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TESTICULAR AND EPIDIDYMIS TUBERCULOSIS IN BUFFALOES MANAGED EXTENSIVELY IN AMAPA STATE, BRAZIL

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ABSTRACT

This study was carried out in five farms in the state of Amapa, in Amazon region, Brazil, where buffalo and cattle are commonly managed extensively without appropriate programs of sanitary prevention. 123 andrological examinations were analyzed from 2006 to 2008, which had been performed in mixed Murrah and Mediterranean males aged 2 to 10 years (average age was 4.8 years). Data were based on the Breeding Soundness Examination (BSE) which in their turn was based on inspection and palpation of scrotum, testicles and epididymis; rectal palpation of glands, prostate, ampoules and duct deferents. Affected testicles and epididymis were removed, dissected, analyzed, photographed and kept in a solution with 10% formaldehyde and then transported to the laboratory where they were processed and stained by HE. In 19 (15.4%) of 123 buffaloes showed alterations in testicles and/or epididymis. Inspection and palpation showed lobulated, asymmetrical testicles with no mobility, the consistency of which ranged from flaccid to fibrosis. Histopathological analyses in those 19 animals showed that 10 of them (52.6%) had tuberculosis. 12 animals out of 19 (63,1%) revealed left-sided alterations in 5 buffaloes (26.3%) and in 2 (10.5%) alterations affected both testicles and epididymis. Among the 19 animals that had alterations, 15 (78.9%) had their epididymis also affected, specially their tails. The tails had a big volume, very protruding and always had fibrous consistency. The volume of affected testicles and epididymis was 20 to 30% larger than normal.

Key-words: Amazon, Brazil, buffaloes, epididymis, testis, tuberculosis.

INTRODUCTION

The State of Amapá has an area of 140.276 km2, representing approximately 1.65% of geographical area of Brazil. It has an extension of 17.445 km2 of coastal area which is almost half part of the year flooded which is equivalent to 12.44% of total territorial area of the state which is divided into two regions: the fields and swamps. Both regions suffer periodic flooding of the fields as a result of high rainfall and tidal influence (Cavalcanti, 1996). The livestock population in the state is 178.811 and 109.422 herds, for buffalo and cattle, respectively (Mourão, 2007).

The grasslands of the upland savannahs are used for buffalo grazing when the lowlands are flooded, since the highest parts of the undulating terrain are covered with vegetation of low, tough and tufted grasses. The lowlands have extensive pasture grounds along the borders of the streams and lakes, during the dry season with abundant pasture rich in native grass and legumes. Like in other parts of the Amazon region, the reproductive problems in male buffalo should be considered as frequent and severe. Further in the state of Amapá, problems related to sterility and infertility, appear to be closely linked to the errors in the management including close inbreeding, infectious and nutritional diseases which lead to poor health conditions (Mourão, 2007; Vale et al., 2008). Among the infectious diseases (Ribeiro et al, 1990) reported that the main diseases diagnosed as causes of infertility were to uterine infections, and likely to cause brucellosis, leptospirosis and tuberculosis.

Mourão (2007) study on the prevalence of reproductive diseases examined 911 buffaloes, found 83 (9.11%) females with a positive reaction for brucellosis and 85 (9.33%) with positive reaction to tuberculosis, totaling 18.44% of buffaloes with health problems

The purpose of this study was to determine the prevalence of changes in the genital tract (testis and epididymis) of buffaloes, reared extensively on flooded areas of the Amapá state, Brazil.

MATERIALS AND METHODS

The study was conducted on five farms located in the state of Amapá, where the management system is extensive, with inadequate preventive programs for health. Between 2000 to 2008, breeding soundness examination (BSE) were performed in 123 buffalo males crossbred Murrah and Mediterranean, aged 2 to 10, with an average 4.8 years. The clinical examinations were based on inspection and palpation of the scrotal pouch, testes and epididymis, as well as rectal palpation of the vesicular glands, prostate and the vas deferens ampoules, according to recommendations of Vale (1997). The testes and epididymis found with pathologies were removed,

examined, photographed, and samples collected and preserved in formalin to 10%, transported to the laboratory where they were processed and stained by hematolixina-eosin.

RESULTS AND DISCUSSION

Among 123 buffaloes, 19 (15,4%) showed changes in the testis and/or epididymis. On inspection and palpation, the testes, were lobulated and asymmetric, with mobility, consistency ranging from flaccid to fibrotic (Figure 1 and 2). In 19 animals with evident clinical alteration in the scrotal sac, it was collected material for microscopic examination and in 15 (78,9%) cases both the testis and epididymis were affected being the tail of epidymis the part more severe affected, to prominent, bulky (Figure 3 and 4) with the consistency ranging from flaccid to fibrotic. Both testis and testes and epididymis showed a change in the volume raging from 20 to 30 % higher than the normal ones. Among the animals affected in 12 (63,1%), 5 26,3%) and 2(10,5%) the lesions were left unilateral, right unilateral and bi-lateral, respectively.

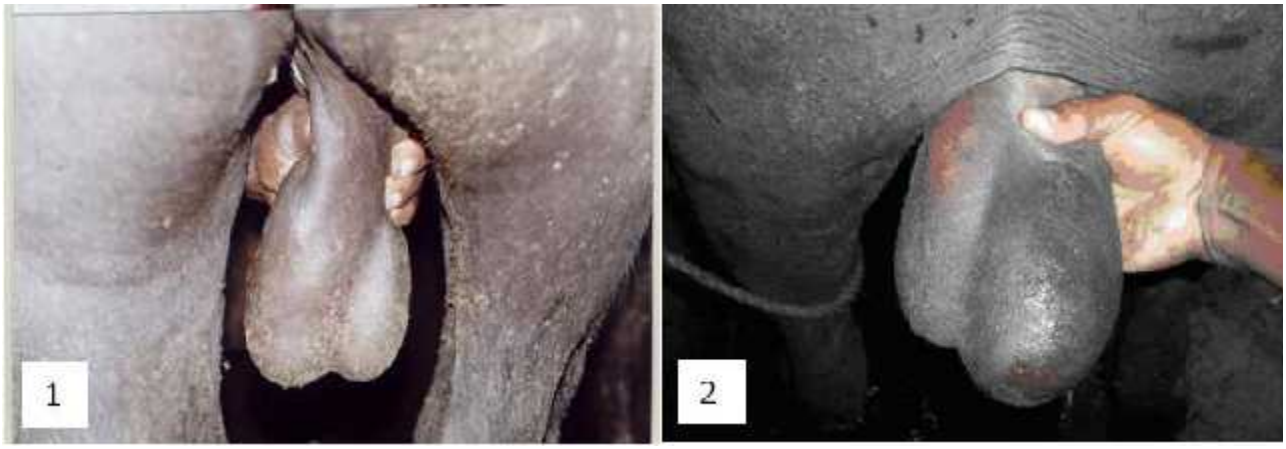

Figure1 and 2 – Buffalo scrotum, testis and epididymis showing asymmetry, lobulation and increased volume of the scrotum.

The cut surface of the enlarged testis reveals extensive areas of focal and extensive fibrotic adhesions between the vaginal tunic and testis albuginea as well as broad bands of caseous necrosis. In the testicular parenchyma diffuse or multiple lesions with focal content of white yellowish material of creamy consistency, were present.

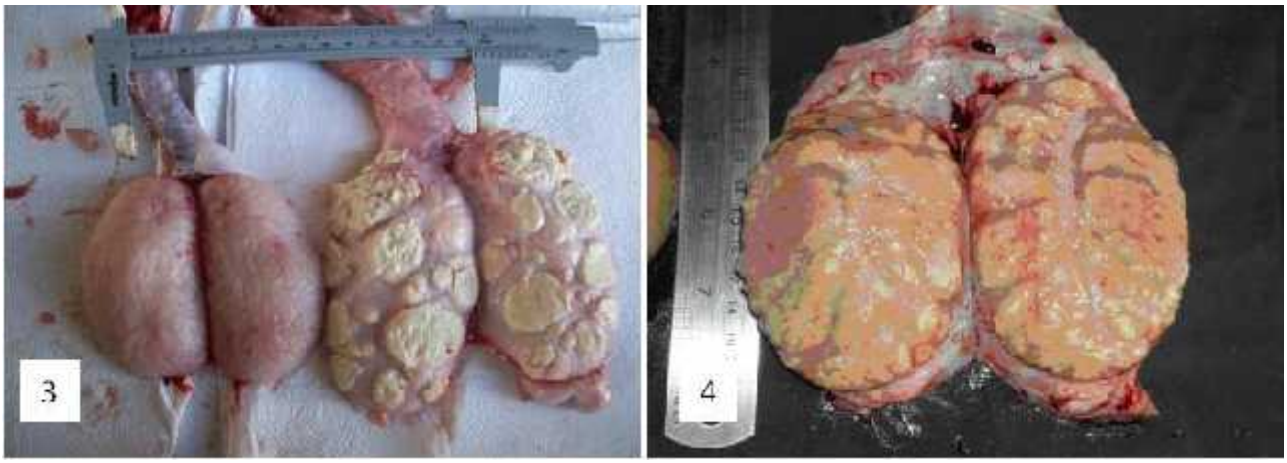

Figure 3 and 4 – Buffalo testis and epididymis showing lobular focal lesions and diffuse fibrotic consistency in the testicular parenchyma.

The epididymis also showed increased volume and the cut surface reveals nodulations of varying sizes,

with the presence of a firm and creamy yellow content very frequent among lesions in the tail of epididymis (Figures 5 and 6).

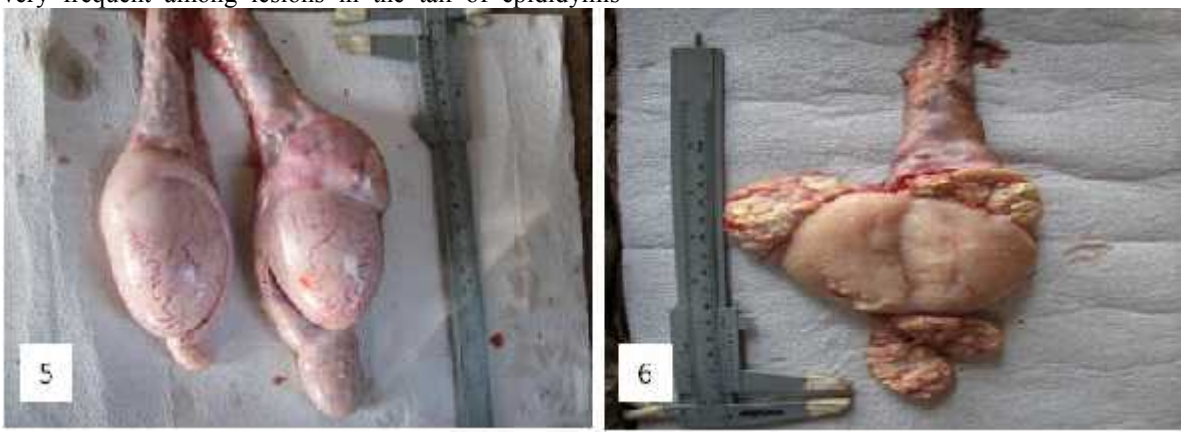

Figure 5 and 6 – Buffalo testis; head, body and tail of the epididymis increased in volume and fibrous aspect in the Figure 6.

Histologically the testes showed the seminiferous tubules severely changed, evident degeneration of part of seminiferous epithelium, presence of only a few spermatogonia and Sertoli cells, intratubular fibrosis, granulomatous and inflammatory reaction with dense lymphocytic infiltrate. Moreover the presence of small or large caseous and calcified foci irregularly scattered throughout the testis but may spare the epidydimis entirely. The areas of calcification were surrounded by a number of giant cells Langhans type (Figures 7 and 8).

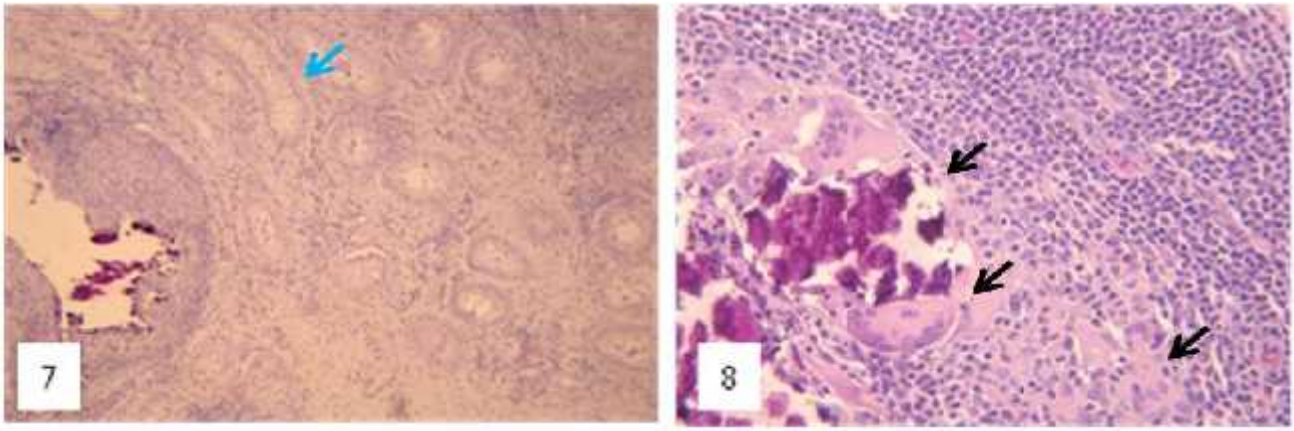

Figure 7 and 8 - Microphotography of testis with severe degeneration testicular (blue arrow, Fig. 7); presence of dense lymphocytes infiltration, areas of caseification and calcification and presence of giant cells of Langhans type (black arrows, Fig. 8). HE. 40x.

Histologically the epididymis showed up with framework characteristic of tuberculosis, and lesions characteristic of spermatic granuloma. Pathological conditions of the testes of buffalo have been not common described in the international literature, (Vale *et al*., 1988). In 1984, Ohashi et.al, reported a case of brucellosis caused by epididymis-orchitis affecting the left testicle and epididymis and on the right side only affected the epididymis. Ribeiro *et al*. (1987) cited a case of epididymis-orchitis caused by tuberculosis in a bull of 15 years old who served 40 buffaloes which were not pregnant for almost a year. The cut had abundant yellowish white diffuse nodules of firm consistency throughout testicular parenchyma and especially in the tail of the epididymis. Freitas *et al*. (1997) through a microbiological and pathological studies of tuberculosis in buffaloes slaughtered for consumption for human consumption in the Amazon, found a prevalence which varied of 7.7% to 72.1% of localized changes of generalized changes with an average of 27.9% of carcass infected with tuberculosis. Mourão (2007) in study on the prevalence of reproductive diseases examined 911 females buffaloes, found 83 (9.11%) with a positive reaction for brucellosis and 85 (9.33%) with positive reaction to tuberculosis, totaling 18.44% of buffaloes with health problems concerning both diseases.

That being so, it is undeniable that tuberculosis is a serious problem for buffalo husbandry in regional areas of Amazon region and can be considered a public health problem and certainly play a factor in the multifactorial causes of infertility and sterility in buffalo reproduction in Amapá state, Brazil.

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