

A sable, with horns carefully covered with pipes, receives expert attention.



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Bacterial diseases also seen in game

Clostridium infections

Many of the clostridium diseases have changed names but they are a group of important disease-causing organisms. Fortunately, commercial vaccines that cover most of this group of bacteria are commercially available.

These are diseases caused by bacteria of the genus *Clostridium*, which are relatively large gram-positive organisms that are usually anaerobic, spore-forming and rod-shaped.

The organisms as spores are resistant and can live for long periods in the soil. Susceptible hosts acquire them either by wound contamination or by ingestion.

These bacteria have a global distribution and are the cause of many

deaths all over the world. They affect a wide variety of animal species, including wildlife.

The diseases caused by this group of bacteria can be divided into two groups: Firstly, those that invade the tissues of the host and reproduce in the tissues of the host with the production of toxins inside the tissues. The second group produces a toxæmia resulting from the absorption of toxins produced by the organisms within the digestive system (the enterotoxæmias) or in food or carrion outside the body (botulism).

- Botulism *Clostridium botulinum* (lamsiekte)
- Tetanus *Clostridium tetani* (lock jaw)
- Malignant edema *Clostridium septicum*
- Blackleg *Clostridium chauvoei*
- Enterotoxæmias

- *Clostridium welchii* – Type B (lamb dysentery)
- *Clostridium welchii* – Type D (pulpy kidney or bloednier)

Botulism

Botulism is not an infection but an intoxication. The toxin is produced outside the body by the bacteria. *Clostridium botulinum*, which grows in decaying material produces a highly potent toxin. The toxin causes a musculature paralysis.

In South Africa most soils contain very little phosphorous and as a result the grazing is also deficient in this essential nutrient. Animals suffering from a phosphate deficiency develop what is called 'pica', and will chew any foreign body, e.g. wire, stones, corrugated iron and especially bones. If they chew contaminated bones with botulinum toxin in it, they will develop



This giraffe, probably suffering from a phosphate deficiency, chewed on duiker cranium. Such animals develop what is called 'pica', and will chew on any foreign body, e.g. wire, stones, corrugated iron and especially bones. If they chew contaminated bones with botulinum toxin in it, they will develop symptoms of botulism, in other words paralysis.

symptoms of botulism, in other words paralysis. Symptoms depend on the amount of toxin ingested, therefore the animal can show only slight signs of paralysis to complete paralysis. Animals cannot drink or swallow because of paralysis of the throat muscles. Death can occur within 48 hours or may take up to a few days. Chronic cases can sometimes recover.

Feeding chicken manure increases the chance of botulism as chicken carcasses often contaminate the manure heap.

Prevent pica by giving mineral (phosphate) licks throughout the year and pick up all bones and especially tortoise shells on farms and bury or burn these. Although there is a very effective vaccine available, it is not that easy to vaccinate game, so prevention is better than cure.

Certain wildlife species are more

prone to botulism; giraffe and lactating cows are especially vulnerable. I have also seen it in sable antelope. Unfortunately, animals that have died of botulism often have a negative post-mortem. Diagnosis is usually made according to the symptoms and some clues, such as bones or tortoise shell fragments found in the fore stomach of the carcass.

Tetanus

In domestic stock tetanus is often seen in sheep and horses, but seldom in wildlife. It is caused by *Clostridium tetani*, which produces a poison in the body. It normally enters the host through a wound, especially a deep puncture wound. The poison affects the nervous system and causes violent spasms. Often, jaw muscles are affected, causing locking of the jaws.

Vaccination will prevent tetanus out-

breaks. Darting wounds in zebra could cause animals to develop symptoms if antibiotic cover such as penicillin is not given.

Malignant edema and blackleg

Both these diseases look fairly similar but blackleg or black quarter usually causes 'gas gangrene' of the muscles whereas malignant edema (or malignant oedema) is more confined to subcutaneous tissue. Both can be prevented by using a vaccine. This disease is being seen more and more in species like sable antelope.

Enterotoxaemias

- **Lamb dysentery:** This disease, which affects lambs or young animals within the first few weeks of life, causes severe diarrhoea that eventually is blood-stained.


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Clostridium infections



➤ *Continued*

- **Pulp kidney (*bloednier*):** This is a serious disease in domestic stock (sheep) and any change in diet or even deworming can cause an outbreak. More and more of these symptoms are being observed in wildlife, especially where intensive game-ranching practices are employed, and where high-energy concentrates are being fed. Be careful of sudden diet changes. There are vaccines available to prevent these diseases although the use of these vaccines is extra-pamphlet for game, in other words these vaccines have not been registered for wildlife, but are used with seemingly good results.

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