

DAIRY PIPELINE

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“...metritis most commonly affects cows that have recently freshened... (and) can negatively affect a cow’s health, fertility, and profitability...”

Photo courtesy of Flickr

MANAGEMENT AND PREVENTION OF METRITIS

First of a two-part series discussing metritis in dairy cows. The second article will address strategies for prevention.

Metritis can be a challenging problem for some dairies. An infection of the uterus, metritis most commonly affects cows that have recently freshened. This disease can negatively affect a cow’s health, fertility, and profitability, with each case costing \$130-\$330. Risk factors for metritis include a dirty calving environment, dystocia, twins, induced labor, retained placenta, decreased immune function, and dry cow nutrition.

Clinical Signs—Cows normally have a uterine discharge after calving. This discharge should be mucoid, reddish brown in color, and have no unpleasant odor for the first 3-5 days after calving. Thereafter it should become progressively clearer and may continue for up to 14 days. The main clinical sign of cows with metritis is a foul smelling uterine discharge. The discharged fluid is typically more watery than mucoid and commonly looks like tomato soup containing varying amounts of pus.

Local vs. Systemic—After diagnosing a cow with metritis, the most important thing to do is to decide if it is a local or systemic problem. Cows may have a severe uterine infection but otherwise be perfectly normal. We consider these cows to have a local metritis. These cows should be treated and monitored on a daily basis to ensure that they have not become systemically ill. Cows that develop systemic metritis exhibit one or more of the clinical signs listed in table 1. Some of these clinical signs

can also be associated with other diseases, such as ketosis, mastitis, or displaced abomasum, that are common in fresh cows. A thorough physical exam should be done to ensure that none of these other problems co-exists with the metritis.

Treatment—There are several considerations to address in the treatment of metritis. While many of these treatments may appear to work it is important to differentiate between local and systemic problems and remember the goals of your treatment (table 2).

1. Uterine Contractors. These drugs are used to try and help the cow expel the contents of her infected uterus. Three different classes of drugs can be used.

Prostaglandin (Lutalyse®, Estrumate®, Prosta-mate™, In-Synch™). Prostaglandins are very effective at emptying the uterus if a corpus luteum (CL) is present. However, early postpartum cows do not have a functioning CL. Prostaglandins do cause some very short-term muscle contraction in the uterus that may be beneficial, but research into their use in the cow less than 14 days in milk has yielded variable results. There are no studies showing benefits to administration of prostaglandins to cows less than 8 days in milk. Prostaglandins can really be helpful in treating cows with uterine problems when they are 30-45 days in milk. Administration of prostaglandins at this time will help cows come into heat and expel uterine contents.

Estrogen (ECP®). Estrogen containing compounds have been removed from the market and are not allowed for use in cattle. Their use is illegal.

Oxytocin. This hormone causes the uterine contractions that help deliver the calf. It is widely accepted that oxytocin will continue to cause uterine contraction for 24-48 hours after calving. Recent work has shown some uterine response to oxytocin for several days after calving but studies have not been done to show if this improves future reproductive performance (decreased days open). If using oxytocin only low doses are required to get an effect. 1.5-2cc is enough.

Research data on the economic benefit of using any of the uterine contractors is quite variable. You should consult your herd veterinarian for specific recommendations on their use.

2. Calcium. Calcium is important for proper muscle contraction, including the smooth muscle in the uterus. Fresh cows are commonly hypocalcemic (have low blood calcium concentrations) for 1-2 days after calving, which may contribute to retained placentas or delayed uterine involution, resulting in metritis. Cows with local metritis should receive 60-100 grams of calcium orally once a day for 2-4 days.

Clinical Signs	
Local Metritis	Systemic metritis*
Discharge from uterus that is foul smelling and/or contains pus	-Fever > 103°F -Depression -Dehydration -Drop in milk production -Off feed

*The presence of an abnormal uterine discharge and at least one of these clinical signs indicates systemic metritis.

Table 1. Diagnosing a cow with local or systemic metritis..

Local Metritis	Systemic Metritis
1. Use a uterine contractor, calcium, and glucose precursors	1. Use systemic antibiotics, an anti-inflammatory, and the treatments for local metritis
2. Clear up the uterine infection	2. Clear up the uterine infection
3. Ensure the cow is ready for breeding by the end of the voluntary waiting period	3. Ensure the cow is ready for breeding by the end of the voluntary waiting period
4. Prevent the cow from developing systemic metritis	4. Treat the systemic illness and restore normal milk production

Table 2. Treatment goals and considerations for local and systemic metritis.

Upcoming Activities

Franklin Co. DHIA banquet—June 3, 7:00 p.m., Franklin Co. Rec. Park

Franklin Co. Dairy heifer Show—July 24th 1pm, Franklin Co. Recreation Park

State FFA Dairy Foods Career Development Event—Monday, June 21, Food Science Building, VT

State FFA Dairy Cattle Career Development Event—June 22-23, Virginia Tech.

State FFA Dairy Handlers Activity—June 22-23, Virginia Tech.

Southeast Dairy Youth Retreat, July 6-10, South Carolina.

Virginia PDCA Show—Saturday, August 7, Rockingham County Fairgrounds, Harrisonburg.

If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.

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Product	Active Drug	Dose/Duration	Milk Withdrawal	Meat Withdrawal
Penicillin	Procaine Penicillin G	3.5cc/100 lbs ¹ 3-5 days	Need to test	10-30 days
Polyflex	Ampicillin	5mg/lb 3-5 days	48 hours after last dose	7 days
LA-200	Oxytetracycline	4.5cc /100 lbs 3-5 days	96 hours after last dose	28 days
Excenel	Ceftiofur	2cc/100 lbs 3-5 days	None	3 days after last dose

Table 3. Antibiotic options for the treatment of systemic metritis

3. Glucose precursors—Fresh cows sometimes exhibit decreased feed intake and are therefore at risk of developing ketosis that can lead to a displaced abomasum or metritis. Supplementing cows that have local metritis with propylene glycol or propionate can help prevent this from occurring. One pound of calcium propionate mixed in water and given orally is a cost-effective way of providing both calcium and propionate to fresh cows.

Treatment of cows with systemic metritis involves treating the signs of systemic illness in addition to dealing with the infection in the uterus. There are five main classes of drugs used to treat cows with systemic metritis.

Antibiotics—Cows with systemic metritis need systemic antibiotics that are given in the muscle or under the skin. Table 3 lists the antibiotics most commonly used to treat metritis.

NSAID's (Non-Steroidal Anti-inflammatory Drugs)—These drugs are similar to aspirin, Tylenol, and Advil that people take. Just like in people they

reduce fever and inflammation. These drugs are used to make the cow feel better and eat more. The 2 most commonly used NSAID's in lactating dairy cows are Aspirin and Flunixin Meglumine (Banamine® and numerous generics). Aspirin must be given orally twice a day to be most effective. The typically dosage is 1 aspirin (240 grains) per 250 pounds of bodyweight. Aspirin is used commonly because no milk or meat withdrawal is needed. Some people hold milk for 24 hours after administration. Flunixin is an injectable NSAID that is approved for lactating dairy cows. It is typically given at a rate of 1-2cc per 100 pounds bodyweight once a day Intravenously. It is a prescription product and your veterinarian must be consulted about its use. The milk withdrawal of 36 hours and the meat withdrawal is 4 days. Banamine® needs to be administered IV to make sure illegal drug residues do not occur.

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SIRE ID – A POINT OF PRIDE FOR VIRGINIA DHI

Bill Patterson was the State Extension Specialist working with the Virginia Federation of DHI's when I came to Virginia Tech in 1982. A few years earlier, Bill had gone on a mission to identify cows on test by sire throughout Virginia. I worked at AIPL at that time and recall that this enthusiasm produced a very popular Virginia "bull", grade 52UNK0001. We produced genetic evaluations on this repository for cows of unknown parentage until some system changes were implemented! But Bill Patterson was onto something important, and Virginia producers knew it. If they recorded the sire of cows in their herds, the national genetic evaluation system could better evaluate those bulls, and consequently their daughters of those bulls, for genetic merit. In January 1982, 69% of 90,000 Virginia cows in 970 herds on supervised testing plans were identified by sire. This was one of the highest ID rates in the country at the time. In April 2010, the ID rate was 83% on 57,500 cows in 360 herds on supervised testing plans. Today's

computer programs make complete recording of sire ID much easier than in Bill Patterson's day. Recorded ID and correct ID are not necessarily the same, however. Many sire identified cows, perhaps 10 to 20%, are not actually sired by the bull of record. A lot of "stuff" happens between thawing a straw of semen to breed a cow and enrolling a correctly identified daughter of that mating into the milking herd. The miss-identified cow is more damaging to accurate genetic evaluations than the cow with completely missing ID, because we THINK we know who the sire is. Proofs of good bulls tend to go down and poor bulls go up in the process. In the past, blood tests could verify or refute parentage, but were not widely used. In the very near future, low density SNP chips will perform the same function and allow more accurate predictions of genetic merit on young animals in Virginia dairy herds. I encourage Virginia producers to embrace these technologies as they come online.

"Recorded ID and correct ID are not necessarily the same..."

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