



Rochester Veterinary Practice 72 Lowry Street, Rochester, Vic, 3561, Ph: (03) 54 84 22 55, email: admin@rochyvet.com.au

Salmonella in Calves

General

Salmonellosis is mainly a problem of young calves, but any age group of cattle can be affected. Of the calves that get salmonellosis, 60% will die and those that survive will have significant reduced growth rates.

What is it and how does it affect calves?

Salmonella is caused by a bacterial infection. There are hundreds of strains of salmonella. The most common that occur in cattle are *S. Typhimerium*, *S. Dublin*, *S. Zanzibar*, *S. Bovismorbificans* and *S. Uganda*.

The two most frequently diagnosed in calves in our farming region are *S. Typhimerium* and *S. Dublin*. *S. Typhimerim* can be spread by other calves carrying the bacteria but more importantly by rodents and birds. Whereas, *S. Dublin* is only spread by other calves carrying the bacteria. Many normal calves carry salmonella in their faeces, but the disease does not develop until the dose of infection becomes overwhelming or other factors that compromise immunity occur such as stress, transportation, nutritional changes, bad weather or inadequate colostrum intake.

As the bacteria are spread in faeces, a calf usually ingests the bacteria to become infected. Once infection has occurred the bacteria multiply in the stomach and intestinal tract. The bacteria then cause severe damage the lining of the intestinal tract which results in severe watery bloody diarrhoea that often contains intestinal lining. The bacteria can also move in to the bloodstream (bacteraemia and septicaemia) where the bacteria can spread to the lungs, meninges (brain) and joint.

What are the signs?

Calves are typically 7 to 10 days old. With an incubation period of 1 to 2 days. Typical clinical signs include:

- Severe watery bloody foul-smelling diarrhoea +/- intestinal lining
- Dehydration
- Lethargic and dull
- Anorexia
- Down and not wanting to get up
- Injected mucous membranes and the sclera (whites of the eyes)
- Polyarthrititis
- Pneumonia
- Meningitis
- Seizures
- Hypopyon (pus in the front of the eye)

Diagnosis

Diagnosis is generally done by culturing the faeces.

Treatment

- Treatment with large volumes of electrolytes is labour intensive and time consuming- and not always effective particularly with younger calves
- These calves often need intensive IV fluid therapy to correct the metabolic acidosis and electrolyte disturbances
- NSAID are required to combat the toxemia (such as Meloxicam)
- Antibiotic treatment is controversial, however often recommended. Trimethoprim sulphonamides, oxytetracyclines and ceftiofur are reasonable choices.
- Feed large volumes of electrolytes but don't stop feeding milk as it is important to keep the calf's energy levels up
- As a general rule, calves in the sick pen need as much electrolytes as you have time to get into them.
- If a calf in one pen has salmonellosis, it is best to treat the whole pen as infected and do not remove calves from the pen
- Don't go straight from the pens with sick calves to pens with healthy calves – clean boots and overalls
- Complete disinfection is required to reduce the risk of spreading the bacteria.

Prevention

There is no specific control at the calf level but avoid stress events, maintain good nutrition and practice good hygiene is extremely important.

It is best prevented by vaccinating cows against this bacterium and the antibodies are concentrated into the colostrum. Ensuring that all calves have good quality colostrum in the first 24hrs of life is essential for preventing the disease in calves.

Reference:

Parkinson, T. J., Vermunt, J. J., & Malmo, J. (2019). Diseases of cattle in Australasia: a comprehensive textbook. New Zealand Veterinary Association Foundation for Continuing Education. Massey University Press, Auckland, 0745, New Zealand.