Short Communication

Twin Follicular Cysts in a Crossbred Cow: a Case Report

S. Satheshkumar*, A. Ganesan[1], Chhavi Gupta[2], M.Murugan[3], J. Jayalakshmi [4] and A. Palanisammi [5]

Department of Veterinary Gynaecology and Obstetrics, Veterinary College and Research Institute, Tamilnadu Veterinary and Animal Sciences University, Tirunelveli – 627 358, Tamil Nadu

Follicular cyst is an important ovarian dysfunction and a major cause of reproductive failure in dairy cattle which has an economic impact on dairy industry. With the advent of imaging diagnostics follicular cyst has been defined as follicle like structures, with a minimum diameter of 17 mm and persisting for more than 6 days in the absence of a corpus luteum (Silvia *et al*., 2002). Calder *et al*. (2001) has explained the different natures of follicular cysts in cattle. This paper places on record the co-existence of two types of follicular cysts and therapeutic approach in a crossbred cow

CASE HISTORY AND OBSERVATION

A Jersey crossbred cow (3 calvings) was brought to the Large animal Gynaecology Unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli with the history of persistent oestrus signs for the past 10 days. On enquiry it was found that the animal had calved four months back and exhibited the first post partum oestrus by 90 days after calving.

On external examination, the animal had edematous vulva and pale vaginal mucous membrane. Clear copious vaginal discharge was noticed. Gynaeco-clinical examination revealed dilated cervix with uterine tonicity simulating the oestrus characteristics. The right ovary was enlarged in size with palpable fluctuating areas resembling that of follicular cyst. Left ovary was normal. No corpus luteum could be palpated in both the ovaries.

On ultrasonographic examination, it was found that the right ovary had two large anechoic structures (F1 and F2, each 23.0 mm diameter) (Fig.1). Left ovary had small sized follicles. No luteal tissue could be observed in both the ovaries. The case was tentatively diagnosed as a 'Twin Follicular cyst'

Corresponding author Email Id: drsatheshkumar6@rediffmail.com; Mobile: 9840885192

[1] Assistant Professor, Department of Veterinary Gynaecology and Obstetrics,

[2] Assistant Professor, Veterinary Clinical Complex,

[3] Undergraduate Scholar,

[4] Dean, Veterinary College and Research Institute, Tamilnadu Veterinary and Animal Sciences University, Tirunelveli – 627 358, Tamil Nadu, India

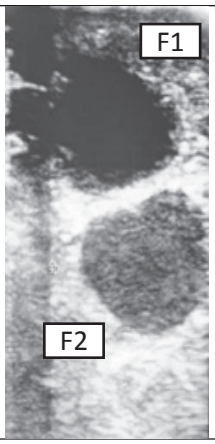

Fig.1. 'Twin follicular cysts' in the right ovary (day of LH administration)

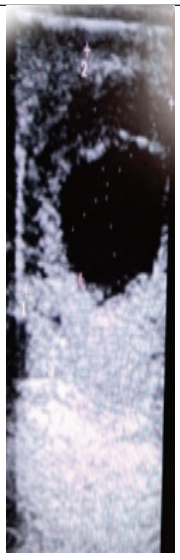

Fig.2a. Day7 post LH – Luteinized cyst (F1)

Fig.2b. Day7 post LH -Unresponsive cyst (F2)

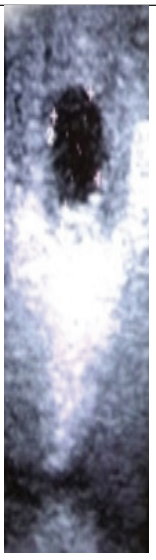

Fig.2c. Day7 post LH- DF in left ovary

TREATMENT AND DISCUSSION

A modified Cosynch protocol was followed by initiating the treatment with Luteinizing hormone (Inj. Human Chorionic gonadotrophin; 3000 IU; i.v.). After 7 days we found that F1 in the right ovary responded with luteinization (8mm luteinized tissue), while the other follicle (F2) persisted with a thin lining of luteinized tissue (3mm). Left ovary possessed a dominant follicle (DF) of 10 mm diameter (Fig.2 a,b,c). Prostaglandin (Inj. Cloprostenol: 500 µg; i.m.) was administered on that day. The animal exhibited oestrus 48 h post PG. Ultrasonographic examination revealed the lysis of luteinized follicle (F1), but the F2 follicle still persisted. On the left ovary, the

DF increased in diameter (13.5 mm). The animal was inseminated for two subsequent days, with GnRH administration (Inj. Buserelin acetate; 10 µg; i.m.) during the first day AI. Ultrasonographic examination on the third day of the cycle revealed the ovulation of the DF in the left ovary. Based on the therapeutic response, it could be concluded that among the two follicular cysts, one was a dominant responsive cyst and the other one was a non-responsive cyst as described by Calder *et al.* (2001). The interesting feature of this case was the co-existence of both responsive and non-responsive follicular cysts in the same ovary.

Cattle are usually mono-ovular species, but multiple ovulations do occur occasionally. During the follicular turnover only one follicle will deviate and attain the dominance while the rest of the recruited follicles will undergo atresia. Co-dominance might occur when more than one follicle could deviate at the same time, which increases the chance of multiple ovulations (Macmillan *et al*., 2018). In the present clinical case, such phenomena of co-dominance would have occurred, but the twin follicles persisted as cysts instead of ovulation. Calder *et al*. (2001) suggested that low serum progesterone and high basal LH concentrations are characteristic of cows with cysts. Thus modified Cosynch protocol followed in this case was found to have corrected the endocrine imbalance resulting in culmination of cystic degeneration and return to normal cyclicity.

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