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Non-specific Postpartum Endometritis

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Summary

Endometritis is one of the most common causes of infertility in cattle. The type of endometritis varies with the type and amount of discharge. The most common isolates from infected uteri are staphylococcus and E. coli. Clinical signs cannot often be demonstrated by rectal or vaginal examination. The only consistent symptoms are anestrus and cloudy mucus. Treatment is based upon stimulating the uterus. In mild cases, intrauterine infusion of antiseptics or antibiotics 24 hours after breeding may increase conception. More severe cases require parenteral estrogen therapy followed by volume uterine infusion three to five days later. Good management and a regular reproductive herd health program are essential to decrease the incidence.

Endometritis is one of the most common causes of infertility in cattle. An average herd should have 65 to 70% of the cows conceive on the first service with an average of 1.3 to 1.7 services per conception. Less than 10% of the cows should be a reproductive problem. Dawson has defined three types of endometritis. This classification is based upon the type and amount of discharge. First degree cases are of two types—no visible discharge or an intermittent discharge which is small in amount. This type of cow shows no discharge, reveals no abnormalities of the uterus and ovaries upon rectal palpation, and is clinically normal, but fails to conceive after breeding. Another type of first degree case is when the cow in estrum produces a discharge which contains some pus and an abnormal bacterial count. The second degree case of endometritis is when a cow shows a continuous mucopurulent discharge. This cow is otherwise clinically healthy, but may or may not be cycling. Lastly, the third type is when the discharge is purulent with some tendency toward accumulation in the uterus. This type of cow usually will not cycle. The incidence of these three types of endometritis is 6:2:1. Thus it is clear that the first degree type of endometritis is most significant.

Endometritis usually follows abnormal parturitions. Such conditions as abortions, retained placenta, premature birth, dystocia, pyometra, and traumatic lesions or lacerations of the uterus, cervix, vagina, or vulva are associated with delayed involution of the uterus. Uterine discharge and slow recovery of the uterine endometrium lead to delayed conception with an increased number of services needed for viable pregnancy. These conditions may result in a second or third degree endometritis.

Etiology

During a normal calving period most uteri become infected with a variety of non-specific bacteria. Types which have been isolated from postpartum cows in-
include beta-hemolytic Streptococcus, Staphylococcus, Neisseria, Micrococcus, Sarcina, Pseudomonas, Proteus, Escherichia, Aeromonas, Bacillus, and Corynebacterium. Also, Actinomyces and other molds and yeast have been isolated. The most common isolates are staphylococci and E. coli. A healthy cow eliminates this infection by 30 to 60 days postpartum.  

**Signs**

The clinical signs of endometritis cannot often be demonstrated by rectal or vaginal examination. If a mucopurulent discharge is seen at estrum or throughout the cycle, the origin of the pus must be ascertained. Pus may originate from the uterus, cervix, vagina, or urinary tract. The proestrum mucus may be slightly cloudy. Healthy estral mucus is clear and translucent, like the white of an uncooked egg. The seriousness of the endometritis cannot often be understood from the clinical signs, except if the discharge is purulent. Rectal exam may reveal a large, heavy, thick-walled uterus which may involve only one horn. This is basically a failure of normal involution.

The estrous cycle may be of variable length, but usually it is normal in length. A shorter cycle of 8 to 12 days may indicate acute endometrial inflammation which prevents the development of a normal corpus luteum. A prolonged estrous cycle or an anestrus cow indicates the presence of purulent material in the uterus.

The only consistent symptoms are interference with the normal estrous cycle length, anestrus, or cloudy mucus. Accurate diagnosis is by a process of elimination, and often a diagnosis of endometritis can only be made after other causes of infertility have been eliminated.

**Treatment**

A cow with endometritis usually will recover spontaneously if given enough time. With each estrous cycle the natural body defenses and changes in the uterus aid in recovery. Treatment is aimed at elimination of the infection and conception.

Many treatments are described by different practitioners and research workers. No one treatment has been shown to be superior. Treatment is based upon stimulating the uterus and overcoming any infection.

Treatment of first degree types of endometritis is aimed at stimulating the uterus so conception can occur. The value of uterine massage must not be overlooked. Gentle massage of the uterus two to three times a week will stimulate uterine motility. Many different antiseptic solutions have been used to stimulate the uterus. Such compounds as aromatic soaps, mild quaternary ammonia, neutral idophor, chlorine, saline, dilute potassium permanganate, sodium bicarbonate, weak "Lysol," and dilute iodine have been used. A vaginal douche of 500 to 4000 ml. of antiseptic is necessary to stimulate the uterus. These same compounds have been used as intrauterine infusions. The compounds of choice are dilute Lugol's solution (2 to 10 ml. in 100 ml. of water), saline, acriflavine, and chlorhexidine (Nolvasan). Various antibiotics have also been used as intrauterine infusions. Penicillin, streptomycin, and tetracyclines are all effective in single doses. A water, oil, or water-oil mixture has been used as a carrier.

In a first degree endometritis with no abnormal vulvar discharge, infusions should be performed within 24 hours after breeding. The fertilized ovum enters the uterus in 72 hours after estrum, and no preparation should be present in the uterus at that time. A cow with a small amount of abnormal discharge only at estrum should be infused at estrum. If the mucus is clear at the next estrum she should be bred and infused 24 hours after breeding. Alternately, instead of breeding at the next estrum she could be sexually rested for one estrum and bred on the following heat period.

The volume of intrauterine infusion is important. The maximum amount of infusion in an involved uterus is 50 ml. If more than this amount is infused there is a danger of rupturing the uterine wall, and the infusion preparation will escape into the peritoneal cavity. Infusion prepara-

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tions cannot be forced through the fallopian tubes before endometrium rupture. If volumes greater than this are infused any excess must be allowed to flow outward through the cervix.

Treatment of second and third degree cases are best handled by intrauterine deposition of antiseptics or antibiotics. If the cervix is open, uterine boluses may be placed in the uterus; however, infusion is necessary when the cervix is closed to sufficiently prevent boluses from passing through the cervix. When there is some accumulation of pus in the uterus, the administration of 3 to 5 mg. estradiol or 75 mg. stilbestrol will sensitize the uterus to oxytocin, causing contraction of the slow involuting uterus and eliminating much exudate from the uterus. In essence estrogen therapy reinitiates the estrous cycle in an anestrous cow. Stilbestrol in vitro was shown to be bactericidal. Three to five days later this large uterus should be infused with a volume treatment of, for example, 1 gm. of tetracycline, 1 oz. of Welandol, 50 mg. of diethylstilbestrol, 250 ml. of water and 250 ml. of glycerol. Volume treatment is important to flush out all the pus in the uterus. Systemic medication of supportive therapy and antibiotics should accompany this treatment.

Prevention

Good management, sanitation, and proper care of cows at parturition and the early postpartum period is essential to reduce endometritis to a minimum. Prompt treatment is indicated if uterine infection should occur. Since most uteri do not clear of organisms before 60 days postpartum, cows should be bred between 60 and 90 days postpartum.

Next to good management, a regular reproductive herd health program is a must to decrease the incidence of endometritis. The dairyman needs a simple record system recording breeding dates, calving dates, estrum dates and treatments that both the dairyman and veterinarian understand. Regular visits should be made to examine cows at 30 days postpartum and to diagnose pregnancy. Early diagnosis and treatment will benefit both the dairyman and veterinarian.

BIBLIOGRAPHY