Retained Placenta in the Dairy Cow

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"Many methods have been recommended from time to time for the treatment of retained placenta in the cow. Every veterinarian who has had extensive experience in treating these cases probably feels that he has worked out a method of treatment, which upon the whole, is proving satisfactory. A survey of the methods of treatments reveals a wide variation in the technique employed, varying all the way from that of advocating early removal, to that of no treatment at all. Between these two extremes may be found a wide variety of methods. The methods of treatment are not only numerous but the popularity of a given method varies from time to time. These changes in styles are brought about by the publicity given to a method of treatment recommended by some prominent member of the profession. But, as there are many prominent members of the profession throughout the world, and as retention of the placenta is of frequent occurrence and, therefore, frequently a subject of discussion, new or modified methods of treatment are advocated frequently."

The above quotation appeared in a Journal of the AVMA in the year 1932. Unbelievable isn't it? But it is current enough to have appeared in a 1979 publication. Dr. C. C. Palmer was responsible for that article entitled "Clinical Studies on Retained Placenta in the Cow". Dr. Palmer proclaimed he also had arrived at a superior method of treatment of this age-old malady; but, when it came to judging its real value to the animal, he discovered there was no data available by which it was possible to judge the merit of this treatment. He decided he must first accumulate data by a means with which he could evaluate his method of treatment. He concluded that the best standard for comparison would be one in which no treatment would be given cases of retained placenta unless the animal's life appeared in danger. He collected data on 44 cases of retained placenta from two herds of dairy cattle free of brucellosis. Absolutely no treatment of any kind was administered to 40 of the cases, and the remaining 4 were treated because of fear of possible septic metritis. A uterine lavage of proflavin (a mild antiseptic dye) was the only form of treatment; the placenta was allowed to slough naturally in these 4 animals. The subsequent reproductive performance of these 44 cows was then compared to a like number of herd mates randomly selected who during this same period calved normally and did not retain the placenta. The abortion rate, the services per conception and calving interval were the same statistically for both groups.

I should imagine that Dr. Palmer was very severely criticized by his peers for making such radical claims, and even today there are still veterinarians forcefully removing the placenta and using a great variety of medications who feel they have a successful or even superior treatment technique. When an animal population affected with such a malady seems to respond well to such a variety of treatments and techniques, one has to believe that Dr. Palmer was right and no treatment is probably necessary in handling the majority of animals with retained placenta. The exception is the cow with generalized illness due to toxemia and/or septic metritis.

Etiology and Incidence of Retained Placenta. The exact mechanism which actually causes retention of the placenta, is not thoroughly understood. Comparison of histological sections taken at 4 to 5 hours after calving from cows which retain and those which cleanse normally cannot be distinguished from each other either in the villi of the fetal membranes nor in the maternal crypts of the caruncles. With retained placenta the normal separation of the fetal villi from the maternal crypts is interfered with and adhesions are formed. Two theories have been offered as basic etiologic causes of retention. The first theory is that the result is due to imperfect contraction of the uterus, and the second is that the retention is a result of a proliferative placentitis such as seen in abortion caused by *Brucella abortus*. The placentitis theory does not hold up well because, in many abortions investigated today, there is no evidence of infection present. There seems to be a return to the older theory of uterine inertia or lack of motility and hormone dysfunction due to a variety of causes.

Not only is there an increase of incidence of retained placenta associated with abortion, but dystocia also produces a large percentage. Twinning is often followed by retained placenta.[2], [8]

Dietary deficiencies of carotene (Vitamin A) in Guernsey cattle resulted in retention rate of 69%.[4] Selenium deficiency in the diet has also been found as being associated with an increased incidence of retained placenta (18 to 26%).

Unsanitary calving facilities have been incriminated as a cause of a sudden increase in the number of retained placenta cases seen in a herd.[3], [9]

Retained placenta (R.P.) has been shown to have a hereditary disposition in that daughters of cows who have had retained placenta will have a higher incidence than daughters from cows who have a normal third stage of labor.

Husbandry methods have some effect on the incidence of R.P. in that pastured cattle have a lower incidence as do cows which are allowed to have their calves suckle.

The over-all incidence of retained placenta is around 10 to 11% of the population. Cows that calve normally are usually reported to have a 6 to 7% incidence. Twin births are reported to have a 43.8% occurrence, abortions about 25-35%, and dystocias are reported to have a rate from 25 to 55%.[2, 8]

Prognosis. When a conservative approach to treatment has been adopted the mortality rate should be less than 1.5%. When a policy of forceful removal is adopted the mortality rate can be as high as 4%. A temporary period of infertility is very common, with a low conception rate when bred at 60 days post-partum or less.[10] In addition a fairly high culling rate is common following retention and with the birth of twins.[11] In general one should not expect a good conception rate in many retention cases until around 90 days post-partum, and then particularly with a conservative approach to management of R.P. quite normal fertility rate can be expected.

Management of Retained Placenta (R.P.). Past investigations of the effect of uncomplicated retention of the placenta on future fertility strongly support the "no treatment" management approach.[1, 10] However, in reality, a ridgid adherence to such a policy on a routine basis would be imprudent. One must consider the aesthetic aspect of the often repulsive odor which accompanies this condition especially when it is in an environment where food is being produced. In addition, it is only human nature for the laymen to associate the often putrid, offensive odor with a severe pathological condition which demands medical attention. It is quite likely that if the "no treatment" approach was advocated entirely that some laymen would request the service of another practitioner. When the dairy is following a herd reproductive program with frequent routine visits, a basic no-treatment policy can be instituted provided the herdsman has complete confidence in the attending veterinarian.

When the retained placenta animal appears to be normal and the condition is uncomplicated, the radical management approach of forceful removal of the placenta regardless of the extent of attachment is contraindicated. Not only is there some danger of precipitating a septicemia or toxemia, but the interval from parturition to conception may be much more prolonged as compared to a conservative treatment approach and allowing natural sloughing of the membranes.[12, 13] If the attachment is extensive it is often impossible to completely remove the membranes in their entirety and thereby delay involution and recovery. No matter how expedient it may seem, forced removal of the fetal membranes in a rough, unsanitary or incomplete manner might well be regarded as a cause for malpractice.

When the retained animal has signs of generalized illness, such as depression, severe anorexia and/or elevated temperature, which indicate a possible toxemia or septicemia, the genital tract should not be examined or treated. The sole attention should be given to the treatment of the generalized condition with the thought of saving the animal's life. This usually indicates administration of parental antibiotics until general condition is stabilized, and then, and then only, should one consider examination and possible treatment of the uterus.

A conservative or moderate approach to treatment of R.P. is most likely to be the best compromise to satisfying the demands of the owner and the convictions of the veterinarian. If the animal has no signs of generalized illness and the appetite is good, then no attempt should be made at examination or removal of the membranes prior to 72 hours post-partum. This gives the uterus adequate time to organize its defenses. It has been demonstrated that in approximately 72 hours a neutrophilia occurs with a "shift to the left".[14] Earlier than this there may be a leukopenia and the genital tract is more susceptible to infection. The examination should be carried out as hygienically as possible. If the animal has loose feces or is straining, an epidural anesthesia is indicated. When it is found that the fetal membranes are loosely attached by several caruncles or less and the fetal villi separates easily from the caruncles, the placenta may be removed at this time. However, if it is found that the villi are tightly adhered or there is a diffuse attachment involving many caruncles, it is best to advise the owner that no attempt should be made at removal at this time. No matter how carefully one proceeds, injury to the endometrium as well as possible introduction of infection may result which will prolong the period of infertility. Also, there is the possibility a toxemia or septicemia could result from this action. There is adequate evidence to indicate that forceful removal of the membrane is responsible for increasing the calving interval an additional 20 to 25 days.[12, 13] Even when it requires up to 10 or 12 days for natural sloughing, involution of the uterus will occur in a shorter period of time and the accompanying metritis is overcome more rapidly.[9] When this is explained carefully to the owner I have found that invarably the client will follow the advice without suspicion as to competency.

If a large amount of fluid and debris is present and the membranes have been removed, it is best that an attempt be made to siphon the uterus. Quite often this is best accomplished with a very warm to hot lavage, using small amounts of fluid to thin the uterine pus for better drainage. This will stimulate strong contractions of the uterus and aid in its involution. If the membranes are not removed (such as often the case during the initial examination) no attempt should be made at siphoning while the membranes are still present.

A wide variety of medications, both antibacterial compounds and antibiotics, have been used in the uterus in the treatment of retained placenta. In the selection of an

antibiotic one must be sure its action is not inhibited by the presence of protein and pus. Studies utilizing both the oxytetracyclines and chlorotetracyclines have indicated they actually alter the course of infection. The rate of putrification and lysis is reduced along with a marked decline in odor.[9] The use of these antibiotics employed along with natural sloughing of membranes has been found to produce fertility levels quite comparable to the levels in the animal which have had abnormal parturition.[3, 9, 12, 13, 14] One contradictory study in New Zealand indicated that the use of tetracycline actually resulted in a delay in conception.[10]

Use of Parenteral Supportive Drugs. A sizable number of drugs have been used as adjuncts to treatment of retained placenta. In each case great benefits have often been proclaimed. A good example is estrogen which in the past has been given credit for "cleansing" the uterus. Recent studies have indicated that estrogen has little or no effect on loosening the villi from the crypts.[3, 9, 10] It does increase tonus and contraction of the uterus and along with increasing the circulation is thought to be helpful in stimulating involution and control of infection.[9] One should avoid high dosages such as 10-12 mg of estradiol, lower dosages of 3 to 4 mg are just as effective with less possible side effects.

Oxytocin has been used to reduce the incidence of R.P. The initial dosage is given 7 to 8 hours after parturition and continued at approximately 20-30 minute intervals until a total of 4 doses has been given. The rate of R.P. was reduced from 13 to 6%.[15]

A greatly increased rate of retained membrane was found to exist when Guernsey cows were placed on a carotene deficient diet. A retention rate of 62% was reported.[4] This certainly indicates that close attention should be paid to the available Vitamin A content in the diet.

Recent studies have demonstrated that in some herds when there is a sudden increased incidence of membrane retention, and that when selenium injections of 50 mgm along with Vitamin E are administered in the last month of gestation a significant decrease in R.P. resulted.[3, 4, 5] In contrast, another study indicated that the supplementation of selenium and Vitamin E in the last month of gestation had no effect on the incidence of retained placenta, the subsequent lactation or the reproductive performance.[15] This experiment may not have been carried out on cattle with selenium deficiencies.

The final statement made in 1932 by Dr. Palmer seems just as applicable as if it were made in 1979. "It is believed that this study does show that nature has provided a good mechanism for taking care of these cases (retained placenta). In treating them, therefore, care should be exercised not to disturb nature's healing process. The object of treatment should be to assist nature as much as possible. Regard each case as an individual problem and in giving treatment do not forget that nature's healing processes are giving valuable assistance which should not be counteracted".

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