The dictionary definition of mastitis is literally mast(udder) + itis(inflammation). It is not inflammation of the milk, but rather inflammation of the udder tissue. Whenever we see abnormal milk, it is a result of damage “upstairs” (to the udder), and that’s where we need to target treatment.

Another definition of mastitis is what it means to farmers, and that is:

• Hassle
• Cost
• Loss

• Stress
• Frustration
• Waste

All too often our more valuable cows are affected, and underlying that there may well be an issue in the herd. Mastitis seems to be a problem that never goes away.

A bovine battlefield

Another way to look at mastitis is that it’s like a battlefield. Not only a battle with herd and cow performance, but a battlefield at microscopic level. Clinical mastitis is the evidence of the war zone. The bugs are the invaders and the home guard (body) sends in soldiers (or kamikaze pilots) to take them out. These defending soldiers (somatic cells) include pus cells (which splatter to release enzymes and toxins) and gobbling macrophages which clean up the mess. The clots and flecks we see represent “dead soldiers” from both sides, as well as a few live ones, which can be cultured in the lab.

The invaders can only get into the udder one way – that is through the teat canal. At the gate the natural mechanisms of the teat canal (sticky keratin lining, teat end contraction, flushing of milk, etc) normally do a great job at defending the udder. Breaches can occur when the teat end is open and/or damaged or a great number of bugs congregate at the teat end and get pushed through.

There are billions of bugs out there waiting for the opportunity to get in to your cow’s udders – some of them even come from other cows. The most common bugs causing mastitis are from mud and manure, and the most common time for these to get in is around calving. Occasionally some of the nastier bugs may not only take over the udder, but get into the bloodstream as well – making the cow sick.
**Biological warfare**

As the battle rages on, you may have to get involved in “biological warfare” (antibiotic treatment). This kills all but the most resistant bugs, without damaging the body’s defenders. However if there is insufficient penetration of the antibiotic into the udder tissue, inappropriate antibiotic chosen, or treatment is just not long enough, some snipers can remain. These snipers hide in fibrous tissue or abscesses and cause continual problems. Occasionally they break out in a revolt and cause another clinical episode of mastitis in the cow.

Early, thorough and appropriate treatment will help win the war and reduce the sniper problem. This is where injectible treatments such as Mamyzin® can add a lot to your arsenal. Down the track, Dry Cow Therapy (DCT) is sometimes required to route out the last of the snipers.

Ultimately the best approach to mastitis is a focus on prevention. No one wins from wars, so investments in “border control” prevention while not so urgent or obvious will give the best return.

*Dr Richard M Tiddy BVS, MSc, MNZIPVM*
*Consulting Veterinarian*

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**Form of mastitis**

<table>
<thead>
<tr>
<th>Cow</th>
<th>Udder</th>
<th>Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severe clinical mastitis</strong></td>
<td>Extremely ill and depressed, may die</td>
<td>May become gangrenous (black mastitis)</td>
</tr>
<tr>
<td><strong>Acute clinical mastitis</strong></td>
<td>May or may not be sick</td>
<td>Hot, swollen and painful</td>
</tr>
<tr>
<td><strong>Clinical mastitis</strong></td>
<td>No observable changes</td>
<td>Shows little change</td>
</tr>
<tr>
<td><strong>Mild clinical mastitis</strong></td>
<td>No observable changes</td>
<td>Shows no abnormalities</td>
</tr>
<tr>
<td><strong>Chronic mastitis</strong></td>
<td>No observable changes</td>
<td>Lumps may be felt</td>
</tr>
<tr>
<td><strong>Subclinical mastitis</strong></td>
<td>No observable changes</td>
<td>No observable changes</td>
</tr>
</tbody>
</table>