



**TECHNICAL RELEASE**



Date: July 2002

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**TECH TALK . . .with Dr. Tom**

**Management and Prevention of Metritis: Part One**  
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*This article is the first of a two-part series discussing metritis in dairy cows. The second article will focus on strategies for reducing the occurrence of this disease on your farm.*

Metritis can be a challenging problem for some dairies. Generally defined as an infection of the uterus, metritis most commonly affects fresh cows. This disease can negatively influence a cow's health, fertility, and profitability (each case may cost up to \$330). Common risk factors for metritis include: dystocia, a dirty calving environment, twins, induced labor, retained placenta, decreased immune function, and inadequate dry cow nutrition.

**Clinical Signs**

Uterine discharge is normal after calving. Healthy uterine discharge contains mucus, is reddish brown in color, and has no unpleasant odor. After 3-5 days, the discharge should become progressively clearer, contain more mucus, and last for up to 14 days. The main clinical sign of cows with metritis is a foul smelling uterine discharge. This discharge has a liquid consistency and commonly looks like tomato soup containing varying amounts of pus.

**Local vs Systemic**

After diagnosing a case of 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. These cows have a local metritis and 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 systemic signs listed in table 1. Some of these clinical signs can also be associated with other diseases, such as a displaced abomasum, ketosis, or mastitis that are common in fresh cows. Therefore, 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. It is important to differentiate between local and systemic problems and remember the goals of your treatment (table 2). There are three main categories of therapy used to treat cows with local metritis:

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

<b>Clinical Signs</b>	
<u>Local Metritis</u>	<u>Systemic Metritis*</u>
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 2.** Treatment goals and considerations for local and systemic metritis.

Local Metritis	Systemic Metritis
1. <b>Use a uterine contractor, calcium, and glucose precursors</b>	1. <b>Use systemic antibiotics, an anti-inflammatory, and treatments for local metritis</b>
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

**1. Uterine Contractors.** These drugs are intended to help the cow expel the contents of her infected uterus. Three different classes of drugs are available.

**Prostaglandin** (Lutalyse<sup>®</sup>, Estrumate<sup>®</sup>, Prostamate<sup>™</sup>, In-Synch<sup>™</sup>). Prostaglandin is very effective at emptying the rumen if a corpus luteum (CL) is present. However, early postpartum cows do not have a functioning CL. Prostaglandin does cause some short-term muscle contraction in the uterus that may be beneficial, but research into their use in cows less than 14 days in milk has

yielded variable results. Prostaglandin can be very helpful in treating cows when they are 30-45 days in milk. Administration of prostaglandin at this time will help cows come into heat and expel abnormal uterine contents.

**Estrogen** (ECP<sup>®</sup>). Estrogen primes the uterus for a response to oxytocin, which reportedly improves uterine contractions. The effectiveness of estrogen in treating metritis has not been clearly established and its use could possibly lead to uterine tube damage and/or cystic ovaries. Furthermore, California research has shown decreased reproductive performance (increased days open) in association with routine ECP administration to dairy cows 24 hours after calving.

**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. Minnesota research has shown some uterine response to oxytocin for up to 10 days after calving but studies have not been done to determine if oxytocin use improves future reproductive performance. The oxytocin dose should not exceed 40 USP units (2 cc).

Research results on the economic benefit of using any uterine contractor to treat metritis vary considerably. 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 up to 2 days after calving. This hypocalcemia 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.

**3. Glucose precursors**

Fresh cows sometimes experience decreased feed intake and are therefore at risk of developing ketosis that can lead to a displaced abomasum or metritis. Drenching cows that have local metritis with propylene glycol (12-16 oz. once daily) or propionate can help prevent this occurrence. 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. In addition to the three types of therapy discussed above for local metritis, there are two other classes of drugs used to treat cows with systemic metritis.

**Antibiotics**

Cows with systemic metritis require antibiotics that are given in the muscle or under the skin. The primary goal of systemic antibiotic therapy is to make the cow feel better and decrease the chances of the uterine infection spreading to other parts of the body. Table 3 lists the antibiotics most commonly used to treat systemic metritis.

**Table 3.** Antibiotic options for the treatment of systemic metritis.

Product	Active Drug	Dose/Duration	Milk Withdrawal	Meat Withdrawal
Penicillin	Procaine	3.5 cc/100 lbs twice a day *	<b>Must test</b>	At least 30 days or test
	Penicillin G	3-5 days		
Polyflex <sup>®</sup>	Ampicillin	5 mg/lb once a day for 3-5 days	48 hours after last dose	7 days
Excenel <sup>®</sup> RTU	Ceftiofur	2 cc/100 lbs once a day for 3-5 days	None	2 days after last dose
LA-200 <sup>®</sup>	Oxytetracycline	4.5 cc /100 lbs repeated every 3 days as needed	96 hours after last dose	28 days

\*This is an extra-label dose of penicillin and therefore requires a veterinary prescription for legal use.

### **Non-Steroidal Anti-inflammatory Drugs (NSAIDs)**

This drug family contains the human medications aspirin, Tylenol<sup>®</sup>, and Advil<sup>®</sup>. As in humans, these drugs are used in cattle to make them feel better and improve appetites by reducing fever and/or inflammation. The two NSAIDs most commonly used in lactating dairy cows are aspirin and flunixin meglumine (Banamine<sup>®</sup> or Flunixinamine<sup>®</sup>). Aspirin is popular on some dairies because it is inexpensive and no milk or meat withdrawal is required (although a 24 hour milk withhold is suggested). The typical dose is one aspirin (240 grains) per 250 pounds of bodyweight given orally twice a day. Flunixin meglumine is a potent, injectable NSAID that is not approved for use in lactating dairy cattle but is used extra-label. Therefore, your veterinarian must write a prescription before it can be legally given and a milk withdrawal is required. Consult your veterinarian for specific withdrawal guidelines. Flunixin meglumine is usually dosed at a rate of 1 cc per 100 pounds of body weight once a day.

Without question, metritis is a disease that decreases dairy profitability. When faced with this disease, focus on supportive care and treatment that will minimize the duration and severity of the problem. To reduce its occurrence and impact on your dairy, eliminate the risk factors and develop a monitoring system for fresh cows that identifies problems early on. These strategies will be discussed in part two of this article.

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