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Co-infection of brucellosis and tuberculosis in slaughtered cattle in Ibadan, Nigeria: a case report

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Summary

The authors present a case report on co-infection of brucellosis and tuberculosis in cattle slaughtered at the Bodija abattoir in Ibadan, Nigeria. Out of 32 animals that were seropositive for brucellosis using the Rose Bengal test, indirect enzyme-linked immunosorbent assay (ELISA) and competitive ELISA, six were also demonstrated as being infected with tuberculosis through mycobacterial culture. This is the first report of co-infection of brucellosis and tuberculosis in cattle slaughtered in Nigeria. There is a need for further studies to investigate this occurrence.

Keywords

Brucellosis, Cattle, Co-infection, Nigeria, Tuberculosis, Zoonosis.

Coinfezione di brucellosi e tubercolosi in bovini macellati a Ibadan in Nigeria: un caso studio

Riassunto

Gli autori riportano un caso di coinfezione di brucellosi e tubercolosi osservato in bovini macellati nel mattatoio Bodija ad Ibadan in Nigeria. Su 32 animali sieropositivi per brucellosi al test Rosa Bengala, all'ELISA indiretta e ELISA competitiva, 6 erano anche affetti da tubercolosi diagnosticata con coltura micobatterica. Si tratta del primo caso di coinfezione di brucellosi e tubercolosi in bovini macellati in Nigeria e ciò comporta gravi implicazioni sanitarie e economiche per gli allevamenti e per la popolazione.

Parole chiave

Bovini, Brucellosi, Coinfezione, Nigeria, Tubercolosi, Zoonosi.

Introduction

Animal and human health are inextricably interwoven (1); animals can transmit many different and highly infectious diseases to humans. These include brucellosis and tuberculosis.

Brucellosis is a disease of primarily domestic and livestock animals with serious zoonotic consequences. It causes significant economic losses to the livestock industry that could impair socio-economic progress in the developing world (7). Studies confirming brucellosis in Nigerian livestock indicate the spread of the disease to all parts of the country (8). Tuberculosis in cattle is endemic in Nigeria where it has contributed greatly to economic losses suffered by the livestock industry (5).

This is the first report of co-infection of brucellosis and tuberculosis in slaughtered cattle in Ibadan, Nigeria.

Case report

An epidemiological survey that lasted four months was conducted at the Bodija municipal abattoir in Ibadan, Oyo State, to perform a simultaneous seroprevalence study on brucellosis and cultural confirmation of tuberculosis in slaughtered cattle. During this period, a total of 36 000 cattle were slaughtered including animals of different breeds, sex and age. In this report, the Rose Bengal test (RBT)

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(2) was performed on 917 randomly selected animals brought for slaughter to screen for brucellosis. These animals were also examined post mortem for lesions of tuberculosis. From these tests, sera from 32 animals gave positive results for the RBT and all results were confirmed by the competitive and indirect enzyme-linked immunosorbent assay (ELISA) (9) (Veterinary Laboratories Agency, Addlestone). Coincidentally, of the 32 animals, six were identified during post-mortem examination with suspected lesions of tuberculosis. The tuberculosis status of the six animals was confirmed by culture (5).

Discussion

The co-infection of brucellosis and tuberculosis in cattle slaughtered in Nigeria could be the result of inadequate control and eradication policy design or application. However, most cases of brucellosis and tuberculosis reported in the country are mainly associated with slaughtered animals, the majority of which are imported (5). Recent studies have revealed similarities in strains of *Mycoplasma bovis* isolated in Nigeria and strains isolated in abattoirs in Cameroon and Chad (5, 6). This is of major public health concern for workers in the abattoirs, since no safety precautions are taken. Given the importance of the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) prevalence in the country, which is associated to tuberculosis where *M. bovis* plays a certain role (3), this group of people is at high risk of exposure (4, 5).

Conclusion

There is an urgent need to implement adequate control and eradication policies to avert the spread of these diseases in animal and human populations. Coupled with this is the need for further studies on the prevalence of these two infections.

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