

**PREVALENCE OF BOVINE CYSTICERCOSIS AMONG CATTLE SLAUGHTERED IN  
MOROTO MUNICIPAL ABATTOIR, MOROTO DISTRICT- KARAMOJA REGION.**

By

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**DECLARATION.**

I **Mugumya OBED**, declare that this dissertation has never been submitted to any higher institution of learning in partial fulfillment of the requirements for any academic award.

Sign.......... Date..........

**APPROVAL.**

This dissertation has been submitted with the approval of my academic supervisor

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## **DEDICATION**

I dedicate this dissertation to my beloved parents, my sisters especially Ainebyoona Allen, my brothers and special dedication goes to Mrs. Akello Francis.

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**LIST OF ABBREVIATION.**

BC                               bovine cysticercosis.

T.saginata                   *Taenia saginata*

Yrs                             years

%                              percent



## ABSTRACT

Across sectional study was conducted on 146 Cattle slaughtered in Moroto municipal abattoir between May 2018 and June 2018 to determine prevalence of bovine cysticercosis. 7 (4.8%) out of 146 carcasses examined at postmortem were infested. The infestation rate was higher in adult cattle than young cattle with the highest prevalence (22.2%) detected in older cattle 5 years and above followed by carcasses of middle aged cattle 3-5 years (7.3%) and no infestation was detected in young cattle of 2-3 years. On the other hand, the infestation rate was higher in female carcasses 2.7 %, (n=48) than in males 2.1%, (n=98) but no significant difference in prevalence was observed between age groups and sexes of cattle ( $p < 0.05$ ). In conclusion the overall prevalence (4.8%) is high and poses a serious public health and economic threat. To control transmission, I recommend public education and use of latrines (creation of public awareness) about health and economic significance of the disease by strengthening community trainings with special reference to the danger of raw or undercooked meat consumption and use of toilets/latrines plus regulating back yard slaughtering practices.

## CHAPTER ONE

### 1.0 BACKGROUND.

*Cysticercus bovis* a food-borne parasitic disease caused by the immature form of the human cestode *Taenia saginata* commonly referred to as the beef tapeworm (Karshima et al., 2013). *C. bovis* infestation is an important zoonotic disease in African countries than in other parts of the world and it remains enzootic in both humans and cattle in Africa (Flutch et al., 2008).

Globally, there are 77 million human carriers of *Taenia saginata* out of which about 40 percent live in Africa (Megersa et al. 2010). The infestation is distributed in the dry, arid and semi-arid countries which practice mainly nomadic pastoralism (Brunetti, 2016).

In developing countries bovine cysticercosis constitutes a serious but less recognized public health problem (Minozzo et al., 2002). *T. saginata cysticercosis* is found almost all over the world with very low prevalence in developed countries, Moderate prevalence levels are seen in southern Asia and High prevalence rates in Sub- Saharan Africa especially in Eastern Africa where it causes an important economic loss due to condemnation of meat (Cabaret et al., 2002).

The life cycle of the parasite *Taenia saginata* involves humans and cattle as final and intermediate hosts respectively (Lees et al., 2002). In humans the adult worms live in the small intestines causing taeniasis (Garedaghi et al., 2011). Cattle become infected by accidental ingestion of parasite eggs originating from the gravid proglottids shed in human faeces while grazing, eating contaminated feed or drinking contaminated water. Therefore epidemiology of bovine cysticercosis varies from one area to another (Dorny and Praet, 2007).

Humans acquire the disease by eating raw or poorly cooked beef meat (Cheruiyot and Onyango-Abuje, 1984). The transmission of the parasite occur most commonly in environments characterized by poor sanitation, primitive livestock husbandry practices, inadequate meat inspection, management and control policies (Phiriet et al., 2003). The clinical signs in humans are nausea, headache, increased appetite, weight loss, abdominal pain, intestinal obstruction, nervous syndromes and epilepsy (Ofukwu et al., 2009).

Prevalence of bovine cysticercosis has been regarded as high in East Africa (Kebede et al. 2009).

## REFERENCES

- Megersa B, Tesfaye E, Regassa A, Abebe R, Abunna F 2010. Bovine cysticercosis in cattle slaughtered at Jimma Municipal Abattoir, South Western Ethiopia: Prevalence, cyst viability and its Socio-economic importance. *Vet*
- Asaava LL, Kitala PM, Gathura PB, Nanyingi MO, Muchemi G, Schelling E 2009. A survey of bovine cysticercosis/ human taeniosis in Northern Turkana District, Kenya. *Prev Vet Med*, 89: 197–204.
- Boone I, Thys E, Marcotty T, de Borchgrave J, Ducheyne E, Dorny P 2007. Distribution and risk factors of bovine cysticercosis in Belgian dairy and mixed herds. *Prev Vet Med*, 82(1-2): 1-11.
- Cabaret, J., S. Geerts, M. Madeline, C. Ballandonne and D. Barbier, 2002.** The use of urban sewage sludge on pastures: The *cysticercosis* threat. *Vet. Res.*, 33:575-597 DOI: 10.1051/vetres:2002040,,
- Lees, W., J. Nightingale, D. Brown, B. Scandrett and A. Gajadhar, 2002. Outbreak of *Cysticercus bovis* (*Taenia saginata*) in feedlot cattle in Alberta. *Can. Vet. J.*, 43: 227-228. PMID: 11901599
- Dorny, P., and N. Praet, 2007: *Taenia saginata* in Europe. *Vet. Parasitol.* 149, 22–24.
- Garedaghi Y, Rezaii Saber AP and Saber M (2011). World J. Agric. Sci. 008 Prevalence of bovine Cysticercosis of Slaughtered Cattle in Meshkinshahr Abattoir. *Am. J. Anim. Vet. Sci.*, 6(3): 121-124.
- Karshima NS, Pam VA, Bobbo AA, Obalisa A (2013). Occurrence of *Cysticercus bovis* in Cattle Slaughtered at the Ibi Slaughter House, Ibi Local Government Area of Taraba State, Nigeria. *J. Vet. Adv.*, 3(3): 130-134.
- Nuraddis I, Frew Z (2012). Prevalence of *Tania Saginata* Cysticercosis in Cattle Slaughtered in Addis Ababa Municipal Abattoir, Ethiopia. *Global Veterinaria* 8 (5): 467-471.

WHO (World Health Organization), OIE (World Organisation for Animal Health) and FAO (Food and Agriculture Organization) (2005). Guidelines for the surveillance, prevention and control of taeniasis/cysticercosis. OIE, 12, rue de Prony, 75017 Paris, France

Wanzala, W., Onyango-Abuje, J.A., Kang'ethe, E.K., Zessin, K.H., Kyule, N.M., Baumann, M.P.O., Ochanda, H. and Harrison, L.J.S., 2003. Control of *T. saginata* by post-mortem examination of carcasses. *Afr. Hlth. Sci.*, 3, 68–76

Edem DO and Usuh IF (2009). Biochemical changes in wistar rats on oral doses of mistletoe (*Loranthus micranthus*). *Am. J. Pharmacol. Toxicol.*, 4: 94-97.

Abunna F, Tilahun G, Megersa B, Regassa A (2007). Taeniasis and its socio-economic implication in Awassa town and its surroundings, southern Ethiopia. *East Afr. J. Public Health* 4(2): 73-79

Dorny P, Praet N 2007. Taeniasaginata in Europe. *Vet Parasitol*, 149: 22–24.

Kebede N, Tilahun G, Hailu A 2009. Current status of bovine cysticercosis of slaughtered cattle in Addis Ababa Abattoir, Ethiopia. *Trop Anim Health Prod*, 41: 291–294.

Ministry of Agriculture (MoA), 1972. Meat Inspection Regulations. Legal Notice No-428.

NegaritGazeta. Addis Ababa, Ethiopia.

Anonymous, 2000. Opinion of the Scientific Committee on Veterinary measures relating to Public Health on the control of taeniosis/cysticercosis in man and animals

(adopted on 27-28 September, 2000). European Commission, Health and Consumer Protection Directorate-General, Directorate C-Scientific opinions, C3-Management of Scientific Committees II, Scientific co-operation and networks download ([http://ec.europa.eu/food/fs/sc/scv/out21\\_en.pdf](http://ec.europa.eu/food/fs/sc/scv/out21_en.pdf))

Dorny, P., Vercammen, F., Brandt, J., Vansteenkiste, W., Berkvens, D. and Geerts, S., 2000. Sero-epidemiological study of *T. saginata* cysticercosis in Belgian cattle. *Vet.*

*Parasitol.*, 88, 43–49

Volmer J. & Semler P. (1979). — Ein toedlichverlaufene Bandwurmerkrankung (*Taenia saginata*). *Zeit. Gastroenterolog*, 17, 79-82.

Kern P. & Pawlowski Z.S (2002). - Clinical Methods in Taeniosis, Cysticercosis and Echinococcosis in Humans. In *Cestode Zoonoses: Echinococcosis and Cysticercosis*. An

Emergent and Global Problem, (P. Craig & Z. Pawlowski, eds) *NATO Science Series Series I: Life and Behavioural Sciences*. IOS Press Amsterdam, **341**, 117-121).

Roberts T., Murrell K.D. & Marks S. (1994). - Economic losses caused by foodborne parasitic diseases. *Parasitol. Today*, **10**, 419-423.

Pawlowski ZS, Schuitz MG (1972) Taeniasis and cysticercosis (*Taeniasaginata*). *Adv Parasitol* 10: 269-343.

(Fan PC ,1997). Annual economic losses caused by *Taeniasaginata* taeniasis in East Asia. *Parasitol Today* 13: 194-196.)

[Grundle RG (1978) Economic loss resulting from bovine cysticercosis with special reference to Botswana and Kenya. *Tropical Animal Health and Production* 10: 127-140.)

Nuradis, I. and Frew, Z. (2012): Prevalence of *Taeniasaginata* Cysticercosis in cattle slaughtered in

Addis Abeba municipal abattoir, Ethiopia Jimma University, School of Veterinary Medicine, *Global veterinarian* **8**: 467 -471.

Ngwu, G., Ohaegbula, A. and Okafar, F. (2004): Prevalence of *Faciolagigantica*, *Cysticercus bovis* and some other disease conditions of cattle slaughtered in Nsukka urban abattoir, *Animal research international* **1**: 7 – 11.

Gracey, F., Collins, S. and Hvey, J. (1999): Meat hygiene 10th ed. Part 2, Harcourt Brace and company, London, pp. 400- 401. Gracey, F., Collins, S. and Hvey, J. (1999): Meat hygiene 10th ed. Part 2, Harcourt Brace and company, London, pp. 400- 401.

Wanzala W, Onyango AG, Kang KE, Zessin HK, Kyule MN, et al. (2003) Control of *Taeniasaginata* by post-mortem examination of carcasses. *Afr Health Sci* **3**: 68-76