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DESCRIPTION OF EXAMINATION OF LARVA Taenia saginata ON BEEF IN GORONTALO CITY

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ABSTRACT

Cysticercus is the larval phase of Cestoda which is present in the body of the intermediate host, and consists of a thin sac whose walls contain a scolex, and the cavity in the middle contains a little clear liquid. Cysticercus or Taenia saginata larvae are found in cattle (Cysticercus bovis).

This study aims to determine the description of Taenia saginata larvae in beef sold in Gorontalo City. This type of research is a descriptive method with a quantitative approach. The population in this study were all beef sold by traders in Gorontalo City as many as 28 places, with a total sample size of 15 samples on the thighs and back of each trader by paying attention to the characteristics of fresh beef, namely red in color and not foul smelling. The sampling technique used cluster random sampling, while the examination was carried out at the Laboratory of Microbiology, University of Bina Mandiri Gorontalo. The examination method used the digestion method with Pepsin HCl solution examined and under a microscope. Data were analyzed using univariate. From research conducted on beef samples infected with Taenia saginata larvae,

Keywords: Larvae, Taenia saginata, Beef

INTRODUCTION

Taenia Saginata is one of the parasites that are still widely found among the community. The spread of taenia and cases of taenia infection occurs mostly in tropical areas, this is because tropical areas have high rainfall, such as Latin America, India, South Africa and Southeast Asia [1].

Indonesia is one of the countries with an epidemic status of cysticercosis and tapeworm infection, especially in 3 provinces, namely North Sumatra 14.1%, Bali Province and Papua Province ranging from 48% [6]. Cysticercosis is a parasitic disease caused by cysticercus found in muscles and other organs.*Cysticercosis* always associated with taeniasis because cysticercosis is a disease caused by staging larvae or metacestode phase of tapeworms [8].

*Taeniasis*is a disease that attacks humans and is often found in people who have the ability to eat raw or undercooked beef and can contain Taenia saginata

cysticecosis. Cysticecosis in humans can generally be caused by larvae of Taenia Saginata which can cause infection in the digestive tract [1].

*Taeniasis*transmitted orally by eating meat containing tapeworm larvae, in other words, transmission of taeniasis can occur due to consuming food contaminated with tapeworm eggs and from patient feces, causing infection in the digestive tract (adult tapeworms only live in the human digestive tract), besides the digestive tract this parasitic infection can also leave the intestine and affect other organs of the body. Parasitic larvae that reach the heart can cause cardiac arrhythmias or can even cause heart failure. The clinical symptoms of taeniasis are nervous disorders, insomnia, anorexia, weight loss, abdominal pain or indigestion. It can also cause nausea, vomiting, diarrhea or constipation. Worms can also come out like sheets of tape when defecating [10].

Previous research, the prevalence of Taenia saginata worm eggs in feces in animal slaughterhouses. This research is descriptive and the samples examined in this study were 61 samples of cow feces with total sampling technique. Analysis of the data in this study using univariate analysis. Based on the results of research from 61 samples showed that 38 positive samples contained Taenia saginata worm eggs with a percentage of 62.3% and 23 samples were negative with a percentage of 37.7%. With the large number of positive samples, people must be careful in choosing beef to be processed for daily consumption [3].

Worm parasites have been found in cattle slaughtered in slaughterhouses in Gorontalo City. The results showed that there was an incidence of Paramphitonum sp worm infestation in the cow's stomach, 54 cows were found positive for Paramphitonum sp worms at the slaughterhouse in Biau and 28 cows were found positive for Paramphitonum sp worms at the slaughterhouse in Andalas [2].

RESEARCH METHODS

The type of research used is descriptive with a quantitative approach, namely the type of research that aims to get a picture of Taenia saginata larvae in beef in Gorontalo City. The sampling locations were carried out at several points in Gorontalo City, namely Padebuolo, Central Market, Andalas Market, and Liluo. The sample examination was carried out at the Bina Mandiri University Gorontalo campus. The population in this study was 28 beef sold by traders in Gorontalo City with a total sample of 15 which was calculated based on the Notoatmojo formula.

The results of the examination obtained are primary data, which is then made in a table form using univariate data analysis techniques by describing or describing the research variables.

The research instrument, namely the tools used in this study were cover glass, slide glass, microscope, porcelain cup, watch glass, cutter, spatula, cutting board, and beeker glass. The materials used in this study were beef samples and Pepsin HCl solution. Then the beef samples were taken and then refined the beef using Pepsin HCl solution then carried out an examination under a microscope with 10x magnification of the ocular lens and 10x and 40x objective lenses.

The sampling technique in this study was cluster random sampling, which was selected based on inclusion criteria.

A. Inclusion criteria in the study:

a. Fresh beef (red, does not smell bad)
b. Part taken back, and thighs
c. Beef trader in Gorontalo City

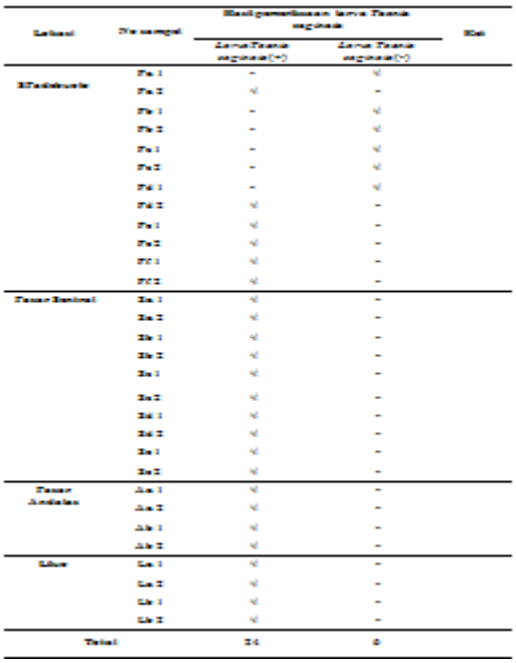
Operations in this research are:

a. *Cysticercus* is the larval phase of Cestoda which is present in the body of an intermediate host, and consists of a thin sac whose walls contain a scolex, and the cavity in the middle contains a little clear liquid. Cysticercus or Taenia saginata larvae are found in cattle (Cysticercus bovis).
b. Beef is a food source and has a bright red color, not shiny pale and has a very distinctive aroma of beef (savory). The protein content of beef was 18.80%.

RESEARCH FINDINGS

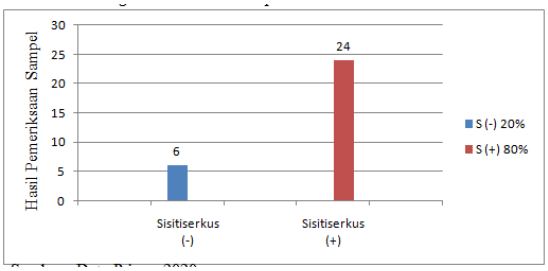
Table 1

Distribution of examination results for larvae



Source: Data processed (2020)

Picture 1



Source: Data processed (2020)

Based on the results of the examination of 30 samples, it was found that the number of frequencies that showed positive results on the thighs and back was 24 samples with a percentage of 80%, and 6 samples that were negative with a percentage of 20% with a total of 100%.

DISCUSSIONS

*Taenia Saginata*is a parasite that belongs to the class of cestodes that live in the human intestine and can cause Taeniasis saginata disease. This worm is also called Taeniarhynchus saginata and cow tapeworm. The definitive host of this parasite is human while the intermediate host is cow [10].

*Taeniasis*is a disease that attacks humans and is often found in people who have the ability to eat raw or undercooked beef and can contain Taenia saginata cysticecosis. Cysticecosis in humans can generally be caused by larvae of Taenia Saginata which can cause infection in the digestive tract [1].

Infection caused by Taenia saginata does not cause noticeable symptoms. Patients will feel disturbed when graphid proglottids are muscular and move actively migrating out of the anus. The gravid segments that come out of the anus one by one can still move and are often found in the patient's underwear, and can cause discomfort so that the sufferer is nauseous and even vomiting. As a result, the gravid segments that come out of the anus can cause irritation or irritation around the anus and a feeling of unwanted bowel movements [5].

Based on the results of the examination in tables 1 and 2, it was found that 24 samples were positively infected by Taenia saginata tapeworm larvae. namely at sample numbers Pα 2, Pd 2, Pe 1, Pe 2, Pf 1, Pf 2, Sα 1, Sα 2, Sb

1, Sb 2, Sc 1, Sc 2, Sd 1, Sd 2, Se 1, Se 2, Aα 1, Aα 2, Ab 1, Ab 2, Lα 1, Lα 2, Lb 1, and Lb 2. while the negative sample is 6 samples, namely sample numbers Pα 1, Pb 1, Pb 2, Pc 1, Pc 2 and Pd 1 then from the results of the frequency distribution, it can be seen that from a total of 30 samples of beef in Gorontalo City that were infected by the larvae of Taenia saginata tapeworms, 24 samples with a percentage of 80%, while for negative samples as many as six samples with a percentage of 20% were not infected.

The cause of the discovery of worm larvae in beef is the eating of feces containing worm eggs by cows which are found in grass that has been contaminated by worm eggs. The eggs will hatch in the small intestine and become larvae. Larvae will migrate in muscle tissue to develop into cysticercus. Larvae that settle in the intestines will develop into adult worms and then produce eggs that usually come out with cow feces. Cows can become infected through food or water contaminated by worm eggs and larvae and through colostrum containing worm larvae. The body parts of the cattle that the larvae often have contact with are the hamstrings and the back of the cow [11].

Humans will become infected if they eat meat that contains cysticercus and is not well cooked or undercooked. In the human intestine cysticercus develops over two months to become an adult tapeworm. The adult tapeworm attacks the small intestine and settles in the small intestine [8].

Taenia saginata adult worms cause dyspensia complaints such as nausea, vomiting, diarrhea, epigastric pain, accompanied by dizziness and nervousness. Symptoms become more severe when the adult worm Taenia saginata causes intestinal obstruction which results in the patient experiencing ileus or when the geavid segment enters the appendix. Blood theaniasis examination found an increase in the number of eosionophils from 6 to 15% [11].

Worms infection can be influenced by various factors, namely the environmental hygiene factor of the pen, and also paying attention to environmental sanitation around the pen, and paying attention to food and drink that will be consumed by the livestock itself. As well as paying attention to personal hygiene, such as choosing beef that is fresh and does not smell bad.

Good fresh meat color is a bright red color. The color of freshly cut beef that has not been exposed to air is purplish red, if exposed to air for about 15-30 minutes will turn bright red. The bright red color will turn red brown if the meat is left exposed to air for a long time. The appearance of a brown color indicates that the meat is not good for consumption. The impact of eating meat that is not fresh or tends to turn brownish can cause vomiting and diarrhea [7].

The smell of fresh beef does not smell sour or rotten, but it does have a characteristic smell. The smell of meat is influenced by the type of animal, feed, age of the meat and storage conditions. The presence of a sour or rotten smell in beef is caused by the formation of compounds such as ammonia and H2S which are the result of protein breakdown by microorganisms. In addition, an abnormal smell will usually be smelled immediately after the animal is slaughtered. This can be caused by abnormalities, including sick animals and animals in treatment. Sick animals, especially those suffering from acute inflammation of the internal organs, will produce meat that smells sour or

rotten. Meanwhile, during the treatment period, especially with the administration of antibiotics, it will produce meat that smells of drugs [4].

Efforts to prevent theaniasis in humans can be done by avoiding undercooked meat foods. Meat must be cooked beforehand at a temperature above 56oC ± 30 to 35 minutes, besides that by freezing the meat first, it can reduce the risk of spawning diseases.

Meat that is boiled and frozen at -20 ° C can kill cysticercuses. Cysticercus will die at a temperature of -20 oC, but at a temperature of 0-20 oC will remain alive for two months and at room temperature will last for 26 days. This is in accordance with the literature which states that the life cycle of Taenia saginata continues if humans as the definitive host eat beef containing cysticercus without a perfect cooking process, namely heating more than 56 oC. cow so as not to be contaminated with human feces.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that the beef sold in Gorontalo City (Padebuolo, Central Market, Andalas Market, and Liluo) has Taenia saginata larvae infection. A total of 30 beef samples obtained 24 samples infected with Taenia saginata larvae with a percentage of 80%, and 6 samples not infected with Taenia saginata with a percentage of 20%.

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