

METHODS OF TREATMENT OF RETAINED PLACENTA IN FRIESIAN COWS

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Abstract

Retained placenta in dairy cows is when the fetal membrane or placenta does not exit the uterus within 9-12 hours after calving. Retained placenta is a pathological disorder when the placenta does not fall out within a certain period of time after calving. The placenta in cows is most often expelled 6 (77.3%) to 8 hours after calving (Van Werven et al., 1992). The incidence of placental abruption in cows averages 8.6%. The cause of placental exit is not fully understood. There are several factors on which the separation of the fetal placenta from the uterus depends, they can be: genetic (inherited), nutritional, immunological, and as a result of some diseases of the reproductive tract. The causes of placental retention can be: fatigue of the uterus, inflammatory conditions of the bed, an insufficient amount of some hormones, lack of vitamins and/or minerals, toxic effects of some substances and poisons, and mechanical obstacles.

The conclusion is that cows with retained placenta belong to the risk group because they are prone to inflammation of the uterus, so they have a prolonged service period and delayed or absent recovery of the cyclic activity of the ovaries, which can be the cause of sterility, temporary or permanent.

Treatment of retained placenta should be carried out in time, removing the fetal placenta manually and inserting foaming tablets for intrauterine use. After that, PgF₂α and oxytocin are applied.

Keywords: retained placenta, PgF₂α, ovarian cycle, uterus.

1. Introduction

Retained placenta (*Retentio secundinarium*) represents one of the most important and frequent diseases of the reproductive tract of dairy cows. Retained placenta, or Retained placenta of fetal membranes, in cows is usually defined as the inability to expel the fetal membranes within 24 hours of calving. Most authors say that in normal physiological calving, the ejection occurs within 3-8 hours after calving. Retention is one of the most common complications that occur in cows after calving (Roberts, 1986). Retained fetal placenta is the inability to fully or partially expel the placenta for a duration that is considered to be longer than normal physiological limits (Radostits, 2007). In cattle, fetal membranes are considered pathologically retained in the cow if they are not removed 24 hours after calving. In cows, retention is considered if the placenta is not removed within 12 hours after calving (Noakes et al., 2009). The evaluation of the fertility efficiency of cows is based on the duration of the service period, the period between two calvings, the period between two calvings, the percentage of fertilization, and the percentage of pregnant litters after the first artificial insemination (Prandi et al., 1999).

There are several approaches to retained placenta therapy, with manual placenta extraction with local antibiotic treatment increasingly giving way to newer and more efficient protocols of systemic antibiotic and hormonal therapy. Here we have applied two methods of treatment of fetal placenta extraction. The first method was manual extraction of the placenta, using antibiotic therapy, analgesic, oxytocin and foam tablets (Geomycin® F 1 g), but without prostaglandin (PGF₂α), while the second method was manual removal of the placenta, antibiotic, analgesic, oxytocin and foaming tablets (Geomycin® F 1 g) therapy, but with prostaglandin hormone therapy (PGF₂α).

2. Material and methods

During practical work in the field, we treated a total of 54 Friesian cows aged 3-9 years with the diagnosis of **retained placenta** (*Retentio secundinarium*), while the research lasted 7 years (2016 - 2023). The treated cows are selected according to the case presented by the farmer, in the area of Pollog, in the northwestern part of the country. We divided the cows into two groups. In the first group, there were (n=17) cows with retained placenta, in which manual removal of the placenta was performed once and therapy with antibiotic, analgesic, oxytocin, and Geomycin foam tablets. In the second group, there were (n=37) cows with retained placenta with antibiotic, analgesic, oxytocin, and Geomycin foam tablets, but with hormonal therapy with PGF2 α . Cows of the second group were treated parenterally with prostaglandin (PGF2 α). Oestrophan 0.25 mg/ml solution for injection was used as prostaglandin. Oestrophan contains Cloprostenol which is synthetic prostaglandin for use in cows, mares and sows. Cloprostenol is a functional analog of prostaglandin F2 α that has specific luteolytic action. In addition to the luteolytic action, it causes the functional and morphological regression of the corpus luteum (luteolysis) in cows, mares, and sows, accompanied by the return of normal estrus and ovulation.

In our case, it was used in puerperal diseases in cows with retained placenta. The preparation is applied intramuscularly with a dose of 2 ml (Cloprostenol, 250 μ g), at the same time as antibiotics, analgesics, oxytocin, and foam tablets.

Synthetic prostaglandin in the uterus promotes uterine motility and contractions, removal or expulsion of the fetal membranes. It is for this reason that we used prostaglandin, since with its application we achieved better results, regulating the appearance of the next estrus and shortening the service period.

3. Results and discussions

The research results are compiled in tabular form and processed according to statistical methods applied in the field of scientific research.

If expulsion of the placenta has not occurred after 12-24 hours after calving, it is necessary to treat the remaining placenta (Noakes, 2009). Controversies about how to treat bedding retention in cows span more than two decades (Paisley et al., 1986, Bolinder et al., 1988, Brooks, 2001, Drillich et al., 2003). Whether to extract the placenta manually or to treat retention without manual extraction only with local intrauterine application of antibiotic preparations with parenteral antibiotic therapy is a big question.

In some researches, it was proved that manual intrauterine manipulation after calving of cows lowers the protective mechanisms of the uterus and consequently lowers fertility (Laven and Peters 1996, Bolinder et al., 1988).

Substantial economic losses on dairy farms are caused by peripartum diseases such as hypocalcemia, retained placenta, metritis, mastitis, ketosis, or laminitis (Markusfeld, 1987, Laven and Peters, 1996). Predisposing factors for the occurrence of metritis and endometritis in cows are delayed placentation and metabolic disorders, but also poor management in farms and poor hygienic conditions (Lewis, 1997, Sheldon and Dobson, 2004.). Retained placenta is one of the main causes of metritis and endometritis, which are the most common causes of infertility in cows (Paisley et al., 1986, Laven and Peters, 1996, Levis, 1997).

Table 1. - The duration of the service period, the values of the insemination index and the number of doses spent by groups

Group of cows		I (n=17)	II (n= 37)
Service period (days)	min.	87	85
	max.	240	254
	SD	76.5	84.5
Insemination index		1,93	2,47
Total number of doses		29	37

The service period represents the time in days from calving to insemination or mating that results in pregnancy.

The broad-spectrum antibacterial preparation of choice for local (intrauterine) use is oxytetracycline because it does not lose its activity in loci, in the presence of pus and its activity does not decrease without the presence of oxygen (Stevens et al., 1995). The disadvantage of tetracycline use is bacterial resistance and increasingly common residues in milk, even though milk is not suitable for use during this period anyway (Dinsmore et al., 1996).

We assume that after the manual extraction of the retained placenta, there were still microlesions of the endometrium and deeper layers of the uterus that became the entrance area for the bacterial flora, which is in accordance with the findings of Noakes, 2009).

The return of cyclic activity is delayed in retained cows as only 6.2% have a normal luteal phase after calving (Holt et al., 1989). There are numerous reports that retained placenta affects the extension of the period between two litters and the service period and insemination index, which we also confirmed in our case, but only if they were treated with manual extraction and PgF2 α was not applied. On the contrary, in cows treated with local antibiotic therapy with manual extraction, and with the application of synthetic prostaglandin, there was no significant extension of the service period and increase of the insemination index compared to the control group.

The service period in cows with bedding in the first group in our study is longer than in cows with normal puerperium, which is consistent with the statements (Holt et al., 1989, Vacek et al., 2007). In the second group of cows, whose placentas were removed manually, but after treatment parenteral application of PgF2 α was performed, the service period is almost identical to that of cows in physiological puerperium. Friesian cows in which the placenta was removed by hand but in the treatment was not (1.93) compared with the group of cows with the placenta removed by hand but in the treatment using PgF2 α (2.47) which is consistent with reports that placental abruption cows have a lower insemination index (Vacek et al., 2007) and 0.90 (Holt et al., 1989).

4. Conclusion

The aim of this research was to compare two different methods of treatment of retained placenta using foam tablets for intrauterine application, with manual extraction of the placenta, on the insemination index and duration of the service period of cows. We used 54 cows of the Friesian breed aged 3-9 years selected according to the case presented by the farmer, in the area of Polog, in the northwestern part of the country. We divided the cows into two groups. In the first group, there were 17 cows with retained placenta, in which manual removal of the placenta was performed once and therapy with antibiotic, analgesic, oxytocin, and Geomycin F® foam tablets. In the second group, there were 37 cows with placentas maintained with antibiotic, analgesic, oxytocin and Geomycin foam tablets, but with hormonal therapy with PGF2 α . Cows of the second group were treated parenteral with prostaglandin (PGF2 α). Oestrophan 0.25 mg/ml solution for injection was used as prostaglandin. Oestrophan contains Cloprostenol

which is synthetic prostaglandin for use in cows, mares and sows. Cloprostenol is a functional analog of prostaglandin F_{2α} that has specific luteolytic action. In this study, the duration of the service period was longer and the insemination index was higher in the first group compared to the second group in Friesian cows.

In conclusion, the treatment of placenta retention in Friesian cows with manual extraction with the use of foam tablets and the use of prostaglandin (PGF_{2α}) is the treatment of choice compared to manual extraction without the use of PGF_{2α}, after which the period of service was significantly extended and more sperm doses were spent per brood cow.

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