

# A Review On Bovine Cysticercosis In Ethiopia

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## Abstract

The prevalence reports of cysticercosis in Ethiopia showed variable results with localities ranging from 3.1% in Central Ethiopia to 30% from different abattoirs in the country. Infection with the cysticercus in cattle causes economic loss in the beef industry, while taeniasis is causing a public health problem. The presence of bovine cysticercosis in Ethiopia is well established and reports from different parts of the country also proof this fact. Further in detail studies on prevalence, molecular characterization and public health importance of bovine cysticercosis is required to establish clear epidemiological pictures, prevalence and public importance of the disease.

## INTRODUCTION

Bovine cysticercosis /*T. saginata*, refers to the infection of cattle with metacestodes of the human tapeworm (Radostits et al., 1994; Oladele et al., 2004). Ingested eggs develop into cysticerci, which can often be detected during meat inspection at the routinely inspected localization sites of the parasite, including heart, skeletal muscle and diaphragm (Gracey and Collins, 1992). Differences in geographical isolates of the parasite and in the breed and age of cattle have been suggested as possible factors affecting the distribution of *C. bovis* (Pawlowsk and Murrell, 2001; Gracey and Collins, 1992.).

The World Health Organization (WHO, 1983) has classified the prevalence of *Taenia saginata* in three different groups: highly endemic countries or regions with their presence in human population above 10%; moderate prevalence with infection rate between 0.1 and 10%; low prevalence with infection rate below 0.1% or the total absence of the endemic organism. According to WHO classification, South American countries are included among the moderate prevalence of *Taenia saginata*. According to Over et al. (1992), *T. saginata* metacestode infections in cattle have been reported with higher prevalence from Senegal (20%), Nigeria (0.2-9%), Cameroon (7.2%), Tanzania (0-27%) and Kenya (38-62%). On the other hand, prevalence is very low in developed countries, such as 0.48-1.08% in Germany (Abuseir et al., 2006). Regardless of such low prevalence, the problem with the removal and treatment facilities in their sewage system plays role in the distribution of eggs in some developed countries (Fralova, 1985) as eggs can survive in

sewage (Arundel and Adolph, 1980).

Taeniasis caused by *T. saginata* is a well-known disease in Ethiopia with prevalence ranging from 10% to 70% (Mamo, 1988). The prevalence reports of cysticercosis in Ethiopia showed variable results with localities. Relatively lower prevalence of 3.1% in Central Ethiopia (Tembo, 2001), 4.9% at Gonder (Dawit, 2004) and 7.5% in Addis Ababa (Nigatu, 2004) were reported, while others reported as high as 17.5% in East Shoa (Hailu, 2005), 21% at Nekemt (Ahmed, 1990), 26.25% at Awassa (Abunna et al., 2007) and 30% (Hailemariam, 1980) from different abattoirs in the country. Hence, bovine Cysticercosis is an important public health and economic problems caused by its consequence on public health, nutrition and economy of some countries (Wanzala et al., 2003a, b). Therefore, the objectives of this paper is to review the prevalence of bovine cysticercosis and its public health impact in Ethiopia

## STATUS OF CYSTICERCOSIS IN ETHIOPIA

In Ethiopia, the rural communities mainly raise cattle under extensive husbandry practices. Existence of higher population density, raw meat consumption, low awareness, poor hygiene and sanitary infrastructures may facilitate transmission of the disease between animals and human beings in the rural areas. The prevalence reports of cysticercosis in Ethiopia showed variable results with localities. Relatively lower prevalence of 3.1% in Central Ethiopia (Tembo, 2001), 4.9% at Gondor (Dawit, 2004) and 7.5% in Addis Ababa (Nigatu, 2004) were reported. A prevalence of 5.9% out of 996 examined animals at slaughter

at Asmara (Fuad Mohamed, 1986); 9.7% out of 1168 at Gonder meat factory (Amsalu, 1989) have been recorded; while others reported as high as 17.5% in East Shoa (Hailu, 2005), 21% at Nekemt (Ahmed, 1990), 26.25% at Awassa (Abunna et al., 2007) and 30% from different abattoirs in the country (Hailemariam, 1980) (Table 1).

**Figure 1**

Table 1: prevalence of cysticercosis in Ethiopia

years	Area	Number of animals examined	Prevalence in %	Reference
1980	different abattoirs in the country		30%*	(Hailemariam, 1980)
1986	Asmara	996	58 (5.9%)	Fuad, 1986
1989	Gonder	1168	133 (9.7%)	Amsalu, 1989
1990	Debrezeit	2022	279 (13.8%)	Getachew, 1990
1990	Nekemt		21%*	(Ahmed, 1990)
2001	Central Ethiopia	2,250	70 (3.1%)	(Tembo, 2001)
2004	at Gonder		4.9%*	(Dawit, 2004)
2004	Addis Ababa	743	56 (7.5%)	(Nigatu, 2004)
2005	in East Shoa	1292	252 (19.5%)	(Hailu, 2005)
2007	at Awassa	400	105 (26.25%)	(Abunna et al., 2007)
2009	Jimma	512	15 (2.93%)	(Tolosa et al., 2009)

\* Data were only available in percentages

## Conclusion and recommendation

*T. saginata* is a medically and economically important cestode parasite. The presence of bovine cysticercosis in Ethiopia is well established and reports from different parts of the country also proof this fact. Infection with the cysticercus in cattle causes economic loss in the beef industry, while taeniasis is causing a public health problem. Even if study showed the existence of lower prevalence of cysticercosis, there is deep-rooted tradition of raw meat consumption which magnifies the public health hazards of taeniasis in Ethiopia. Even most of well conscious professionals (veterinarians and medical professionals) themselves often consume raw meat due to deep-rooted tradition inherited from parents. Therefore, attention must be given to routine meat inspection, public awareness on improving personal and environmental hygiene and teaching school children on the danger of raw meat consumption is a reliable means of bringing cultural change in the country. Further studies on prevalence and public health importance of bovine cysticercosis should be encouraged to establish clear epidemiological pictures, prevalence and economic importance of the disease.

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