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Retrospective Study of *Cysticercus Bovis* and the Associated Zoonotic Risk Factors in Kajiado County, Kenya

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Abstract:
Bovine cysticercosis is a common zoonosis whose epidemiology is estimated at 50 million cases of infestation worldwide with economic losses from condemned and downgraded carcasses in Kenya amounting to £1.0 million by 2003. A retrospective study was conducted in Kajiado County, Kenya from January 2013 to December 2015 to determine the prevalence of Cysticercus bovis in the County and the associated zoonotic factors. Data on cases of bovine cysticercosis was extracted from monthly meat inspection reports of the County Director Ministry of Agriculture, Livestock and Fisheries from January 2013 to December 2015 and entered in excel spreadsheets. One sub-location was picked per a sub-county and a total of 91 households were sampled for a questionnaire interview according to Bebe et al., 2000. Prevalence rates were analyzed using descriptive statistics, while the Chi-square was used to analyze the association of the zoonotic factors with the cases of bovine cysticercosis. The mean of bovine cysticercosis obtained from the retrospective study was 150.9 with a P-value of 0.000 which is less than the 0.05 significant levels. Zoonotic factors investigated showed a positive association with the prevalence of bovine cysticercosis e.g. availability of toilets, source of water and its treatment, backyard slaughters and meat inspection had a P value of 0.000. The study showed that bovine cysticercosis is prevalent in Kajiado County and there were factors exposing the residents to this zoonotic infection. Public awareness on spread and implication of this zoonosis is important and also emphasis on hygiene is of necessity.

Keywords: *Bovine cysticercosis, Cysticercus bovis, Kajiado, Zoonotic*

1. Introduction

Zoonoses have important impacts on public health and livestock economies representing 61% of all infections known to be pathogenic to humans, (Desta, 2016). These diseases are massively misdiagnosed and underreported but impose a dual burden on human and animals. They affect poor and marginalized people in developing countries who live in close contact with animals, often in unsanitary conditions, where health services coverage is inadequate, (Schelling *et al.,* 2007). Transmission as a result of contact with an infected animal/ host represents a direct mode of transmission, whereas infection as a result of contact with a vector or vehicle is an indirect mode, (Kahn, 2006). Transmission of pathogens from livestock to pastoralists may occur through consumption of raw milk and meat or through contact, (Taylor *et al*., 2001). Proximity to animals, food consumption behavior, problems related to milk and meat contamination, inadequate supply of treatment drugs, harsh environment, and socioeconomic and cultural practices contribute to the morbidity of zoonoses, (Megersa *et al*., 2010). Bovine cysticercosis, caused by the metacestodes of *T. saginata*, is one such zoonosis, a cosmopolitan disease occurring in industrialized as well as developing countries, (Dorny *et al.,* 2009).

Globally, there are 77 million human carriers of which 40% live in Africa. In developed countries, even if the disease has very low prevalence, the problem with the removal and treatment facilities in their sewages system plays a great role in the distribution of eggs which can survive longer in sewages, (Gracy *et al.,*1999). In France, however, it was estimated that one undetected carcass could potentially infect between eight and 20 humans, (Dupuy *et al.,* 2014). It's one of the major food borne pathogens that should be monitored to protect human health and affects the muscles and some viscera organs of cattle, (Abuseir *et al.,* 2006). It has a worldwide distribution and the prevalence is low in developed countries, being less than 1% in inspected carcasses and very common in Africa reaching a level of 30-36% in Kenya, 20% in Guinea, 18% in Sierra Leone and 20% in Cameroon, (Gebreab, 1995). The available data on the presence of *C. bovis* in cattle determined by traditional meat inspection indicate a diversity in prevalence (from 0.43 % to