

Serratia Mastitis

Serratia bacteria is a common contaminant in labs - and lots of other places. *Serratia* is found in people's intestines, and possibly growing as pinkish scum in the shower, too. "Most of us carry it every day of our lives," said Martin Blaser, chairman of medicine at the New York University School of Medicine. "A great paradox of life and health is we have all these bad organisms we carry around OK in our intestinal tracts, and if we move them over one inch to our bladder, for example, they make us sick."

Until the 1960s, *Serratia marcescens* was considered harmless - so safe, in fact, that the military secretly dispersed it across U.S. cities in germ warfare studies. Today, *Serratia* is blamed for human urinary tract infections, infected surgical wounds and pneumonia, usually spread among hospital patients.

During one such test in 1950 - "Operation Sea-Spray" - Navy vessels cruised the San Francisco coast, spewing huge amounts of the bacterium into the air over the city. At least one hospital noticed an increase in pneumonia patients. In the 1970s, when the military disclosed the tests, a San Francisco family sued over a pneumonia death they blamed on *Serratia*. Courts ruled the government was immune from such lawsuits.

Serratia bacteria are common bacterial inhabitants of water, soil, manure, feed, and bedding. Although these bacteria are generally considered harmless residents of organic materials, *Serratia* bacteria were implicated as the cause of numerous diseases, including bovine mastitis. Barnum reported the first thorough account of a *Serratia* mastitis outbreak in a dairy herd nearly 40 years ago.

Characteristics of *Serratia* intramammary infections (IMI) reported by investigators included: 1) IMI tend to be mild and chronic; 2) clinical signs were sporadic and did not involve systemic signs of disease; 3) bacteria were often shed in low numbers; and 4) isolates were resistant to most antibiotics commonly used to treat mastitis in lactating cows.

These characteristics have been reiterated in a series of case study reports of *Serratia* mastitis outbreaks. Outbreaks have been attributed to contaminated teat dips, contaminated water on affected farms, and bacterial colonization of teat skin following frostbite.

A number of reports in the last ten years have shifted the emphasis of research to dry cows and after calving. The majority of *Serratia* IMI outbreaks originated during the dry period and were not associated with dramatic events such as frost bite or the discovery of contaminated teat dip. *Serratia* has been isolated in the bedding and litter in herds with outbreak of disease and implied teat contamination with these pathogens occurred primarily between milkings. Therefore, *Serratia* is regarded as environmental mastitis pathogens that could be controlled by controlling pathogen loads in bedding and lots.