HERD INFORMATION

No. of breeding animals – Cows: _____ Bulls: _____
Self contained: _____ Adult cattle purchased within year: _____

Disease status of herd:

Brucellosis: _____ Vibriosis: _____
Leptospirosis: _____ Trichomoniasis: _____
Other diseases: _____

Vaccinations:

Brucella Strain 19: _____ Leptospirosis: _____
Other vaccinations: _____

Information on breeding problems in herd during past year:

No. of abortions: _____
No. of retained placentas: _____
Repeat breeding: _____
No. and type of malformed calves: _____
Other breeding problems: _____

Hay, bedding, and silage used during pregnancy:

	Kind	Amount of dust or mold: Slight	Moderate	Severe	When used?
Hay					
Bedding					
Silage					

Other types of feed – grain, etc.: _____

Diagnosis and Treatment of Cows with Cystic Ovaries

S. J. Roberts, *D.V.M., M.S.*
Woodstock, Vermont

Next to anestrus or failure of heat detection and repeat breeding, cystic ovaries are the most common cause of infertility in dairy cattle in the United States. Roberts has cited reports to indicate that over 10 percent of problem breeding cows have cystic ovaries and that the incidence of cystic ovaries appears to be rising rapidly since about 1950, possibly associated with increased milk production and artificial insemination.

I. Diagnosis:

Behavioral signs:

Incidence of:	Postpartum days 0-60	60-150
Anestrus	60 - 85%	15 - 40%
Nymphomania (Frequent, continuous or irregular estrous signs)	15 - 40%	60 - 85%

Anestrus may change to nymphomania and the latter to anestrus in the same cow. Most nymphomaniac cows frequently attempt to ride other cows but refuse to stand for mounting by other cows. All signs will vary in intensity and degree between cows and in the same cow. Anestrus may be mistaken for pregnancy.

Clinical signs — external:

Edematous vulva (60 - 90%). Sunken or relaxed sacrosciatic ligaments (70 - 90%). Thick, tenacious, grey to white mucus in vagina or at vulva. (Rarely - elevated tail head [sterility hump], dislocated hip(s), prolapse of vagina, or pelvic fracture).

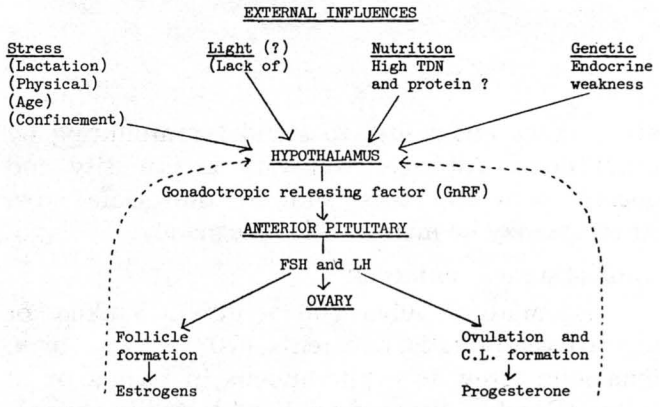
Internal or rectal examination:

Flaccid, relaxed, atonic, atrophic uterus. In a few advanced, long-standing cases, may have muco- or hydrometra with thin uterine walls. Loose, flaccid, elongated broad ligaments. Cysts, either *follicular* (90%) (thin-walled, easy to rupture) or *luteal or luteinized* (10%) (thicker-walled and hard to rupture manually) present on both ovaries (50%), right ovary (30%) or left ovary (20%). Cysts

are formed from follicles that fail to ovulate. **In cystic ovaries no functional corpus luteum is present.** Cysts are usually multiple, vary in size from ½ to 3 inches, and persist for 10 days or longer. Rarely a single atretic follicle or cyst, granulosa cell tumor cyst or congenital cyst-like structure may be present in a pregnant cow or one that cycles normally. (Note—strictly speaking any ovary containing a cyst or cyst-like structure may be called a cystic ovary. However, the condition of cystic ovaries discussed in this paper refers to the pathological entity that includes (1) persistent cysts on the ovary, (2) anestrus or nymphomania and a cessation of the normal estrous cycle, (3) a lack of a normal functional corpus luteum, and (4) infertility.

II. Causes and Treatment — The latter must be based on an understanding of the former. Cystic ovaries are caused by failure of ovulation and/or failure of C.L. development.

In the latter instance the author knows of numerous cases where a cow that has been cycling regularly comes into estrus and is bred and then develops cystic ovaries with a failure of luteal growth but is treated with a luteinizing hormone four to nine days after service develops a normal pregnancy from that service. The following diagram illustrates the principal factors and hormones that play a role in initiating the condition of cystic ovaries in dairy cattle.



A. Causes:

Predisposing — *high milk production* (common in dairy and rare in beef cattle). Middle age to older cows. Early in lactation period. High TDN or energy intake, possibly high protein intake. Confinement and lack of light (more common in winter months). Extreme heat or cold stress, especially the former in areas with prolonged high ambient temperatures and high humidity. Genetic factors for high milk production. Three to four times-a-day milking. Prolonged cycling without a pregnancy in heifers and cows? (Note: After puberty a cow's genital tract is under the influence of progesterone 90 - 95% of her lifetime. Prolonged estrogenic effects cause pathologic changes in the genital organs. Exogenous estrogens or possibly progesterone given the last third of the cycle, either orally (feed) or by injection. Genetic predisposition or weakness of endocrine system (see below, treatment 6).

Actual — Lack of, or impaired release of GnRf from the hypothalamus. Lack of, or impaired release of LH from the anterior pituitary gland. Steroid (estrogen or progesterone) effects GnRF release depending on the time, dose and nature of steroid.

B. Treatments:

1. None — Spontaneous recoveries occur in 50% of cows with cystic ovaries from 15 - 45 days post partum. Spontaneous recoveries are uncommon at other times.
2. Single or repeated removal of cysts manually, or by tapping with a needle (30 to 50% recoveries).
3. Injection of LH, intramuscularly, intravenously, or intrafollicularly? Chorionic gonadotropin - 10,000 I.V. or I.M., 2500 - 5000 I.V., 1000 - 2500 I.U. (Vetrophin) - 5-10 R.U.P.L.H. (Armour) - 25-50 A.U. Occasionally two to four times these doses are used. (60 to 90% recoveries). Recovery rates were similar whether the cysts were ruptured or left intact at the time of the injection of LH. Following LH injections lutein tissue forms in the ovarian cysts or follicles but at subsequent estrous periods failure of ovulation or failure of C.L. development with cystic ovaries may recur. In these instances LH is often given at the onset of estrus to insure ovulation and luteinization. NOTE: Repeated injections of any single product results in increased levels of antihormones (antibodies) since all LH products are proteins from animals other than cows. After one year antibodies apparently decline to low levels but may rise rapidly after a single LH injection. In the future, treatment for cystic ovaries may be the injection of GnRF. Four cases recovered in a limited trial in which 300 UG GnRF was given I.V.; serum LH increased from 1.2 to 36.9 NGLML in three hours (Kikkok, et al.).
5. Progesterone, or pregerably progesterone plus removal of cysts to prevent and control GnRF and LH release. Progesterone (repositol) 500 mg. Progesterone in oil, 100 mg. daily for seven to ten days. MAP (200 mg.) or MgA (one mg.) daily for 10-18 days (?). (About 30 - 70% recoveries).

6. None - advise slaughter or not rearing offspring because of genetic nature of cystic ovaries in many affected cattle and cow families. Breed affected cows and daughters of affected cows to bulls from families with no history of cysts in the female line to reduce the incidence of cystic ovaries in severely affected herds. Bane reported that when A.I. bulls in Sweden siring daughters having a higher than normal incidence of cystic ovaries were culled the frequency of cystic ovaries declined from 10.8 to 5.1 percent over a seven year period.
7. Terminate lactation in a valuable brood cow and avoid other stressful conditions. Breed affected cows in the temperate zones during the summer months.

References

Bane, A. (1964), Fertility and Reproductive Disorders in Swedish Cattle, Brit. Vet. J. 120, 431. – Kikkok, R. J., Britt, J. H., and Convey, E. M. (1972) Effect of GnRF on LH and Progesterone in Cystic Cows, J. Am. Sci. 35, 5, 1120. – Roberts S. J. (1971) Veterinary Obstetrics and Genital Diseases (Thesiogenology), published by the author, Woodstock, Vt. p. 421-433.

A Wisconsin Practitioner's Approach to Retained Placentae

Darrell E. Johnson, *D.V.M.*
Weyauwega, Wisconsin

If you'll take a firm grip on your seats we'll move into a discussion of one of the least sophisticated problems of bovine reproduction - the management of retained fetal membranes. However routine the subject may seem, it is a common complication in the reproductive process and the forces which initiate release of fetal membranes postpartum is a subject that still defies factual explanation.

Those of us middle-aged—and perhaps a few younger with farm backgrounds—can still envision the local veterinarian, or occasionally a neighbor, bare shouldered and working a retained placenta. When one arm tired the other was used and their worth was often judged by the amount of placenta that eventually lay behind the cow. Farmers had their pet approaches to prevention of the problem and immediately after calving they might give the cow warm water to drink, or feed her soaked oats, and/or rub her back or her udder with a burlap and so on! The retained placenta itself might have had a brick or similarly weighted object attached to the exposed portion to apply tension, occasionally to the point of uterine prolapse! Often the exposed portion of placenta was twisted on the tines of a fork and tension applied. All of this relates, of course, to the prevailing attitude of the time: that we remove that placenta soon and completely. Today the bovine practitioner still responds to that familar call: "Doc, I've got a cow to clean." However, the veterinary approach to a retained placenta in the dairy cow has become increasingly conservative in recent years. Our concern has shifted from the placentae, *per se*, to the subsequent breeding efficiency of these animals. This is perhaps because maintaining reproductive efficiency has become increasingly a concern and responsibility of the bovine practitioner. We are not unabashed at leaving the placenta slough through natural processes of resolution—concerning ourselves primarily with control of infection. I interpret a conservative approach as attempting removal of retained fetal membranes only to the point that it causes no damage to the uterine lining and little discomfort to the cow. The cotyledon should separate from the caruncle with little finger pressure or it might be best left alone to avoid tearing of endometrium and causing hemorrhage.

Most Wisconsin dairy practitioners have their clients call them in for retained placentae from 36 to 48 hours after calving. From this point each case must be handled individually. The uterine cavity and vagina are routinely palpated following appropriate cleaning of the perivulva area; the degree of infection is determined and an attempt is made to free the cotyledons. In our practice five to six minutes would be the maximum amount of time spent in the uterus and an average is about three to four minutes.

I'm sure intrauterine medication of retained placentae runs the gamut of preparations available to practitioners. Commonly used are the tetracyclines, neomycin, and furacin. In our practice