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Retention of fetal membranes (afterbirth) is observed more frequently in cattle, especially in dairy cattle, than in other animals. Normally a cow's placenta is expelled within a 12-hour period after calving. If any part of the afterbirth is held for longer periods, it is considered to be pathological or abnormal.

Partial retention is rather common and frequently involves the placentomes (buttons) nearer the ovaries of the pregnant horn. The frequency of retained placenta averages 7 to 10% under normal conditions in a dairy herd. Abnormal deliveries [i.e., twins, caesarians, dystocias (difficult calvings), abortions or premature calvings] increase the incidence of retained placentas. In herds infected with *brucellosis*, *leptospirosis*, *vibriosis*, *listeriosis*, *infectious bovine rhinotracheitis* and/or other infectious organisms, retention of fetal membranes may occur in 50% or more of the cows.

The use of glucocorticoid hormones to induce early or timed parturition also results in approximately 67% retained placentas. Cows having a history of retained placenta, have an increased chance of retention on subsequent calvings. In herds with management problems, nutritional deficiencies, metabolic diseases, or acute mastitis at calving, the incidence of retained placenta may also be abnormally high.

Cause

Many direct and indirect factors must be considered as possible causes of retention. Frequently, a retained placenta should be considered a clinical sign of a more generalized disease or condition.

The placentome (Fig. 1) is the attachment between the dam (caruncle) and the fetal membranes (cotyledon). There are approximately 100 placentomes in a cow's uterus during pregnancy.

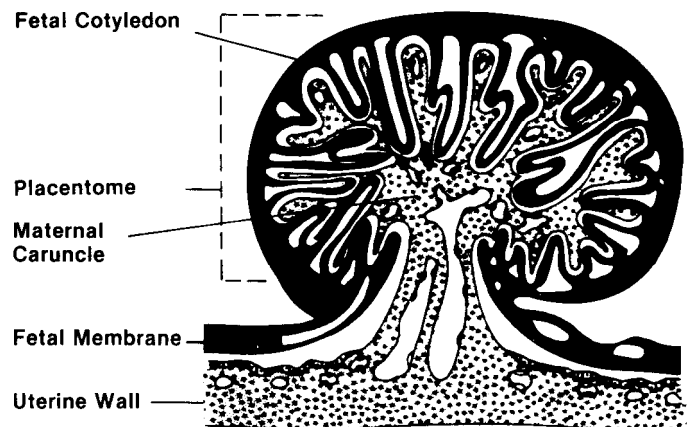


Fig. 1. The placentome of a cow illustrating the fetal-maternal attachment.

When parturition begins and contractions of the uterus are initiated, the blood flow decreases to the maternal and fetal portions of the placentome. By shrinking of the small blood vessels, the capillary pressure is lessened and separation of fetal membranes occurs. The postcalving uterine contractions complete the detachment and expulsion of the membranes.

Any process which causes continual pressure on the caruncle and cotyledon (trauma, edema or infection) usually results in retention of membranes. Failure of the uterus to contract, such as in cows with milk fever, can lead to retained placenta even though the fetal membranes may be detached. Rapid closure of the nonpregnant uterine horn or cervix may trap released membranes, especially with exceptionally large cotyledons. Wrapping of fetal membranes around large caruncles can mechanically snare the membranes.

Indirect causes of retained placenta are extremely variable and can be grouped in 3 broad categories:

1. intensive stress and nutritional deficiencies or imbalances (management problems)
2. shortened or prolonged pregnancies
3. miscellaneous such as fetal monsters, dystocias, trauma and seasonal changes

Treatment

The basic goal in any treatment of retained placentas is to return the cow's reproductive tract to a normal state as quickly as possible.

Partial retention may go unnoticed until complications such as metritis (inflammation of the uterus, Fact Sheet IRM-22) or pyometra (pus in uterus) develop. When noticed, affected cows may have increased temperature; be off feed; be depressed; have lowered milk production and have a foul smelling vaginal discharge. These animals should be examined and treated both systemically with antibiotics (and possibly with intravenous electrolytes and dextrose fluids) and locally with intrauterine medication by or under the direction of a veterinarian.

There are generally two methods of managing retained placenta when no systemic involvements are present—manual removal and natural separation.

Manual removal has long been a common practice but should **not** be used because of possible injury to the delicate lining of the uterus (endometrium). Some type of antibiotic or antiseptic solution may be placed in the uterus as prescribed by a veterinarian.

If the membranes are not released due to poor uterine contractions, the afterbirth may detach without damage by applying slight tension externally to the fetal membranes.

Based on recent research on retained placenta, the most common recommendation is to allow the placenta to separate naturally with or without the use of medication. Hormones such as prostaglandins, estrogens and oxytocin may be used to evacuate fluid and debris from the uterus. Prostaglandins also may be used in the treatment of pyometra.

If evacuation is not successful with hormonal therapy, uterine palpation and irrigation may be recommended using warm water, followed by treatment with an antibiotic solution. A series of intrauterine infusions is usually more effective than a single treatment. The length and number of treatments considered should be determined on an individual basis as recommended by a veterinarian.

Nontreated cows with placental retention have longer open intervals, fewer first service conceptions and more breedings per conception than cows with retained placentas that were treated with antibiotic solutions.

It is extremely important to remember when retained placentas are treated with antibiotics that milk and meat withdrawal requirements must be followed. The selection of one or more antibiotics should be made by a veterinarian.

Prevention

Prevention of retained placentas, of course, is the key. It may be rather difficult to pinpoint an exact cause with so many direct or indirect factors that can be incriminated. The optimum is to maintain a healthy, contented and active cow prior to, during and after parturition.

A balanced, limited ration during the 6-8 week dry period; sufficient daily exercise; sufficiently large, clean and comfortable calving areas (preferably on pasture); and proper sanitary procedures during the calving period minimize the chances of retention and infections of the reproductive tract.

There are several specific preventive measures to follow:

- In selenium deficient or borderline areas, the administration of a dietary level of selenium (0.1 ppm) tended to minimize the incidence of retained placentas. Selenium supplementation by injection may also be used.
- Vitamin A and D deficient cows have high retention rates. Intramuscular injections of Vitamins A & D may be given 4 to 8 weeks prior to calving if a deficiency is suspected.
- The calcium:phosphorus ratio for the dry cow is extremely important in the prevention of milk fever, and in turn, retained placentas. Maintenance of calcium:phosphorus ratio of 1.5:1.0 and 2.5:1.0 is absolutely necessary. Above 2.5:1.0, the incidence of milk fever and retained placenta increase. Supplementary phosphorus may have to be fed to dry cows to maintain the proper ratio as recommended by a veterinarian or nutritionist.

Conclusion

The negative effect of retained placentas on subsequent fertility is commonly due to delayed involution of the uterus and chronic endometritis, one of the more common causes of infertility. Some cows with retention are affected with permanent sterility due to pyometra, perimetritis, salpingitis (inflammation of oviducts), ovaritis or severe damage to the endometrium.

in most animals the major economic loss is due to slight to moderate loss of milk and impaired involution of the uterus, thus a delay in conception.

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