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Clinical Article

A RARE CASE OF UNILATERAL BARTHOLIN GLAND CYST IN A JERSEY COW

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SUMMARY

The present case study reports a case of Bartholin gland cyst in a Jersey cow and its non-surgical management.

Keywords: Bartholin gland cyst, Cow, Non-surgical management

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A cystic Bartholin gland is characterized by abnormal accumulation of glandular fluid, increasing its volume multifold (Marzano and Haefner, 2004). Clinical significance of this condition is due to the appearance of swollen gland which resembles vaginal prolapse and at the same time it also obliterates passage for artificial insemination. The greater or major vestibular gland was first explained by Dutch anatomist, Caspar Secundus Bartholin (Badmekiran *et al.*, 2009). The gland was named after him as Bartholin gland. These mucus secreting tubulo-acinar glands are situated bilaterally on vulval-submucosa in ruminants (Schlafer and Foster, 2016). In cows the gland measures about 1.5-3 cm in diameter and both sides of gland drain at 2.5 cm to caudal vagina through a single duct. The main function of gland is to produce mucous and lubricate the vagina to facilitate mating. Elevated level of estrogen during estrous cycle activates the gland in bovines and felines. Secretion of gland is rich in mucins, sialic acid, glycidic radicals. Moreover, these substances are said to be beneficial for survival of sperm within female reproductive tract which intern justifies activity of gland during estrous phase. The act of coitus causes mechanical stimulation in vagina leads to release of serotonin from neuro-endocrine cells present in the gland thus increases the glandular activity and secretion (Russo and Vittoria, 2006).

A Jersey cow was brought to Veterinary Clinical Complex of Bihar Veterinary College with complaint of protrusion of vaginal mass resembling vaginal prolapse like condition. Physical examination revealed presence of a round fluid filled structure measuring approx. 7x8 cm in size covered with vaginal mucosa on the left vulva (Figs. 1 and 2).

The structure was soft and fluctuating without pain on palpation. The fluid drained through sterile 20 gauze hypodermic needle. A fraction of volume was collected for biochemical examination. The fraction of collected fluid was evaluated for microbial presence by incubating in Brain heart infusion (BHI) broth followed by inoculation in UTI agar. Another fraction of fluid was centrifuged and sediment stained for cytology. Final fraction was examined for biochemical evaluation. Toal protein, albumin, glucose and calcium were estimated through biuret, BCG, GOD/POD and OCPC methods respectively. Diluted (5%) povidone iodine solution was filled in cyst to curtail any possibility of infection. The cyst shrunk after couple of days and normal condition restored.

Microbiological examination showed no growth on UTI agar, indicating sterile nature of fluid, moreover; cytology revealed presence of Parabasal cells (Fig. 03). Biochemical evaluation revealed very high levels of inorganic substances i.e., calcium, sodium and potassium (Table 1).

Table 1. Biochemical evaluation of cystic fluid

S.No.	Parameters	Quantity (mg/ml)
1	Total protein	2.93
2	Albumin	1.78
3	Glucose	6.24
4	Calcium	37.0
5	Sodium	32.0
6	Potassium	7.34

Bartholin gland cyst is rarely occurring pathological condition in cattle. Most often the condition is misdiagnosed, especially underfield conditions. Although it is rare in occurrence but mostly diagnosed as mild prolapse of vagina (Badmekiran *et al.*, 2009). In some cases, the cystic dilatation remains small and buried within vulva, however it obliterates the vaginal canal therefore performing Artificial insemination becomes very difficult (Drivers and Peek, 2008). These two conditions lead to culling of a productive animal thus causing economical

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Figs. 1 and 2. Bartholin gland cyston vaginal floor

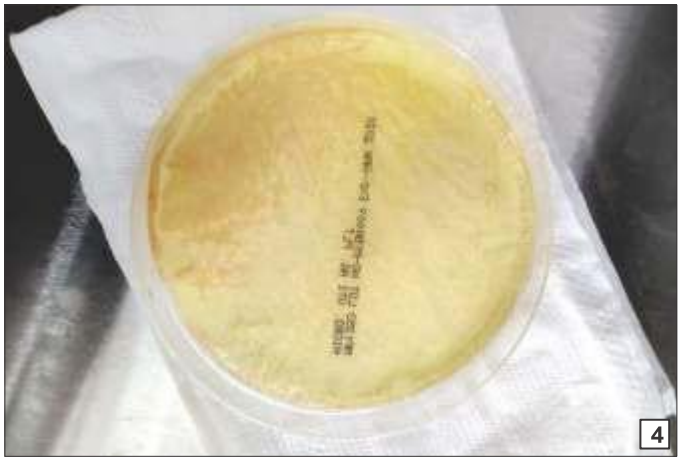

Fig. 4. Microbiological investigation-no bacterial growth observed in UTI Agar media

loss to farmer. Roberts (1986) reported that cystic enlargement ranging more than 5 cm diameter remains within vulval lips therefore can only be visible when cow lies on the ground thus often mistaken for the mild form of vaginal prolapse. Biochemical analysis of previous reports revealed presence of high level of albumin (Russo and Vittoria, 2006) which is in accordance of our finding, along with albumin, high levels of inorganic substances in the current study is an interesting finding. Probable reason for such high levels of inorganic substance in cystic fluid might indicate improper drainage of these substance through gland.Furthermore,there is need to investigate the significance of high level of minerals and protein in cystic fluid. Cytological evaluation revealed presence of parabasalcell indicating cow in estrus phase. This finding further justifies that estrous cycle with high estrogen level activates glandular function thus making it prone for such cystic condition (Selvaraju *et al.,* 2010).

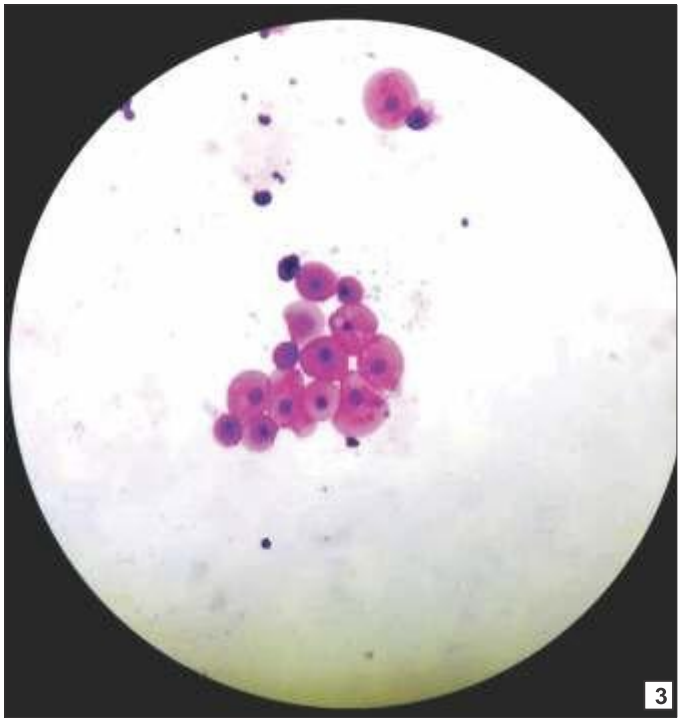

Fig. 3. Photomicrograph showing Parabasal cells in cytological evaluation under 100X magnification

Exact etiology of the Bartholin gland cyst is unknown, however some workers claimed infectious agents as predisposing factor for cystic condition, and however in our case it remained unclear as the cystic fluid was sterile.

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