

Risk factors of porcine cysticercosis, suitable management practice, and epilepsy survey in human at Ibadan, Oyo state

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Aim

This work aimed to study the prevalence and management of porcine cysticercosis in Pigs in Ibadan, Oyo.

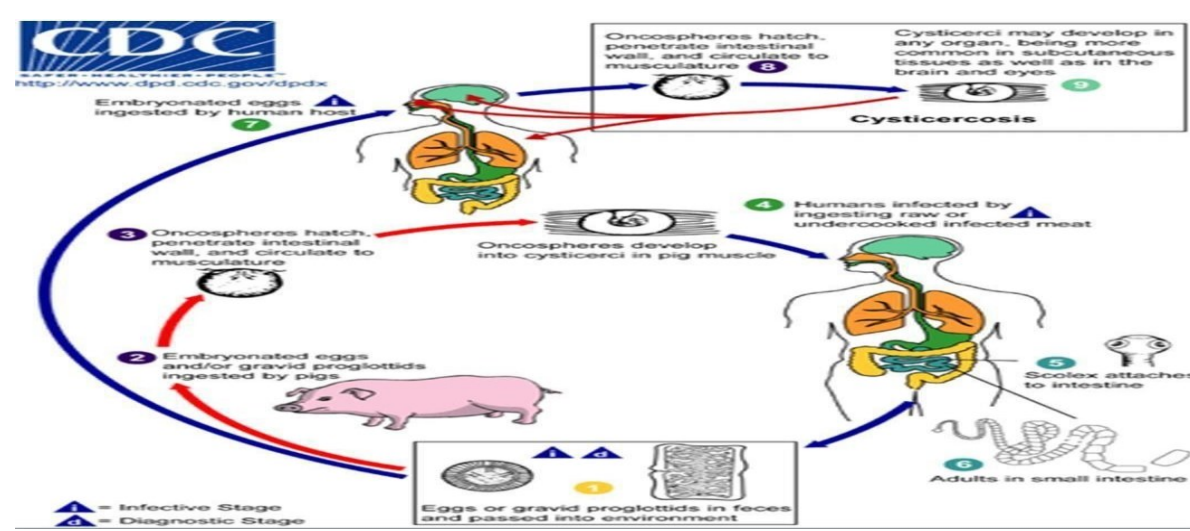


Figure 1: Life cycle of *Taenia solium*

Introduction

- *Taenia solium* is a pig-borne parasitic zoonotic disease and a significant public health concern in Africa (Sub-Saharan Africa) and is caused by the larval stage form distinctive pearly-white cysts (cysticerci)
- It could be embedded in the tissues of pigs and transmitted through the ingestion of undercooked or raw pork and through the fecal-oral route or contaminated hands through the surface of vegetables and by eating undercooked dog meat
- Humans can act as both intermediate and definitive hosts, and cysts can develop subcutaneously, intramuscularly, and occasionally in the central nervous system, causing neurocysticercosis leading to epilepsy
- The global burden of epilepsy was estimated at 7.8 million, with 6.5 million of these occurring in *T. solium* endemic regions of the world like Africa, India, and Latin America and at least 2.5 million carriers of taeniasis in the world
- Porcine cysticercosis is a neglected tropical disease (NTDs) and is not part of the 2030 road map to eliminate NTDs. Also, there are insufficient data on the prevalence of Porcine cysticercosis in Nigeria
- Cysts in the tissue (Taeniasis) could be diagnosed using lingual palpation, screening fresh fecal sample and Immunological assays, while cysticercosis (Cyst located at the CNS) could be diagnosed with Computed tomography (CT) and magnetic resonance imaging (MRI) scan in Human

Methodology

- Four Local government areas were visited: Local farms and a slaughterhouse.
- Pigs' species were grouped: exotic and Local species.
- A control site was chosen based on the description of good management practice in the literature
- 5g of fresh fecal samples were collected with a sample size of 240. Only pigs above the age of three months were considered in the study.
- Samples collected were preserved in ethanol and analyzed in the laboratory within 72 hours
- Ethyl-acetate sedimentation techniques and wet preparation was used to screen cyst in the laboratory
- Iodine stain was used to enhance cysts/ova/eggs features.
- Identification of cysts/ova/eggs was made by taking photos directly from the microscope
- Farmers and community members are given questionnaires.
- Qualitative data was collected from interviews and testimony of community members who are shy to admit the occurrence of epilepsy.

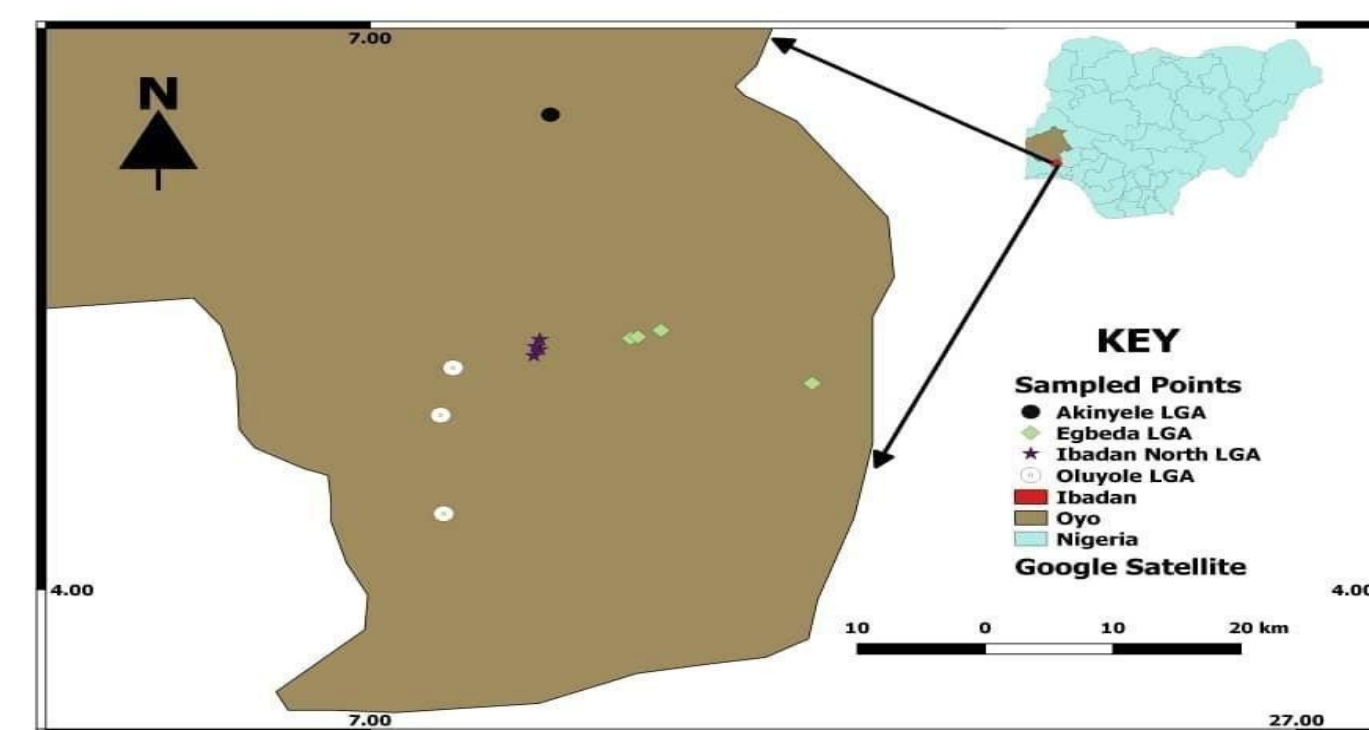


Figure 2: Map of Studying Areas

Results

- 240 overall samples collected and analyzed for the Cyst of *T. solium* (figure 3) in the laboratory with a prevalence of 3.3% was recorded
- Several parasites were found in the study: The prevalence of *Ascaris suum* is higher from the study (7.8 %), while the prevalence status of *Rhabditae* cyst and *Trichuris* spp are the lowest in the survey (0.2 %), and the total parasite prevalence in the study is 33%

Figure 3: *T. solium* cyst in kidney

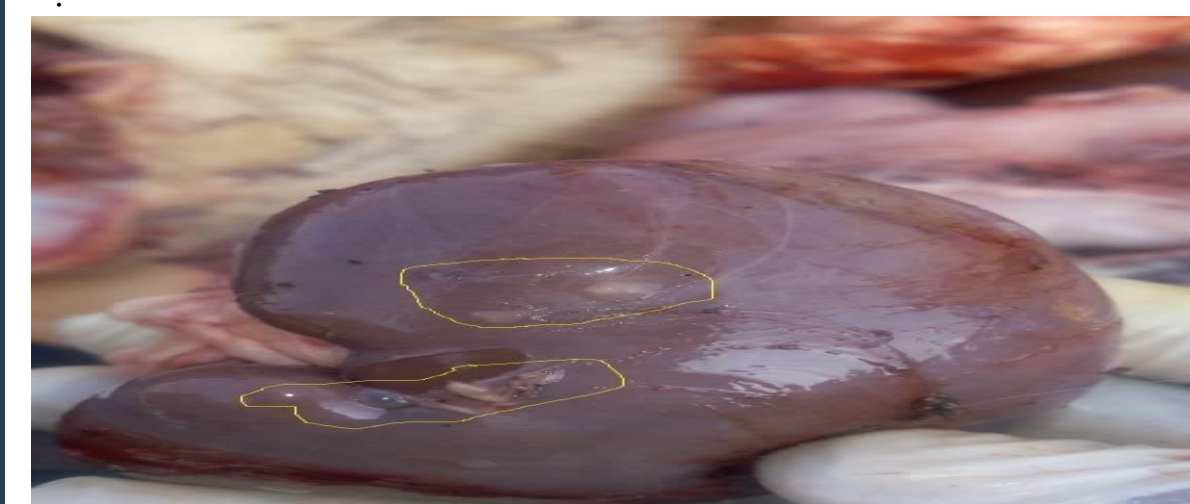


Figure 4: *T. Solium* Cyst in fecal laboratory sample



Discussion

- Risk factors include: poor management practices (free range of pig), inaccessible to quality water, open defecation, and improper management of farm fecal matter
- vegetables claimed by local farmers to treat pig against parasite includes: *Carica papaya*, *Corchorus olitorius*, *Musa* spp, *Jatropha tajorensis*, *Moringa oleifera*, *Talinum triangulare*, *Thaumatococcus daniellii*, *Morinda lucida*, *Azadirachta indica*, *Chromolaena odorata* and *Neubouldia laevis*
- Areas of epilepsy occurrence coincide with the LGA with a higher prevalence of *T. solium*
- Exotic species are more susceptible to *T. Solium*

Conclusion

- It was found that the prevalence of *T. solium* in the study is 3.3%, management practice, Source of water, and types of toilet facilities are the risk factors that aid transmission of porcine cysticercosis.

Recommendation

Pig farmers should be discouraged from citing a piggery farm within a human settlement. The activities of farmers should be closely monitored for proper management and administration of a vaccine to the Pig.

Reference

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