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Prevalence of Bovine Tuberculosis among Buffaloes in North Karnataka

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Abstract

The present study was undertaken to assess the prevalence of bovine tuberculosis among buffaloes in Belgaum, Dharwad and Bagalkote districts of North Karnataka, for a period of eight years (2002 to 2009). A total of 2184 buffaloes belonging to 30 organized farms were screened by single intradermal tuberculin test using bovine tuberculin Purified protein derivative. Overall prevalence of tuberculosis among buffaloes was found to be 0.96 per cent. Prevalence was higher in females (0.97%) than males (0.84%) and in Murrah (1.02 %) than Surthi (0.85 %). Analysis of the temporal pattern revealed a gradual declining trend over a period of eight years.

Introduction

Bovine tuberculosis is a chronic bacterial disease of cattle, other domesticated animals and certain wildlife populations caused by *Mycobacterium bovis*a member of Mycobacterium tuberculosis complex. The disease has socio-economic, public health and economic importance. Cattle is considered as true host of *M. Bovis.* Disease has also been reported in buffaloes (De-Lisle *et al.,* 2001). Tuberculosis causes heavy economic losses due to poor carcass quality, low quality hide and reduced milk yield (Ghuman *et al*., 2013). Aerosol exposure to *M. Bovis*is considered as the most frequent route of infection, but infection by ingestion of contaminated material, contact with infected animals also occurs. (OIE Manual, 2016). Delayed hypersensitivity test as detected by tuberculin test is the standard method for detection of bovine tuberculosis (OIE Manual, 2016).The prevalence of bovine tuberculosis varies from region to region and even from one farm to other (Javed et al., 2006). Review of literature reveals paucity of data about the prevalence of bovine tuberculosis in animal population in North Karnataka. Hence the present study was undertaken to assess the overall prevalence of bovine tuberculosis among buffaloes of North Karnatka and also to assess the prevalence in respect to year, sex and breed in the study area.

Materials and Methods:

The study was carried out at Animal Disease Diagnostic Laboratory and Information Centre, Belgaum, a regional unit of Institute of Animal Health and Veterinary Biologicals, Hebbal, Bangalore, KVAFSU. Over a period of eight years (2002-03 to 2009-10), 2184 buffaloes except buffalo calves of less than six months of age and buffaloes in advance pregnancy from thirty organized farms in Belgaum, Dharwad and Bagalkote districts of North Karnataka, were screened. The animals were grouped according to sex and breed. Bovine tuberculin PPD was procured from Indian Veterinary Research Institute (IVRI),Izatnagar, Uttar Pradesh. Single intradermal test (SID) was performed in the neck region as per the instructions of the manufacturer. Data was analysed using Graph Pad Prism Version V.

Results and Discussion :

Overall Prevalence of Tuberculosis

Out of 2184 animals screened, 21 buffaloes were positive, indicating an overall prevalence of 0.96%. Similar findings were reported by Hareesh Didugu *et al*. (2016), Khilji, (1974) and Ifrahim, (2001) in different parts of the world. Variation in prevalence of tuberculosis in buffaloes may be due to period and geographical region (Javed *et al*., 2006). Prevalence of tuberculosis varied from region to region and even from farm to farm (Imtiaz *et al*., 2008). Prevalence of bovine tuberculosis is influenced by many factors such as geographical location, temperature, hygienic status of humans and animals and regulatory laws of Public Health and Veterinary Public Health sectors inforce and also size of the sample, type of diagnostic test used, stock density and husbandry system (Mahmudi et al, 2014).

Year wise Prevalence of Tuberculosis

The overall prevalence during 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10 was zero, 5.10, 3.21, zero, 1.29, zero, zero and 1.19 %, respectively. The prevalence was highest during 2003-04 and lowest during 2009-10. Though in few years there were no positive cases, the temporal pattern of percentage prevalence of bovine tuberculosis among buffaloes during 2003-04, 2004-05, 2006-07 and 2009-10 appeared declining. Similar findings were reported by Ghumman *et al.,* (2013).

Sex wise Prevalence of tuberculosis

Out of 236 males and 1984 females screened during the study, two males and 19 females were positive for tuberculosis by SID, contributing to a prevalence of 0.84 per cent and 0.97 per cent respectively, indicating higher prevalence in females than male buffaloes.There is paucity of information in the literature regarding sex wise prevalence of bovine tuberculosis among buffaloes. The findings of present investigation are in agreement with that of Mahmudi *et al.* (2014), Noorrahim *et al*. (2015), Nwanta *et al.* (2011), Arshad *et al.* (2012) and Phaniraja *et al.* (2010), Who among cattle have recorded a higher prevalence among females than in males, which could be extrapolated to buffaloes.

Breed wise Prevalence of Tuberculosis

A total of 1368 Murrah buffaloes and 816Surthi buffaloes were screened, out of which 14 Murrah buffaloes and seven Surthi buffaloes were positive for tuberculosis by SID. The overall prevalence in Murrah buffaloes was 1.02 per centand that of Surthi was 0.85 per cent indicating higher prevalence in Murrah breed than Surthi breed. Comparison of the year wise prevalence also revealed that throughout the study period, the prevalence was higher in Murrah buffaloes than Surthi. Analysis regarding the temporal pattern of the disease within each breed revealed a decline in the percentage prevalence of the disease in both the breeds. Perusal of literature did not reveal any information regarding the prevalence of bovine tuberculosis among different breeds of buffaloes and also the comparison between different breeds of buffaloes. But this variation noticed in response to the infection of *M. Bovis,* could be probably attributed to the genetic variation or variation in the size of population of different breeds (Griffin & Mac Kintosh, 2000).

Conflict of Interest:

All authors declare no conflict of interest.

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