Causative agent of tuberculosis pdf

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REGULAR ARTICLES

Prevalence study on bovine tuberculosis and molecular characterization of its causative agents in cattle slaughtered at Addis Ababa municipal abattoir, Central Ethiopia

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Abstract A cross-sectional study was conducted on 500 cattle slaughtered at Addis Ababa abattoir to determine the prevalence of bovine tuberculosis (BTB) and characterize its causative agents. Postmortem examination, mycobacteriological culturing, region of difference-4 (RD4)-based PCR and spoligotyping were applied. The prevalence of BTB was 5 % on the basis of postmortem inspection alone but 1.2 % based on molecular confirmation. Factors including age, sex, and breed showed statistically significant association with BTB ($p<0.05$). Gross lesions were observed most freqaently (68 %) in the lungs and lung-associated lymph nodes compared to other organs and lymph nodes. Of the 25 grossly suspicious TB lesions processed and cultured, only six (24 %) were culture-positive, yielding *Mycobacterium bovis* confirmed by RD4 deletion typing. Further characterization of the six *M. bovis* isolates at the strain level by using spoligotyping revealed that one did not belong to any previously known type, while the others belonged to types SB1176 (two), SB1477 (two), and SB0133 (one). The new strain was submitted to the international *M. Bovis*.org database for international code designation. The study confirms the considerable prevalence of bovine tuberculosis in cattle slaughtered at Addis Ababa abattoir and highlights the need for control of bovine tuberculosis in the country.

Keywords Addis Ababa · Bovine tuberculosis · Prevalence · Postmortem · Culture · PCR · Spoligotyping

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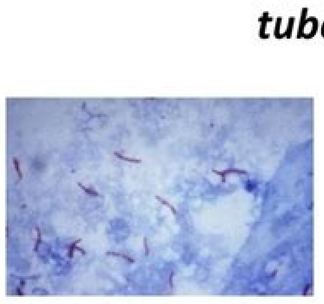
Introduction

Tuberculosis in mammals is caused by mycobacteria belonging to the *Mycobacterium tuberculosis* complex, with *M. tuberculosis* being the most common cause of tuberculosis in humans, whereas bovine tuberculosis (BTB) is caused by *Mycobacterium bovis* (Inangolet et al. 2008). BTB is a principal zoonotic problem, transmitted to human primarily through consumption of raw meat, milk, and other products obtained from infected cattle and/or occasionally by the respiratory route (Bilal et al. 2010).

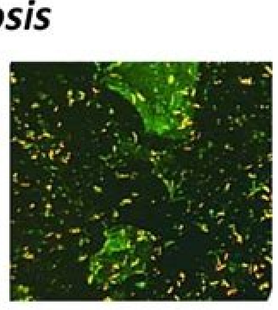
Most species of domestic and wild animals are susceptible to *M. bovis*, with cattle, goats, and pigs being most susceptible, and sheep and horse having high natural resistance (Radostits et al. 2007). Infected cattle are the main sources of infection for other cattle. Organisms are excreted in the exhaled air, in sputum, feces (from both intestinal lesions and swallowed sputum from pulmonary lesions), milk, urine, vaginal and uterine discharges, and discharges from open peripheral lymph nodes (Baran and Steele 1994). The close contact between the owners and his animals could facilitate the transmission of the disease (Kleeberg 1984). It is estimated that, in countries where pasteurization of milk is rare and bovine TB in cattle is common, 10–15 % in human cases of TB are caused by *M. bovis* (Ashford et al. 2001).

Following the introduction of milk pasteurization as well as large-scale test and slaughter programs in cattle, the

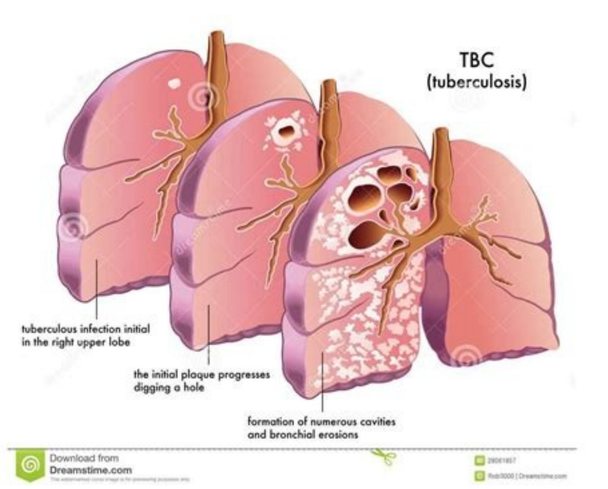
Microscopy of Mycobacterium tuberculosis



Mycobacterium tuberculosis visualization using the Ziehl–Neelsen stain.



Fluorescent microscopy of *Mycobacterium tuberculosis*



Causative agent of tuberculosis and leprosy. Causative agent of tuberculosis of lungs. Causative agent of tuberculosis disease. Causative agent of tuberculosis in animals. Causative agent of tuberculosis class 9. Causative agent of tuberculosis in man. Causative agent of tuberculosis pdf. Causative agent of tuberculosis slideshare.

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[PMC free article] [PubMed] [Google Scholar]Page 2Lymph node involvement and initial speciation of mycobacteria by PCR with primers for the 85a, 85b, and pncA genes in FNAs from 40 patients with a combined clinical and cytological diagnosis of TBLNSite (no. of patients)No. (%) of patients whose isolates were positive by PCR amplification for: M. tuberculosisM. bovisCoamplified M. tuberculosis and M. bovisCervical (30)20 (66.6)4 (13.3)3 (10)Others (10)a4 (40)2 (20)2 (20)Total (40)24 (60)6 (15)5 (12.5) Any foreign establishment engaged in the manufacture, preparation, propagation, compounding, or processing of a device imported into the United States must identify a United States agent (U.S. agent) for that establishment. Information about a foreign establishment’s U.S. Agent is submitted electronically using the FDA Unified Registration and Listing System (FURLS system) and is part of the establishment registration process. Each foreign establishment may designate only one U.S. agent. 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