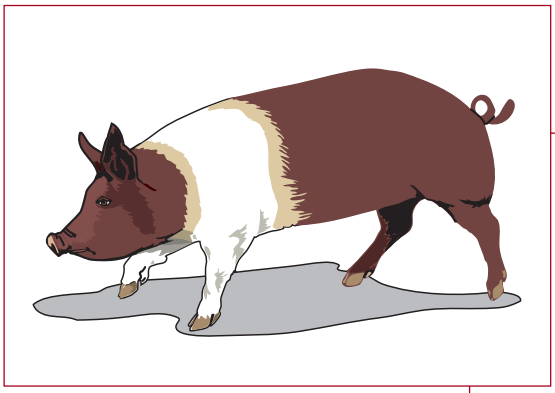
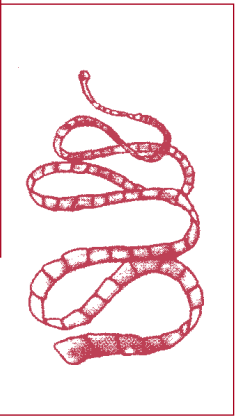
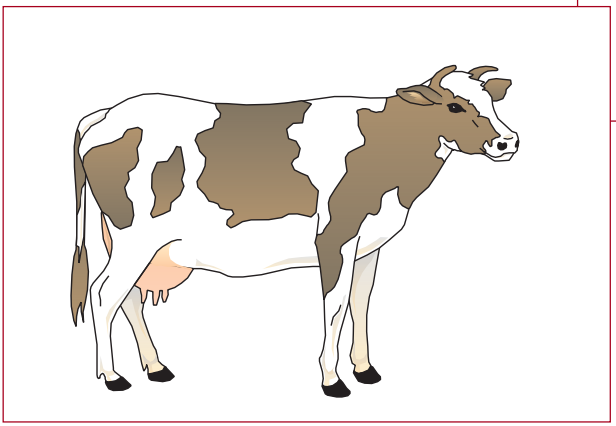
DEPARTMENT: AGRICULTURE
REPUBLIC OF SOUTH AFRICA

Parasitic cysts and lesions in meat

Jenny Turton







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Parasitic cysts and lesions in meat

Lesions are abnormal changes in animal tissue (meat, organs and other body parts).

Cysts are a stage in the life cycle of a parasite (they look like bobbles or pearls).

Lesions and cysts are caused by parasites that spend part of their life in the muscles (meat) of animals.

They are seen during the slaughter of food-producing animals or in affected meat which is being sold.

We are concerned about parasitic cysts and lesions in meat because:

- Some can cause diseases when people eat the affected meat
- Others do not *cause* human diseases, but the affected meat is condemned because it has an unattractive appearance and therefore people will not buy it.

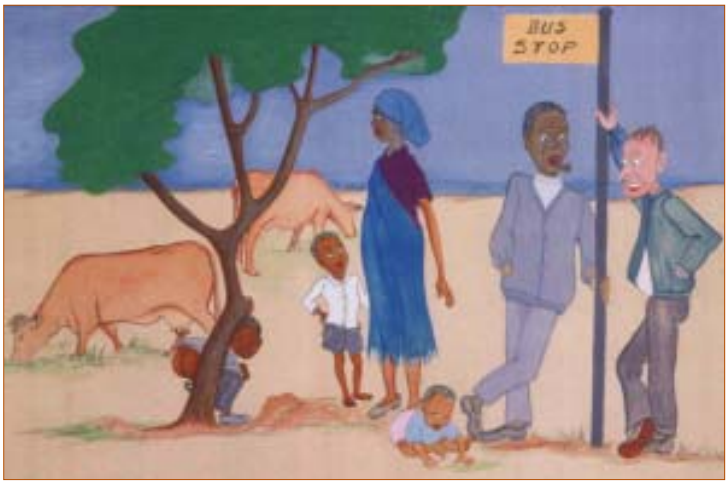
Measles (beef and pork)

- Measles is a condition where cysts (the early stages) of tapeworms occur in the muscles of animals
- This disease is important, because people can get tapeworms by eating meat infected by measles. Also, as a result of meat condemnation, meat producers can experience serious financial losses
- There are 2 different tapeworms: one affecting cattle (beef measles), and the other affecting pigs (pork measles).

How do animals become infected?

- The parasite has a lifecycle moving between the definitive or final host (people) and the intermediate host (cattle for measles in beef, pigs for measles in pork)

- The adult tapeworms live in the intestines of humans. When the tapeworm segments containing eggs are passed in stools (note that the segments for the beef tapeworm can move and leave the body on their own) they contaminate the environment, particularly if people do not use proper toilets



but choose to use the veld. Cattle are infected by eating the eggs when grazing. Pigs are infected by eating eggs passed in human faeces

- Within the cattle and pigs the eggs hatch and develop into larvae (the young stages) living in cysts in the muscles: this is measles
- People are then infected by eating undercooked meat containing measles.

Signs in meat

- In both cattle and pigs the signs seen at slaughter are white cysts (like small or larger white boads) in the muscles. The cysts are easy to see in pigs (they are about 1 cm in diameter) but are often smaller and more difficult to see in the case of cattle (may be only 2–3 mm in diameter)
- There are usually not many cysts in the case of beef measles, but many for pork measles because pigs eat human faeces in which the egg concentration is high.

Is this disease important in people?

- Both the beef and pork tapeworms live in the intestines of people, and can cause weight loss, stomach pain, dizziness, headaches and weakness

- Tapeworms can be treated with medicine from the clinic or pharmacy
- If people accidentally eat the eggs of the pork tapeworm because of poor personal hygiene, they can develop cysts in the brain, which can cause nervous signs such as epilepsy and often results in death. Treatment is often unsuccessful in these cases
- The parasites are more likely to occur in people living in conditions where there is poor hygiene, but can occur in all who prefer raw or undercooked meat.

Ovine cysticercosis

This is a tapeworm which causes cysts in the meat of sheep and goats

How are animals infected?

- The adult parasites live in the intestines of dogs and wild carnivores (wild animals that eat meat)
- When the eggs are passed in the faeces, they contaminate the environment
- Sheep and goats are infected when they eat the eggs while grazing. Within these animals the eggs hatch and develop into cysts in the muscles.

Signs in meat

Cysts in the muscle of up to 1 cm in diameter occur.

Is this disease important in people?

- These cysts are not harmful to people, but can result in condemnation of carcasses after slaughtering.

Sarcosporidiosis (sarcocystosis)

Sarcosporidiosis is caused by a very small parasite. It causes cysts in the muscles of many species, including cattle, sheep, goats and pigs.

How are animals infected?

- The adult parasite lives in the intestines of dogs and wild carnivores

- Eggs are passed in the faeces, and in this way the grass becomes infected and food animals are infected when grazing.

Signs in meat

- Cysts in the muscles may be microscopically small (cannot be seen with the eye) to several centimetres in diameter
- Cysts often occur in the oesophagus of sheep.

Is this disease important in people?

- The parasite can cause disease in people, and people may be infected through eating affected meat, but they are more likely to be infected by food contaminated by the faeces of carnivores
- It can be difficult to tell the difference between these cysts and more serious conditions such as measles (when cattle and pigs are affected) and trichinellosis (a very serious disease in some countries)
- When the cysts are large they result in condemnation of meat.

Trichinellosis

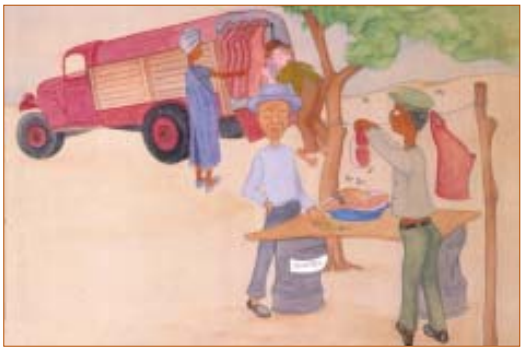
- This condition occurs in wild animals around the Kruger Park, and causes cysts in the muscles. People can be infected by eating undercooked affected meat. This is a very important zoonotic disease, but is not a problem in South Africa, except when people eat meat of wild animals from this area.

Parafilariasis (false bruising)

- This condition occurs in cattle
- The lesions are caused by adult roundworms which live under the skin of cattle and these parasites are spread between cattle by flies and mosquitoes
- The parasites result in damage to the skin and the flesh under the skin, which looks like bruising, and bleeding occurs from these sites. These lesions are especially seen on the upper part of the body
- These lesions are not harmful to people
- Condemnation of affected meat and hides may be the result of these lesions.

Onchocercosis

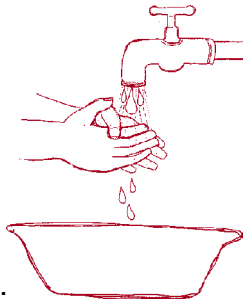
- This condition occurs in cattle
- These lesions are caused by adult roundworms which live in the deeper tissue layer around the head and neck, belly or brisket of cattle. The parasites are spread between cattle by biting midges or blackflies
- The parasites result in lumps in the affected areas (these can be 0,5 to 4 cm in diameter)
- These lesions are not harmful to people
- Condemnation of carcasses may result because of these lesions.



How can these diseases be prevented?

- The important question is what should be done with meat containing parasitic cysts and lesions, and how can you prevent disease in people?
- It can be difficult to know which parasites are harmful and which are not, because they can look similar and occur in the same species
- If you are slaughtering animals for your own use or to sell, trim the cysts and lesions and destroy this meat. Do not eat or sell affected meat
- Do not eat meat containing such cysts, and do not buy meat from informal slaughterers
- Rather, buy your meat from a hygienic butchery or shop
- Do not let dogs and wild carnivores eat affected meat, because they can continue spreading some of these diseases

- Do not go to the toilet in the veld (or bury if absolutely necessary) but use proper toilets
- Always cook meat well (particularly in the case of informal slaughter because meat is not inspected)
- Always wash your hands after handling animals and before preparing food or eating.



For further information about these parasites speak to your veterinary public health officer, meat inspector, animal health technician, state veterinarian, nurse or doctor

or

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