

A SEVEN YEAR RETROSPECTIVE STUDY OF BOVINE TUBERCULOSIS IN JOS ABATTOIR, PLATEAU STATE, NIGERIA

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ABSTRACT

This retrospective study was aimed at determining the prevalence of tuberculosis in cattle slaughtered in Jos abattoir from 2010 to 2016. A total of 41,607 cattle were slaughtered during the period with an overall prevalence of 3.3%. The result showed highest number 876 (8.6%) of tuberculosis lesions in 2010 and the lowest 7 (0.1%) was observed in 2014. There was seasonal trend of tuberculosis lesions with peak prevalence in early rainy season. In terms of months, May showed the highest and December the lowest prevalence. The study showed that bovine tuberculosis is prevalent in Plateau state. Government at all levels should organize public enlightenment campaigns aimed at highlighting the zoonotic importance of bovine tuberculosis among butchers, livestock owners, veterinarians and meat handlers who are at high risk of acquiring the disease. Proper meat inspection at the abattoirs should also be employed.

Key words: Bovine, prevalence, retrospective, tuberculosis,

INTRODUCTION

Tuberculosis (TB) is an infectious, chronic and debilitating disease caused by acidfast, rod-shaped bacillus *Mycobacterium tuberculosis* which typically affects the lungs but can affect other organs (WHO, 2001). Bovine tuberculosis results from infection with *Mycobacterium bovis* that occasionally affects other species of mammals but cattle are the primary host (Abubakar *et al.*, 2005). It is a zoonotic disease that can spread to humans typically by the inhalation of aerosols, ingestion of unpasteurised milk or through breaks in the skin. Raw or undercooked beef can be a source of infection (Ameen *et al.*, 2008). In most cases, *M. bovis* is transmitted between cattle in aerosols during close contact. Drinking raw milk is the primary route of *M. bovis* infection in humans; hence human tuberculosis caused by *M. bovis* is mostly extra pulmonary, particularly in cervical lymphadenitis (Ameni and Erkihun, 2007).

Although bovine tuberculosis was once found worldwide, control programs have eliminated or nearly eliminated the disease from domesticated animals in countries like Denmark and Sweden (Ashford *et al.*, 2001; Ameni and Erkihun, 2007). Bovine tuberculosis is still widespread in Africa, parts of Asia and some Middle Eastern countries (Assagedet *et al.*, 2000). According to WHO Report (2011), tuberculosis continues to be a global priority. In 2010, an estimated 8.5–9.2 million tuberculosis cases were reported globally along with 1.2–1.5 million deaths (including deaths from TB among people living with HIV). Asia and Africa are disproportionately affected with 57% and 26% of the disease burden, respectively (WHO, 2011).

MATERIALS AND METHODS

Surveillance records of slaughtered cattle and suggestive tuberculosis lesions examined at postmortem from 2010-2016 in Jos abattoir Plateau State was used. Characteristics TB lesions on organs were diagnosed by veterinary officers and simple percentages were used in analyzing the result.

RESULTS AND DISCUSSION

Records on annual slaughtered cattle and suggestive TB lesion cases at Jos abattoir, Plateau State, Nigeria showed that a total of 41,607 cattle were slaughtered from 2010-2016, out of which 1,373

(3.3%) were found with lesions of tuberculosis at post mortem. The record reviewed revealed that, the highest number 876 (8.6%) of tuberculosis lesions in cattle were recorded in 2010 followed by 275 (5.6%) in 2011. However, the lowest prevalence of (0.1%) was recorded in 2014, then (0.2%) prevalence in 2015 and 2016 consecutively. The low prevalence observed in this study may be due to under reporting and reduced activities at the abattoir as a result of extensive religious and ethnic crisis experienced in the study area.

Information on bovine tuberculosis in Plateau State is limited, though TB was the most common pathology encountered at abattoir (Lilian *et al.*, 2016). Below are the annual results (Figure 1) and monthly distribution of suggestive tuberculosis lesions (Figure 2).

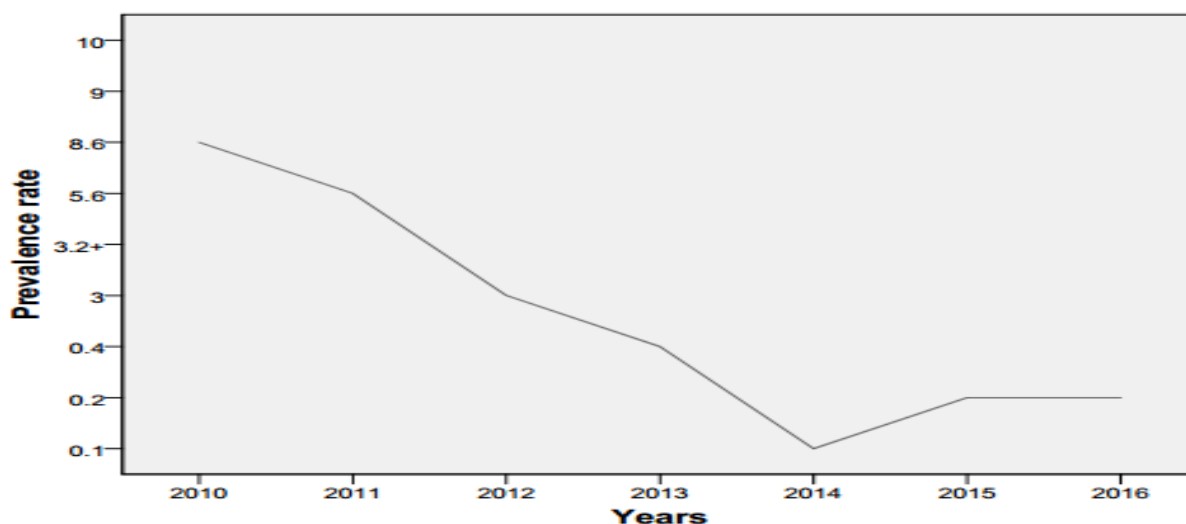


Figure 1: Overall prevalence of TB lesions in cattle from 2010-2016.

The finding of this study showed that TB is more prevalent during the months of May (most critical) and least in December (Figure 2). This supports the report of Perry *et al.* (2002) who stated that the detection of tuberculosis lesions was influenced by season and it was higher during stressful periods such as inter-season and peak-season periods and also when slaughtering was elevated. In addition, similar observation was reported by Bikom (2005) in Cross River State abattoir indicating strong association between the occurrence of tuberculosis lesions and seasonal distribution.

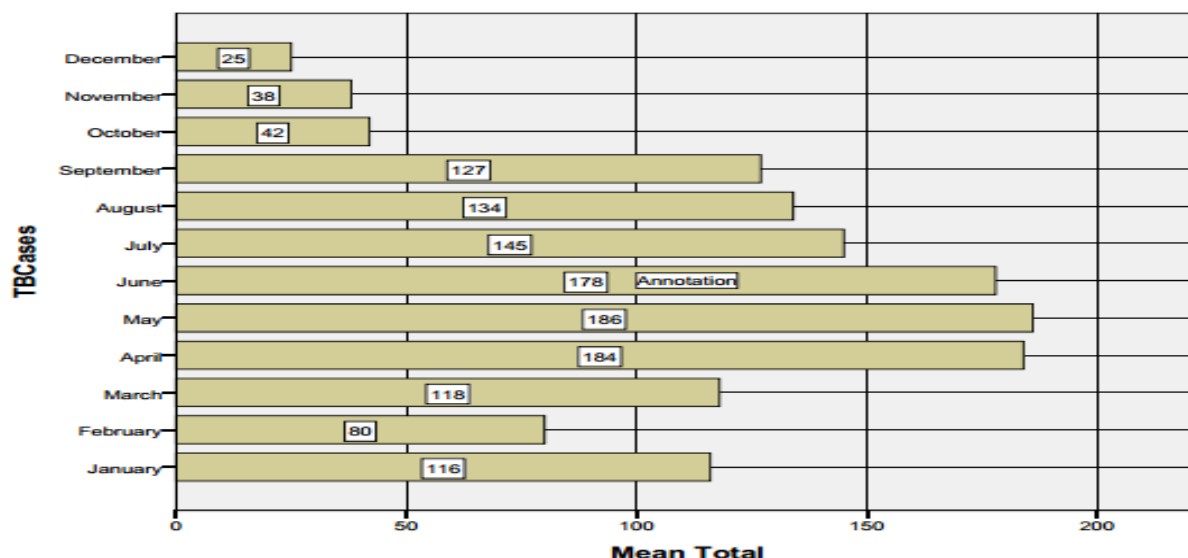


Figure 2: The number per month of suggestive tuberculosis lesions from slaughtered cattle at Jos South abattoir, Plateau State Nigeria 2010-2016.

The reasons responsible for the wide fluctuation in annual distribution of the TB during the entire period of the study were not clear. However, inadequacies in capacity building and lack of thoroughness of the veterinary staff carrying out meat inspection could have played major roles. These agree with Perry *et al.* (2002) who reported that postmortem surveillances for detection of bovine TB lesions in particular depend on the work load, time and diligence of the inspectors conducting the examinations. It was also common that when veterinary staff inspect carcasses, condemn and seize infected meat and meat products for disposal, some pathological cases may be missed completely due to lack of adequate personnel in the abattoirs couple with rough behaviors of butchers and meat traders. In addition, with repeated meat inspections, butchers acquire ample knowledge about the nature of pathologies that can lead to condemnation of carcasses and therefore avoid condemnation of their products by the veterinary staff. Furthermore, unruly butchers could obstruct inspection of their carcasses or hide lesions from meat inspectors.

CONCLUSIONS AND RECOMMENDATIONS

The study showed that tuberculosis is present in the study area and adds to the existing evidence depicting lack of adequate knowledge on the effect of tuberculosis. Public awareness is essential to avoid the consumption of improperly cooked meat especially lungs and the zoonotic nature of TB. Condemned meat should be discarded, burnt or buried and owners of such should be adequately compensated. Proper surveillance/ambulatory services should be carried out within the state and its environs, for diagnosis and treatment of infected animals. This information can serve as critical input for health programmes aiming at tackling the cases of tuberculosis in both animals and humans.

REFERENCES

- Abubakar, A. A., Brooks, P. H., Abdullahi, S. U., Kudi, A. C and Okaiyeto, O. (2005). Epidemiology of bovine and human tuberculosis in the Federal Capital Territory of Nigeria, Abuja. *Proceedings of the British Society of Animal Science Annual Conference*; 4th-6th April, York, UK.
- Ameen, S. A., Adedeji, O. S., Raheem, A. K., Leigh, O. O., Rafiu, T. A and Ige, A. O. (2008). Current status of bovine tuberculosis in organisms area of Oyo state. *Middle East J. Sci. Res.*, **3**(4):207-210.
- Ameni, G. and Erkihun, A. (2007). Bovine tuberculosis on small-scale dairy farms in Adama Town, central Ethiopia, and farmer awareness of the disease. *Sci. Tech. Rev.*, **26**(3):711-9.
- Ashford D. A., Whitney, E., Raghuntan, P. and Cosivi, O. (2001). Epidemiology of selected Mycobacteria that infect humans and other animals - In: Mycobacterial infections in domestic and wild animals. *Sci. Tech. Rev.*, **20**(1): 265-290.
- Assaged, B., Lubke-Becker, A., Lemma, E., Tadele, K. and Britton, S. (2000). Bovine tuberculosis: a cross-sectional and epidemiological study in and around Addis Ababa. *Bull. Anim. Health Prod. Afr.*, **48**:71-80.
- Bikom, P. M. (2005). Incidence of Bovine Tuberculosis in Cross River State Abattoirs, Nigeria. *An MSc Thesis, Faculty of Veterinary Medicine, University of Nigeria, Nsukka*.
- Cadmus, S. I. B., Adesokan, H. K., Adejuwon, T. A. and Adeyemi, M. O. (2008). Retrospective Study of Bovine Tuberculosis and other diseases of Public Health Importance in Oko-Oba Abattoir, Lagos State - Book of Abstracts. *J. Nig. Vet. Med. Ass.*, **089**:72-73.
- Lilian Akudo Okeke, Olufunmilayo Fawole, Maryam Muhammad, Ikenna Osemeka Okeke, Patrick Nguku, Peter Wasswa, David Dairo, Simeon Cadmus (2016). Bovine tuberculosis: a retrospective study at Jos abattoir, Plateau State, Nigeria. *Pan. Afr. Med. J.*, **25**:202.
- Perry, B. D., Randolph, T. F., Mcdermott, J. J., Sones, K. R. and Thornton, P. K. (2002). In Investing in Animal Health Research to Alleviate Poverty. *Int. Livestock Res. Inst., Nairobi (Kenya)*: ILRI, Pp.148.
- World Health Organisation "WHO" (2001). Infections and infectious diseases. *A manual for nurses and midwives in the WHO European Region*. World Health Organization Regional Office for Europe and International Federation of Red Cross and Red Crescent Societies.
- World Health Organisation "WHO" (2011) Global Tuberculosis Control: *WHO Report. Geneva*.