

## **SBacterial Flora Obtained from Uterine Cervix after Antibiotic and Non-Antibiotic Treatment for Puerperal Metritis in Cows**

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**Abstract:** The aim of the study was comparison of therapy effects in puerperal metritis treatment with pessaries containing oxytetracycline (control group – 13 cows) or with uterus flushing with 1% Vagotyl solution (experimental group – 12 cows). It took, from delivery to start of the treatment, 3 – 5 days. Before the treatment in both, control and experimental groups the swabs from uterine cervix were taken and took through bacteriological examination. Next bacteriological examinations were made between 4 – 5 weeks and 8 – 9 weeks after parturition to control the effects of the therapy. At the beginning of our treatment the most common bacteria were *E. coli*, *Staph. spp.* and *Strep. spp.* In bacteriological examination 4 – 5 weeks after delivery in 5 cows from control and experimental groups among different bacteria were also found *Arcanobacterium pyogenes*, and 3 from those cows exhibited signs of endometritis. In 8 – 9 weeks the number of cows with *A. pyogenes* fell down to 3 cows in control group and 2 cows in experimental group. There were any clinical signs of endometritis, and the number of aseptic swabs amount to 8 in each group.

**Key words:** Cow, Puerperal metritis, Bacteria, Treatment

### **Introduction**

Puerperal metritis in cows is one of the most common disorders during the puerperal period, which influences the subsequent productivity of a cow. That disease rarely causes the death of an animal, but usually leads to the productivity reductions and fertility disorders, and as the result to the financial losses.

There are many opinions about etiopathogenesis and treatment of that disease (Dobson and Noakes, 1990; Gustafsson, 1984; Jackowski, 1984; Kaczmarowski *et al.*, 2000; Malinowski, 1995; Markiewicz and Malinowski, 2000; Olson *et al.*, 1984; Paisley *et al.*, 1986 and Whitmore and Anderson, 1986). Treatment methods usually based on the using of local intrauterine antibacterial agents (antibiotics or nonantibiotics), general antibiotics treatment, ecboic drugs with parallel treatment for accompanying disorders. The most often are used antibiotics pessaries. The efficacy reports are controversial because it depends on drug dose and microorganisms sensitivity, local conditions in the uterus and the frequency of drug dosage. The significant disadvantage of antibiotics therapy (usually without previous bacteriological investigation) is the introducing to the environment huge amounts of a drug with a subsequent resistance of microorganisms.

Sometimes it is advised to flush the uterus with disinfectants (Malinowski, 1995). However, it is also considered that this method of therapy is useless, because it may cause uterus extension and sometimes may bring the disinfectant into fallopian tube and may do mechanical injury of the uterus (Whitmore and Anderson, 1986). Moreover, each intrauterus manipulation inhibits migration of leukocytes and phagocytosis (Paisley *et al.*, 1986; Whitmore and Anderson, 1986).

The aim of our study was to compare therapeutic effects of treatment based on pessaries containing antibiotics and uterus flushing with a disinfectant.

### **Materials and Methods**

The cows belonged to a one cow farm, the production was around 7000 kg of milk per lactation. The experimental group consisted of 12 and the control – 13 cows. Each cow had puerperal metritis with purulent discharge confirmed by vaginoscopy, in each case the uterus and cervix were enlarged in rectal investigation. It takes 3 – 5 days from the parturition to the diagnosis. In each case the cervix allowed the introduction of pessaries into a uterus. There were any complicated deliveries or retentio placenta.

Clinically the cows did not show any general disorders, the temperature and food intake were normal.

The control group was given pessaries containing oxytetracycline once, or two times, after 48 hours, depending on the cervix diameter. The experimental group was given the uterus flushing, 1 litre of 1% Vagotyl solution in body temperature. It was used a uterus pump connected to a hose, ended with a basket, which was used to protect the endometrium against an injury during the flushing. A part of fluid was introduces into a uterus and then was taken back. This procedure was repeated 2 – 4 times till the time when the colour of the fluid, which was taken from

a uterus, was similar to that, which was put into a moment before. This procedure took around 40 minutes for each cow. It was ended by rectal uterus massage.

In each case both in control and experimental group before treatment bacteriological swabs were taken from the cervix. During 4 –5 weeks after treatment clinical investigations were made once a week. Subsequent bacteriological investigations were made after 4 - 5 and 8 – 9 weeks, to check the results of the therapy. At the same time were also carried out per rectum and per vaginam investigations of the reproductive tract.

### Results and Discussion

In uterine flushing 40 –70 % of the used fluid was got back the subsequent massage of the uterus helped to get the rest of it. Compared to mares in cows that method does not give the opportunity of precisely removal of the fluid from the uterus.

In Table 1 are shown the results of bacteriological investigations. In the day when treatment was started the most often we found in both groups: *Escherichia coli*, *Staphylococcus xylosus* and *Streptococcus uberis* what is similar to the results of other authors (Dobson and Noakes, 1990; Olson *et al.*, 1984). At this time

*Arcanobacterium pyogenes* was not isolated, but 4 – 5 weeks post partum among different bacteria in five cases *Arcanobacterium pyogenes* was found both in the control and the experimental group (38% and 42% respectively) and three from those cows (23% and 25% respectively from each group) had clinical signs of endometritis (purulent discharge confirmed by vaginoscopy). It is commonly known that *Arcanobacterium pyogenes* is one of the most important factor causes endometitis, and the frequency of its isolation is more often 10 –14 days after parturition (Malinowski, 1995 and Olson *et al.*, 1984). In the study of Dohmen *et al.* (1995) at 14 days after antibiotic treatment 73,3% cows were clinically cured. *Arcanobacterium pyogenes* was isolated in 22% of these cows, and in cows, that still showed pathologic cervical discharge at 14 days after treatment *Arcanobacterium pyogenes* was isolated from 56% swabs. The results obtained by Kaneko *et al.* (1997) shows that 30 days after parturition 56% cows with retentio placenta had *Arcanobacterium pyogenes* infection and only 4% of the cows without puerperal disorders had the infection of *Arcanobacterium pyogenes*. Cohen *et al.* (1995) do not observed any differences in the type and characteristics of bacterial growth in the exudate of cows with post parturient endometritis which were sampled before and after antibiotic treatment.

Table 1: The results of bacteriological investigation in the day of treatment, 4-5 and 8-9 weeks after it

	The beginning of the treatment		4-5 weeks		8-9 weeks	
	Control group (n = 13)	Experimental group (n = 12)	Control group (n = 13)	Experimental group (n = 12)	Control group (n = 13)	Experimental group (n = 12)
<i>Staphylococcus xylosus</i>	4/13	4/12	1/13	3/12	-	1/12
<i>Staphylococcus Saprophyticus</i>	2/13	1/12	-	-	-	-
<i>Staphylococcus Intermedius</i>	1/13	3/12	3/13	3/12	1/13	-
<i>Streptococcus Uberis</i>	9/13	8/12	1/13	-	-	-
<i>Streptococcus Constellatus</i>	1/13	2/12	1/13	-	-	-
<i>Escherichia Coli</i>	6/13	5/12	1/13	-	-	-
<i>Micrococcus spp.</i>	1/13	1/12	-	-	-	-
<i>Bacillus spp.</i>	1/13	1/12	-	1/12	-	-
<i>Arcanobacterium Pyogenes</i>	-	-	5/13	5/12	3/13	2/12
<i>Candidia Albicans</i>	1/13	-	-	-	-	-
<i>Aseptic</i>	-	-	4/13	5/12	8/13	8/12

The animals we selected for our experiment were standardised enough to eliminate, during the experiment, other health disorders and the necessity of additional antibiotics treatment. It was only used in three cows from experimental and control groups with uterus discharge 4-5 weeks after parturition 500 mg of cloprostenol.

In 8 – 9 weeks post partum we found fewer amounts of bacteriological infections and *Arcanobacterium pyogenes* was found in three cows from control and experimental groups (23 % and 25% respectively) but without clinical signs of endometritis. It indicates the spontaneous cleaning of the uterus. Kaneko *et al.* (1997) recorded 60 days post partum *Arcanobacterium pyogenes* in 12% of cows with retentio placenta and in 4% without it. These

results show no significant differences in puerperium course in cows treated with intrauterine antibiotics or with uterus flushing.

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