. These buffaloes were apparently healthy with acceptable body condition score (BCS >2.5). The occurrence of endometritis was derived from case register maintained in the Gynaecology Unit, Department of Veterinary Clinical Complex by considering the data obtained for one year. Diagnostic methods like, per rectal palpation, nature and pH of cervico-vaginal mucus, uterine discharge cytology followed by ultrasound scanning was performed to identify the causes of repeat breeding in Graded Murrah buffaloes (n=85).

Results and Discussion
The results of causes of repeat breeding in Graded Murrah buffaloes was represented in Table 1 and Figure 1.
The characterization of repeat breeding in Graded Murrah buffaloes (n=85) based on the clinical condition of the reproductive tract, revealed that 2.35% had cystic ovarian

degeneration, 1.18% had cystic endometrium, 74.11% had endometritis, 1.18% had mucometra/hydrometra, 1.18% had uterine/ovarian tumours, 1.18% had ovario-bursal adhesions, 17.64% had kinked or fibrosed cervix and 1.18% had uterine adhesions (Table 1, Figure 1). Amongst the buffaloes with history of failure of conception, the most predominant cause was endometritis with an occurrence of 74.11 (63/85) per cent. Repeat breeding condition might vary from herd to herd as well as from one animal to another. The most common condition for repeat breeding syndrome in buffaloes was endometritis, which might be due to poor hygiene of environment, unhygienic and faulty insemination and possibly the wallowing nature of buffaloes [4].

Occurrence of repeat breeder buffaloes with palpable abnormality of genitalia (25.88%) in the present study was very low as compared to per-rectal palpable findings of Venkateswarlu (2019) [8] who reported that 53.50 per cent of buffaloes exhibited palpable abnormalities as the cause of repeat breeding condition. Palpable abnormalities could be diagnosed effectively with detailed and systematic per-rectal examination of the reproductive tract. Further, it could be confirmed with the visualization of changes in the respective portions of the reproductive tract by ultrasonographic examination. Buffaloes with palpable abnormalities in the reproductive tract were excluded from the present study.

Occurrence of endometritis (74.11%) among the repeat breeding buffaloes of the present study was in close agreement with the reports of Hanafi *et al*. (2008) [9] who recorded uterine infection (70.59%) as a cause of repeat breeding out of 813 buffaloes examined. On the contrary, earlier reports [10, 11, 12, 13, 14, 15] recorded the occurrence of endometritis in buffaloes in the range of 3.5 to 60.0 per cent. Higher percentage of occurrence for endometritis in the present study might be due to the detailed and systematic approach adopted for palpation of each portion of reproductive tract during the screening period to exclude other supporting clinical and pathological changes associated with repeat breeding. Further, the clinical or pathological changes in the reproductive tract were confirmed by ultrasonographic examination followed with other preliminary (white side test) as well as precise diagnostic techniques viz., uterine discharge sample optical density and uterine discharge cytology as opined by Bajaj *et al*. (2015), Gahlot *et al*. (2016) and Nehru *et al*. (2019) [16, 17, 18].

Table 1: Causes of repeat breeding in Graded Murrah buffaloes based on the clinical condition of the reproductive tract (n=85)

S. No	Causes of repeat breeding	Number of buffaloes	Percentage (%)
1	Cystic ovarian degeneration (COD)	2	2.35
2	Cystic endometrium	1	1.18
3	Endometritis	63	74.11
4	Mucometra/Hydrometra	1	1.18
5	Uterine/ovarian tumours	1	1.18
6	Ovario-bursal adhesions	1	1.18
7	Kinked or fibrosed cervix	15	17.64
8	Uterine adhesions	1	1.18
Total		85	100.00

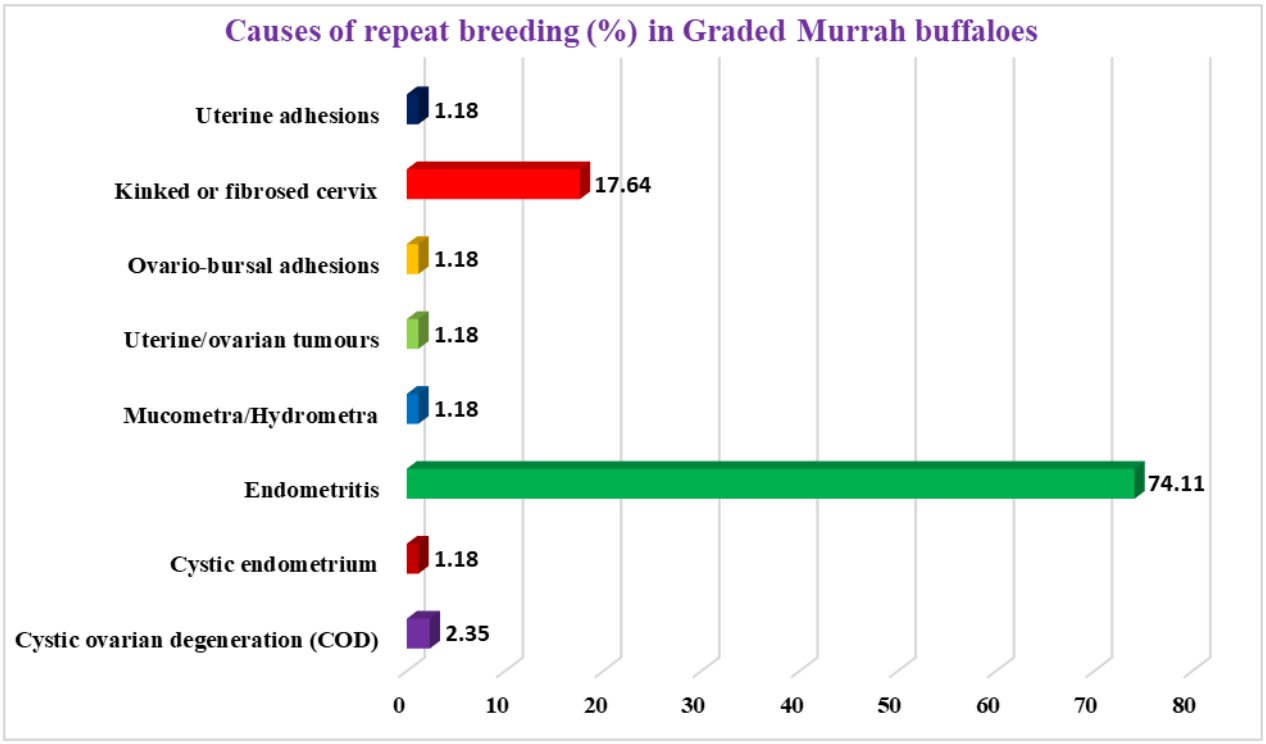

Fig 1: Causes of repeat breeding in Graded Murrah buffaloes

Conclusion

Buffaloes with history of failure of conception, the most predominant cause was endometritis. Endometritis significantly reduced the reproductive performance of buffaloes, ultimately resulted in increased postpartum service period and inter-calving period.

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