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Cystic Ovarian Disease in Rathi Cattle

G.N. Purhoit, B.K. Joshi, B.L. Bishnoi, A.K. Gupta, R.K. Joshi, S.K. Vyas, K.A. Gupta, P.K. Pareek and S.S. Sharma

Rajasthan Agricultural University, Bikaner 334 001, India

Abstract: Cystic ovarian disease (COD) was studied in Rathi cows. The overall incidence of COD in rural and urban areas was 2.12 and 0.87%, respectively. Cysts were usually single, smaller in size and located mostly on the right ovary (56.03%) with nymphomania as the predominant clinical sign. Biochemical estimations in serum revealed significantly higher values of chloride and significantly lower values of inorganic phosphorus ($P<0.05$) in cystic cows compared to normal cows. Enucleation was the principal treatment of COD (56.41%) in rural cows, whereas, GnRH (41.17%) was the major treatment in urban cows. A good number of untreated cows with COD (27.17%) also become pregnant without any treatment.

Key words: Cystic ovarian disease, GnRH, nymphomania.

Cystic ovarian disease still remains a major reproductive disorder in dairy cattle. The incidence of cystic ovarian disease in crossbred and Rathi cattle under field and farm conditions has been reviewed by Sinha *et al.* (1988), Bugalia and Kohli (1981, 1982 and 1983). This paper studies the incidence, clinical signs, biochemistry and treatment of COD in Rathi cattle of rural and urban areas.

Materials and Methods

The study was conducted in 3 parts, and 78 infertility camps organized in different villages of Bikaner district by Urmul Dairy, Bikaner formed the group I (n=51). These animals were examined thoroughly and treated. Pregnancy diagnosis was made 2-3 months post-treatment. Mating was by natural service. Animals presented for treatment at the gynaecology outdoor, College of Veterinary and Animal Science, Bikaner, formed group II (n=54). These animals were also examined, treated inseminated and examined for pregnancy. Group III consisted of 11 cystic cows belonging to the College Dairy Farm that were examined thoroughly and their serum separated for biochemical profile. Blood glucose, serum, total protein, calcium, inorganic phosphorus, sodium, potassium and chloride were estimated by standard methods as described by Oser (1976). Animals in group III were not treated and followed up for rectal palpation at 2, 3 and 5 months post-insemination and kept as control. Statistical analysis was done as per Snedcor and Cochran (1967).

Results and Discussion

Out of total 2398 cases of infertility presented for treatment in 78 infertility camps (organized in the different villages) in group I, only 51 cases were of cystic ovary, whereas 905 were of anestrus, bringing the overall incidence of COD in rural areas to 2.12%, whereas anoestrus formed a major share of infertility cases (37.73%). A major group

Table 1. Blood biochemistry in cystic and normal Rathi cows

Parameter	Normal cows (Mean±S.E.)	Cystic cows (Mean±S.E.)	't' value
Glucose mg/100 ml	48.55±1.34	42.66±2.70	1.56 NS
Total protein g/100 ml	6.80±0.44	7.50±0.45	0.91 NS
Calcium mg/100 ml	10.10±0.31	9.18±0.57	1.26 NS
Inorganic phosphorus mg/100 ml	4.87±4.34	4.10±0.18	2.40*
Sodium meq/L	153.50±3.34	153.57±2.68	0.69 NS
Potassium meq/L	4.75±0.20	5.13±0.44	1.52 NS
Chloride meq/L	98.16±0.52	107.14±2.56	2.53*

* Significant at P = 0.05; NS Non-significant.

of the COD cases (38 out of 51) were distributed over 7 villages only.

Out of total 6139 cases presented for treatment at the gynaecology outdoor in group II, only 54 Rathi cows were found to have cystic ovary, bringing the overall incidence of cystic ovary to 0.87%. The incidence of ovarian cysts was reported from 5.6-18.8% (Kittok *et al.*, 1973). Also, 19% of the animals having cysts in the present study were between 5-8 years of age and in their 0-4th lactation. The number of heifers was very small (1.5%). A majority of COD cases presented were having luteal cysts (hard in texture and confirmed by repeated examination at 15 days interval) instead of follicular cysts, which is similar to that reported by Zemjanis (1970).

The Rathi cows have a weak endocrine built up (Purohit *et al.*, 2000) and poor palpable characteristics of corpora lutea. Hence, positive diagnosis needs a careful check up. It was found that 58.03, 26.72 and 17.24% of the cysts were located on the right, left and both the ovaries, respectively, while 74.13 and 25.86% of the cysts were located peripherally and centrally on the ovarian surface, respectively. The overall incidence of single cyst (mostly luteal in nature) was 59.48%, whereas that of multiple cysts was 40.51%.

Nymphomania was seen in 58.03% of the cases with frequent estrus at regular or irregular interval in 43.10% of cases, whereas constant estrus was seen in 12.93% of the cases under study. Anestrus was seen in 43.96% of the cases studied. The incidences of nymphomania and anestrus with COD cases have been reported to vary widely in the literature. Bierschwal *et al.* (1975) reported that 62.5% of cystic cows were anoestrus, whereas Roberts (1955) reported that only 26.4% of the COD cows evidenced anoestrus signs.

Pelvic relaxation, clitoral hypertrophy and cervical pathology were found to be associated in 33.62, 28.44 and 35.34%, respectively, of the cases studied. The symptoms noticed are in agreement with the findings of Roberts (1971) and Bugalia and Kohli (1983).

Treatment was undertaken only in 69.52% of the total cases presented (39/51 in group I) and (34/54 in group II).

Enucleation was the predominant treatment in the rural area (group I, 56.41%), followed by potassium iodide (20.51%), LH (17.94%) and PGF_2 alpha (5.12%), probably because of the cost. LH was administered in one camp, as it was available as a gift. Contrary to this, in urban area (Group III), GnRH (41.17%) and PGF_2 alpha (38.23%) was the principal treatment regimens adopted. GnRH is usually considered better in the treatment of follicular cysts (Youngquist, 1986), because it releases the natural LH and is unlikely to stimulate an immune response that might reduce the effectiveness. However, recent reports (Jou *et al.*, 1999) question the efficacy of such a treatment. The overall pregnancy 2 to 4 months later, in group I, group II and untreated (group III) were 46.15, 58.82 and 27.27%, respectively. Animals returned to regular estrus within 4 to 15 days in group-II. No data on group I could be recorded. Six months after treatment in group II, 5 out of the 12 untreated animals had the COD resolved, although two of the animals had still not become pregnant. Kessler and Garverick (1982) have reported that a high proportion of cysts regressed spontaneously. The results of treatment confide with those advised by Nanda *et al.* (1989), who, however, recommended that an accurate diagnosis of the cyst and its type is vital for the success of the treatment. The results also resemble those of Verma and Dabas (1994).

Only serum inorganic phosphorus values were lower and serum chloride significantly higher in cystic cows when compared with normal cows. These are in agreement with the findings of Bugalia and Kohli (1982) in Rathi cows. Irregular estrus periods in dairy cows are known to be associated with deficiencies of phosphorus (Hignet and Hignet, 1953).

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