Bovine Cysticercus in and Around Anchar Woreda
West Hararghe, Oromia, Ethiopia

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Abstract
Bovine cysticercosis is economically critical and important parasitic disease due to elegance cestoda, order cyclophyllidea, family taeniidae. Across-sectional survey turned into undertaken with inside the slaughterhouse to look at of the cysticercos bovis in cattle originated from one-of-a-kind localities and to determine the cyst circus bovis in addition to distribution in different organs within infected animals in anchar slaughterhouse. Out of the entire 384 cattle slaughtered and tested at anchar slaughterhouse, seventy nine animals (20.57%) should be positive for C. bovis 20.57% infection. Predilection sites for C. bovis had been observed, and their comparative infestation rates had been recorded. As an end result of this study, highly cysts had been observed on tongue muscle (39.39%) observed through masseter muscle (20.40%) and shoulder muscle (10.41%). The incidence of C. bovis turned into additionally studied primarily based totally at the geographical places of slaughtered livestock. Accordingly, Cattle in which come from low lands and high lands had been confirmed an incidence of 22.58% and 19.04%. In conclusion, C. bovis is time-honored and is one of the predominant parasitic diseases that reasons massive carcass condemnation of slaughter animals and poses high monetary lose with inside the socio-economic system of the look at area. Thus, public fitness attention ought to be created on enhancing private and environmental hygiene for breaking the life cycle of the disease.

Keywords: Cysticercus Bovis; Slaughterhouse; Ethiopia.


Livestock is vitally essential agricultural commodity in growing international locations of the world. They are reared below a extensive style of production machine ranging massive scale extensive business companies to traditional stall holders and village manufacturing machine maximum of the growing international locations of the world lie with inside the limits of the tropics of most cancers and Capricorn, particularly the tropics and sub tropics areas of the world. It is right here that the issues of helminthes parasites are unquestionable, much greater than in countries of the extra temperate areas. The surroundings with inside the tropics is favorable constantly at some stage in the 12 months for the free-living levels of the parasite to hatch and develop.[43]

Animal production is critical, a part of the rural region of Ethiopian economy. The farm animals’ population of the country is the biggest in Africa. However, manufacturing is properly under capability due among different reasons to the manufacturing is properly under capability due amongst different motives to the terrible fitness reputation of the country wide herd.[36]

Livestock diseases are extensively allotted and one of the primary reasons of farm animals’ mortality, and sub most reliable productiveness in all agro-ecological zones of the country[16] is diminishing the advantages in their excessive reproductive performance. The productiveness losses attributed to helminthes parasite in Ethiopia are considerable. Ethiopia has the biggest farm animals’ population in Africa with an intended of 44,318,877 farm animals, 23,619,720 sheep and 23,325,113 of goats[10].

Ruminant farm animals are critical reassess of earnings for rural groups and are one of the nation’s primary re assets of overseas forex from export[20]. However, this incredible capability isn’t always well exploited because of terrible nutrition, in good enough sickness and parasite control, terrible management, low genetic manufacturing capability of indigenous animals, scarcity of skilled manpower and absence of governmental policies[19, and mub,1993][52].

Parasitic and infectious animal illnesses which can be endem ic or not unusual place withinside the place motives a whole lot of tremendous unfavorable monetary consequences. Parasitism represents primary disadvantage on farm animals manufacturing in tropics[ogunrinade and adogoke,1982] diverse research were performed via slaughterhouse indicated parasitic instances together with hydatidosis, fasciolosis and cysticercosis which impose direct and oblique monetary losses on farm animals mainly in farm animals and sheep (Dendin, 2007).

The highly affected organ because of fasciolosis, hydatidosis and cysticercosis are liver, lung, and hearts respectively. In addition to monetary losses, some other measurement is introduced through the reality that numerous helminthes’ infections might be zoonotic to human. Cysticercosis is due to cysticerus bovis that’s the larval level of taenia saginata which boom 3-7m in duration and lives with inside the gut of human. Cattle have become inflamed through grazing on floor and through ingestion of feed infected through human feces. The oncosphere liberated withinside the gut from the egg penetrates the intestinal wall and thru the lymphatic and blood streams reaches the skeletal muscle and hear: In the muscle, oncosphere develops in to the intermediate cysticerus level containing the scolex. The predilection site of cysticerceoros bovis is masseter muscle, tongue, heart, and diaphragm. If ingested through human (the very last host) the scolex attaches it to the intestinal wall-and tapeworm grew and matured [Herenda et al., 1994].

the number one purpose of slaughtered house is to provide healthful meat, entire a few and smooth produce that are secure for human consumption[43]. Bovine cysticerus is a muscular contamination of farm animals and is due to larvae of the human intestinal cestode taenia saginata. Its lifestyles cycle is absolutely depending on the hyperlink among guy and farm animals in order that any spoil on this hyperlink can bring about the entire removal of the parasite. Tape worm virus infections were recorded in records from 1500 BC and were diagnosed as one of the earliest human parasites [48].

Cyst of C. bovis may be discovered everywhere with inside the carcass or meat and viscera[11]. the distribution of T. saginata is wider in growing international locations in which hygienic situations are bad and in which the in inhabitants historically devour uncooked meat or insufficiently cooked meat [25][WHO,2015]. Forty percent (40%) of the cases became suggested in africa [fan,2006];[25].

Researchers suggested that those sicknesses being very not unusual place in growing international locations like Ethiopia. It is related to bad hygiene and neighborhood elements which include cultural background, (consuming uncooked meat Kitfo> semi cooked meat) monetary situation and non-secular beliefs, proximity of people to farm animals stored with very little difference amongst partner or application functions [25]. Slaughtering is frequently achieved in outdoors in absence of slaughterhouse [25]. Transmission of the parasite happens maximum normally with inside the surroundings characterized through bad sanitation, primitive cattle husbandry exercise and in ok meat inspection, management, and manage police[35].

Besides, slaughtered residence affords records at the epidemiology of sicknesses on cattle, to kwon to what volume the public is uncovered to positive zoonotic sicknesses and to estimate economic losses in passed off thru condemnation of affected organs and carcasses [jibat et al---2008]. Ante-mortem inspection tries to keep away from advent of clinically diseased animals into the slaughterhouse and serves to acquire records so one can be beneficial in making sound autopsy inspection. Nevertheless, right assessment of the monetary losses because of predominant reasons of organ condemnation in distinctive species of animals withinside the international locations of relevance in which monetary realities frequently decide the kind and scope of manage measures to be established (Van long, 1993; Herenda et al, 1994; teka, 1997).

Therefore, the objectives of this research study were:

- To identify the major parasitic disease that causes organ condemnation.
- To estimate direct economic losses due to organ condemned.

**Material and method**

**Study area**

The study was conducted from April 2017 to end of November 5, 2017 in the west hararghe zone of Oromia regional state of eastern parts of Ethiopia in and around Anchar district which is about 310 km far away from Addis Ababa city as information gained from Anchar Agricultural office (2016) geographi-
From the total occurrence out of 384 cattle in which examined, in and around Anchar, about 20.46% cattle were positive of C. bovis and among them are positive for cysticercus bovis (Table 4). From the total number of 384 cattle that randomly selected for examination, 203 of them were poor body condition cattle and 181 of them were examined good body condition cattle about 77(42.30%) of them were positive for C. bovis with an general prevalence of 79 (20.46%).

From the 203 examined poor body candy condition cattle about 20(0.98%) cattle were positive of C. bovis and among the 181 examined good body condition cattle about 77(42.30%) cattle were positive of C. bovis (Table 5).

Presence of cysticercus bovis in different parts of organs of cattle muscles shoulders, tongue muscle; masseter muscle, heart and liver were examined. The predilection site of cysticercus bovis from total 386 cattle were examined at Anchar slaughterhouse (Table 2)

Figure 1: Relative percentage among the positive value (%).

<table>
<thead>
<tr>
<th>Site of examined</th>
<th>No of examined cattle</th>
<th>No of positive</th>
<th>No of prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder muscle</td>
<td>96</td>
<td>10</td>
<td>10.4%</td>
</tr>
<tr>
<td>Tongue muscle</td>
<td>99</td>
<td>39</td>
<td>39.39%</td>
</tr>
<tr>
<td>Master muscle</td>
<td>98</td>
<td>20</td>
<td>20.4%</td>
</tr>
<tr>
<td>Liver</td>
<td>91</td>
<td>10</td>
<td>10.75%</td>
</tr>
<tr>
<td>Tongue muscle</td>
<td>384</td>
<td>79</td>
<td>20.57%</td>
</tr>
</tbody>
</table>

Figure 2: Presence of cysticercus bovis different predilection site of examined cattle carcass.

<table>
<thead>
<tr>
<th>Age</th>
<th>No of examined cattle</th>
<th>No of positive</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young</td>
<td>154</td>
<td>8</td>
<td>5.16%</td>
</tr>
<tr>
<td>Adult</td>
<td>230</td>
<td>71</td>
<td>30.73%</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>79</td>
<td>20.57%</td>
</tr>
</tbody>
</table>
The current study showed that, from 384 fecal sample analyzed 79[20.57%] found to be positive using sedimentation technique as diagnostic method which represent of bovine C.bovis in and around Anchar woreda. In the previous studies indifferent part of Ethiopia [21].

A previes study done on cestodes and Meta cestodes of sheeps in sheno agricultural research center [SHARC], Northern shoa, AAU, Debrezet Ethiopia. The study made by [13]. This is probably due to the variations withinside the reports of meat inspectors in addition to variation in veterinary employment deliveries and peoples. Creations of awareness at the prevention of this sickness in extraordinary localities. Furthermore, with inside the habitual examination of red meat carcasses, there has been reasonable problem to the degree of incision allowable for gross injury that reduced the marketplace capability of this carcass due to that many infestations remained undetected.

Within Ethiopia, numerous research and reviews revealed that the rate of infestation of farm animals via way of means of C.bovis turned into extraordinary and more than the current day study in diverse agro-ecological zones, [37]. A study in Debrezet Elfora export abattoir said 22.75% [24] in Hawasa municipal abattoir said 26.25%; [31] in Eastern shoa said 17.5%, [3] in Nekemte town municipal abattoir said 21%, [27] in Debrezet abattoir said 13.8%. lake smart in extraordinary African countries the prevalence is higher: 20% in senegal,27% in Tanzania, and 38% in kenya, [30]. on this study, the evaluation of prevalence of C.bovis primarily based totally at the starting place of cattle highland and low land were completed and amongst the ones animals submitted to the abattoir and inspected, 231 farm animals [19.04%] have been from highlands and the closing 155 farm animals [22.58%] have been from lowlands. the price of C.bovis incidence with inside the highland animals 19.04% and with inside the lowland farm animals have been 22.58%.

The difference with inside the rate of prevalence in different altitudes is probably associated with the less resistivity of the egg of the parasites of tape worm ova to live on in the cold grazing environmental situations of highlands area for longer periods. C.bovis is in general located in muscle of mastication, especially tongue, shoulder muscle, diaphragm, heart, masseter muscle, and sometimes in fats liver, lungs, and lymph nodes. Even so, with inside the present study, cysts have been founds on parts shoulder [10.4%], masseter [20.4%] and tongue [39.39%]. From numerous reviews, change and deviation of this cysts localization have been pretty feasible for instance, abattoir found in Addis ababa city , the contamination rate of Cysticercus bovis became as high as 16.3% in for leg. A few reviews from shoa Oromia nearby country confirmed 4.7% in liver and 0.7% in lungs [14]. On the alternative hand, [5,31] indicated that exam of the tongue became the only manner of detection for bovine cystercerosis.

The essential purpose of heart rejection on this study became cysti cercus bovis [10%] that is incredibly better than research by [7] Amen et al. 2012 they said 0.8%and 0.22%, respectively and it became lower than record by [6] in cattle that slaughtered from Tigray. The general direct economic loss happened because of condemnation of organs in active slaughtering house examination with inside the present study became 68,250.00 Ethiopia birr [341.25 USD when IUSD =20 ETB]. This became better than report from Gonder Elfora abattoir 18,973.2ETB became said by Yifat et al., [2011], 24340ETB said from wolaita sodo town municipal abattoir by Fufa and Debele, 2013 and 39,490.00 ETB have been said Gondar by [Genet et al., 2012] and decrease than the document from Jimma municipal abattoirs ,172,664.09 ETB through [Amen et al., 2012]. Higher competitively priced loss on this study became encountered in C.bovis which account 4200 ETB.

Conclusions and recommendations

This study was conducted on the cysticercus bovis in west harargeh zone of oromia reginal state in and around Anchar woreda showed that prevalence of 20.57%. The cysticercus bovis extensive distribution is related with several features including under cooked and raw beef consumption, bush defecation’s and sewage treatment system andpoor waste disposal, decreased level of public awareness existence of traditional slaughtering practices. Hence, it is possible to conclude that cysticercus bovis is some prevalent disease in the study area. As compare with above different area study. However, the disease needs attention both from livestock owner and veterinarian in the light of present study. Finally, the following recommendations are forwarded:

- Backyard slaughtering of animals should be prohibited through designing and re in forcing of legislation, construction of slaughterhouses which fulfill the necessary facilities and implementation of proper meat inspection services.
- Improve awareness creations of animals follower, abattoir workers and consumers, about the public health significance and its economic importance of the continuous life cycles of this and other involved parasites.
- Educating consumers’ Public health importance to avoid or stop eating of raw meat should be carried on.
- All of the condemned body parts should be disposed carefully, cats and stray dogs should be prohibited from slaughtering house and their numbers should be scientifically decreased.
- Proper and detail meat inspections and examinations at the slaughterhouse should be having to done for further public health importance.
- The management system of Cattles and animals treatment with anti-helminthes drugs should done.
Combination of control measures including drainage, grazing area management should be used to guarantee satisfactory degree of control of thus parasites in the long run

Further investigations on the epidemiology of the diseases and ecology of the snail intermediate hosts should be useful in the planning and programming control measures strategies.

Training should be offered to slaughterhouses workers on the over consideration in due course of production, the condemned organs should be incinerated.

Finally, the farmers and any stakeholders should be educated and informed well about the information’s of this disease control programs and proper management system.

References

2. Ahmadi NA, Meshkhekar M. An abattoir based study on the prevalence and Economic Losses due to cystic echinococcosis inslaughtered herbivores in Ahwaz, South-West Iran; 2011.
26. Gebru-Emanuuel T. Food hygiene. principles and methods of food borne diseases control with special References to Ethiopia. Faculty of medicine, Department of community Health, Arab Association of Urology; 1987.

35. Mann I. Environmental, hygiene and sanitation’s based on the concept Tropics. 1983: 36.


37. Natnael T. Prevalence’s and Economic Importance’s of cysticercosis bovis in DebreZeit Elfora Export abattoir [DVM thesis], JUCAVM; 2014.


43. Manual on meat inspection for developing countries. FAO manual. “FAO prevention of food losses programmers”.


