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SURVEY OF PATHOLOGICAL LESIONS IN TRADE CATTLE SLAUGHTERED AT THE UBAKALA ABATTOIR IN ABIA STATE, NIGERIA

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ABSTRACT
A total of 3,096 cattle, mostly males, were routinely examined pre and post slaughter for pathological conditions and lesions between May and October 2014 at the Ubakala abattoir in Umuahia South Local Government Area of Abia State. Streptothricosis (0.8%), emaciation (1.4%), hernia (0.2%) and mange (0.5%) were the major conditions encountered ante mortem. The conditions encountered at post mortem were mainly tuberculosis (11.5%), abscess (3.2%), fasciolosis (6.8%), pneumonia (7.4%), emphysema (1.0%) and paramphistomosis (4.7%). The results suggest that animals slaughtered at Ubakala abattoir suffer from major disease conditions including tuberculosis and fasciolosis that may be zoonotic. It is therefore recommended that proper meat inspection be made mandatory to ensure that only wholesome meat gets to the consumers.

Keywords: Pathological Lesions, Cattle, Abattoir, Ubakala, Nigeria

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INTRODUCTION

In Nigeria cattle is considered an important livestock for the supply of meat and milk to meet the protein requirements of the populace. Hides and bones and other by-products from cattle earn substantial amounts of foreign exchange to the country.

Pathological lesions of both economic and public health importance are usually detected in slaughter houses [1,2]. The purpose of meat inspection is to protect public health and to provide disease free products to the society [3]. It also provides information on animal diseases control [3], especially on the evaluation of diseases at farm level, to verify the efficacy of prophylactic and therapeutic interventions [4,5] as well as the extent to which humans are potentially exposed to certain zoonotic diseases [6,7]

In different countries, numerous abattoir surveys of bovine pathological conditions have been conducted to investigate macroscopic and microscopic abnormalities [2,8,9,10,11,12]. Several thousands of cattle are slaughtered annually at the Ubakala abattoir to provide meat for residents of Umuahia metropolis and environs. However, there is a paucity of information on the pathological lesions affecting the carcasses and organs of the cattle slaughtered as well as their possible zoonotic implications for consumers. The

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present study was undertaken to provide preliminary information on the pathological lesions encountered in cattle slaughtered at the Ubakala abattoir between May and October 2014.

MATERIALS AND METHODS

Time of Study and Study Area

The Ubakala abattoir is the major abattoir that supplies meat to Umuahia, the Abia State capital and its environs. About 48 cattle are slaughtered and processed for human consumption every day in that abattoir. Ubakala the study area is located in Umuahia South Local Government Area of Abia State, southeastern Nigeria and lies on longitude 7^{o} 24'E and latitude 5^{o} 10'N on the geological map of Nigeria [13]. Cattle and other animals slaughtered daily at the abattoir were subjected to ante-mortem and post-mortem inspection by qualified veterinary doctors. During this study, the Ubakala abattoir was visited daily between 06.30 and 08.00 hours during the study period (from May to October 2014).

Study Animals

The study animals comprised male and female trade cattle transported from the northern parts of the country for sale and slaughter at the Ubakala abattoir. A total of 3096 cattle were randomly selected and routinely examined ante- and post-mortem [14]. It was not possible to get the exact records on breed, weight and age of each selected due to the difficulty of tracking each animal from ante- to post-mortem sections of the abattoir since so many animals are slaughtered at the same time. There was also the uncooperative attitude of the butchers to the inspectors.

Study Design

A cross-sectional study design was employed for estimating the prevalence of the pathological lesions observed. The cross-sectional study of active abattoir survey was done using standard procedures for ante-mortem [3] and post mortem [15] inspection. Following slaughter and evisceration, the liver, lungs, kidneys, heart and spleen were carefully examined by visual inspection, palpation and incision for the presence of lesions. All the gross lesions were noted and imaged using a digital camera (Toshiba, Japan).

Data Analysis

The data obtained were presented as percentages of prevalence which were calculated as the number of cattle with suspected disease divided by the number of cattle slaughtered and examined at the abattoir during the study.

RESULTS

As shown in Table 1, the gross pathological lesions observed ante-mortem were Streptothricosis (0.8%), emaciation (1.4%), hernia (0.2%) and mange (0.5%). Among the disease conditions noted during post mortem inspection of the carcasses, tuberculosis was most prevalent (11.5%), followed respectively by pneumonia (7.4%), fasciolosis (6.8%), paramphistomosis (4.7%), abscess (3.2%) and emphysema (1.0%) (Table 2).

Tuberculous lesions were encountered in the liver (47.8%), lungs (40.5%) and spleen (11.7%) while abscesses occurred predominantly in the liver (87.8%) and lungs (12.2%). All cases (100%) of fasciolosis and paramphistomosis were encountered in the liver and rumen respectively while pneumonia and emphysema occurred exclusively (100%) in the lungs (Table 3).

DISCUSSION

Some of the cattle examined ante-mortem during this study had pathological lesions but most of them exhibited little or no abnormalities probably due to the low prevalence of the various conditions observed. The low prevalence of skin lesions [Streptothricosis (0.8%) and mange (0.5%)] suggests improved methods of disease management in the areas the cattle were originally raised and the figures agree with Ihedioha and Udeani [16] who also worked on trade cattle. It is possible the trade animals in both studies

originated from the same area in northern Nigeria. Skin diseases of cattle have been reported to cause considerable financial losses to the hide trade and ultimately to the leather industry [17].

Table 1: Abnormalities observed in 3096 cattle examined ante-mortem at the Ubakala abattoir in Abia State.

Pathological Conditions	No. affected	% of infection
Streptothricosis	25	0.8
Emaciation	42	1.4
Hernia	5	0.2
Mange	16	0.5
Total	**88**	**2.8**

Table 2: Pathological conditions encountered in 3096 cattle during post mortem inspection at the Ubakala abattoir, Umuahia, Abia State.

Pathological Conditions	No. (%) affected
Tuberculosis	355 (11.5)
Abscess	98 (3.2)
Fasciolosis	209 (6.8)
Pneumonia	230 (7.4)
Emphysema	32 (1.0)
Paramphistomosis	145 (4.7)

Table 3: Organ distribution of lesions of diseases and pathological conditions encountered in 3096 cattle examined post mortem at Ubakala abattoir, Umuahia, Abia State.

Pathological conditions	Organ	Prevalence [No. (%)]
Tuberculosis	Liver	265 (74.7)
	Lungs	225 (71.8)
	Spleen	65 (18.3)
Abscess	Liver	86 (87.8)
	Lungs	12 (12.3)
Fasciolosis	Liver	209 (100)
Pneumonia	Lungs	230 (100)
Emphysema	Lungs	32 (100)
Paramphistomosis	Rumen	145 (100)

A few of the cattle slaughtered had hernia (0.2%). This finding is lower than the 0.8% reported by Denbarga *et al.* [5]. Emaciation was observed in only 42 (1.4%) of the 3096 cattle examined during this study. A similar finding was reported by Ihedioha and Udeani [16] who noted that 1.04% of the cattle slaughtered at the Nsukka abattoir in Enugu State, Nigeria were cachexic. However, the value obtained in this study was significantly higher than the 0.7% recorded in Ethiopia [5] but lower than the 2.88% reported in Zaria, Nigeria [2]. The low level of emaciation reported in this study may have been probably

due to the short period of time it takes to transport the animals by lorry from the North to South of the country. Secondly, although the study was done during the rainy season when there was a lot of grass for grazing, the animals were usually not grazed or are grazed just for a few days before sale and slaughter such that they are unable to recover from the emaciation that may have been induced by the stress of transportation [18].

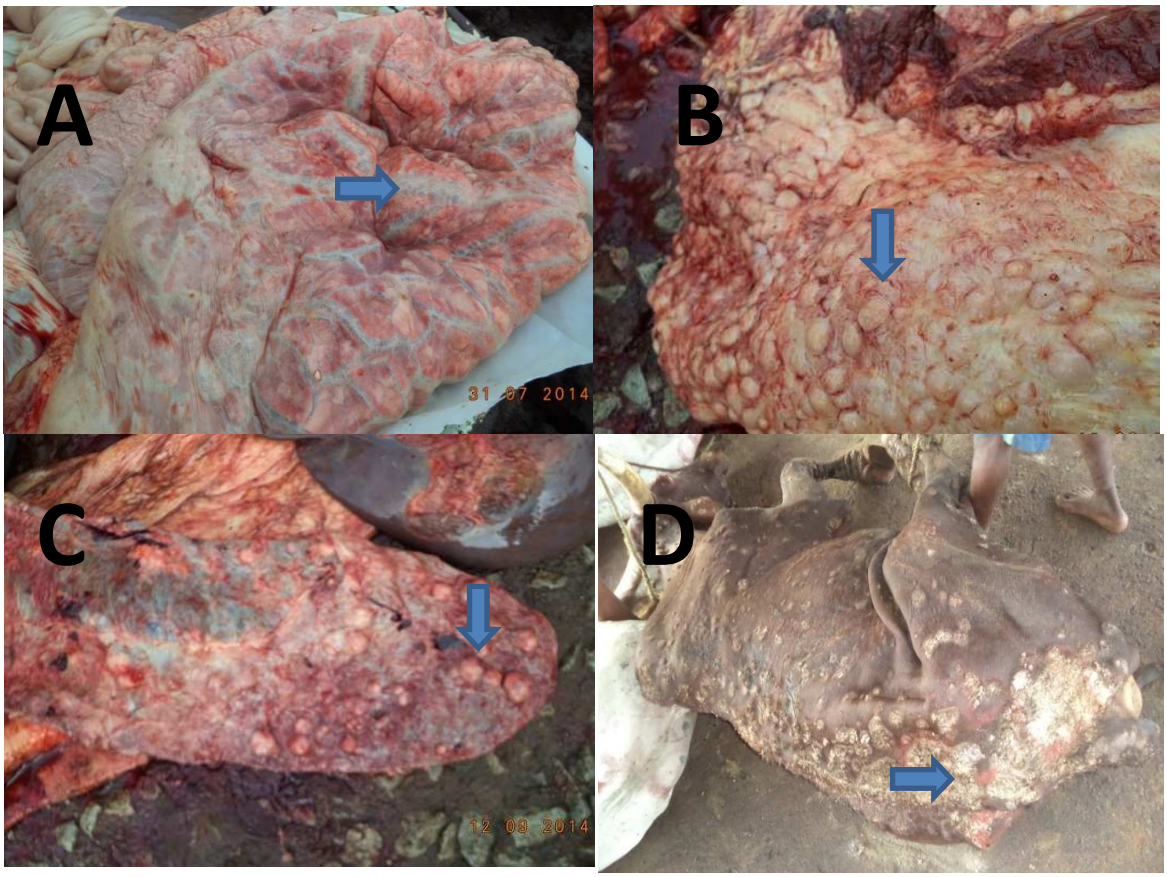

Figure 1: The arrow show the different pathological lesions encountered in the organs: A = Emphysematous lesion in the lungs; B = Tuberculous lesions in the lungs; C = Tuberculous lesions in the spleen and D = Streptothricosis in cattle.

At post mortem, tuberculosis and abscesses were the commonest lesions observed in the lungs and liver of the cattle slaughtered at Ubakala abattoir. The prevalence of 3.4% in Akwa Ibom State [19] and 2.3 to 4.7% in Maiduguri [20] reported for tuberculosis appears to be much lower than the 11.5% observed in this study. Most of the animals slaughtered at the Ubakala abattoir are known to come from the North-east. Therefore, the high prevalence of tuberculosis at the abattoir could be as a result of several factors including the war in the North-east with the resultant displacement of people and animals as well as the relaxation in the control of animal movement and meat inspection in abattoirs. In this situation, animals and people easily move from outside the country into Nigeria. Besides the economic losses associated with tuberculosis due to the condemnation of lungs, liver or the whole carcass at slaughter [19,21], tuberculosis is a zoonotic disease. Consequently, the high prevalence of TB in cattle slaughtered at the Ubakala abattoir highlights the need for greater attention to meat inspection so as to prevent the possible transmission of the infection to humans.

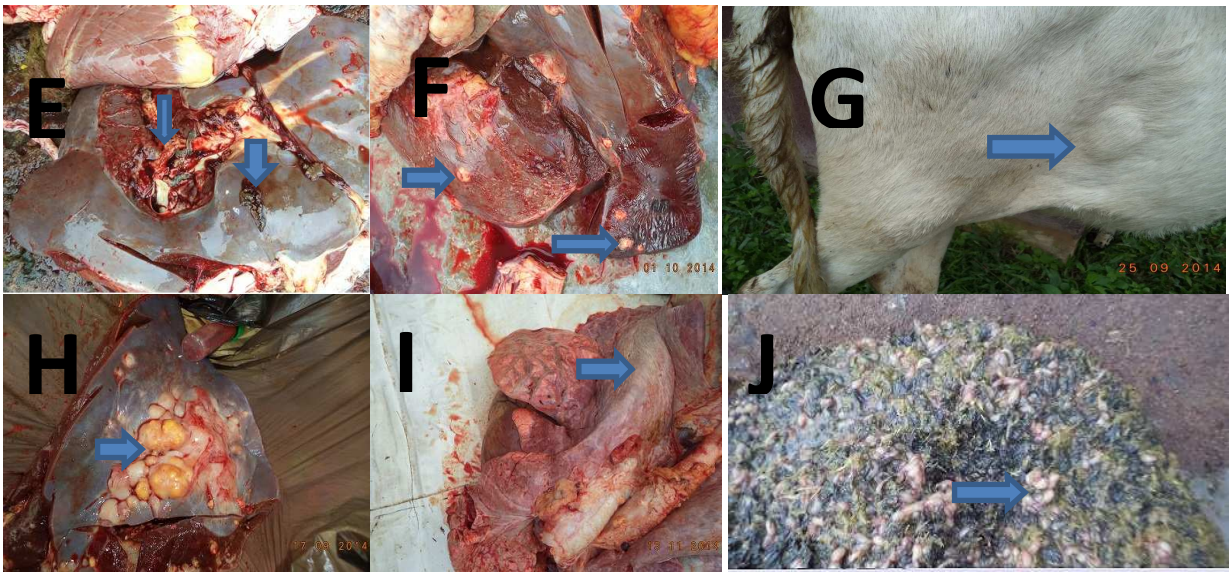

Figure 2: The arrows show the different pathological lesions. E = *Fasciola* species in the liver; F = Abscesses in the liver; G = Herniation in cattle; H = Tuberculous lesions in the liver; I = Pneumonic lungs and J = *Paramphistomum* species in the rumen

In the present study, abscess was recorded in 3.2% of the liver and lungs but occurred predominantly in the liver. This finding agrees with the reports of Ojo and Chineme [22] and Shaffo [23]. However, these results differ from Raji *et al.* [2], Ahmed *et al.* [12] and Basak *et al.* [24] who reported higher figures while lower values were reported by Denbarga *et al*. [5] and Opara [19]. Abscess formation could be due to secondary bacterial infection as a result of lowered immunity against infectious agents [12].

Fascioliasis affected 6.8% of the cattle examined in this study. This finding agrees with the reports from Onitsha abattoir [25], Nsukka abattoir [26] and Iran [27]. However, this report is lower than the 23.41% to 65.78% from other studies [2,5,24,28,29]. The lower prevalence observed in the current study could be due to increasing public education, enlightenment of farmers on the management and prevention of parasitic infections in their animals.

Pneumonia was the next leading disease of the lungs (7.4%) reported in this study. The value obtained in the present study is comparable to the 8.79% obtained in Zaria abattoir [2] and 7.14% in Shashemene municipal abattoir, Southern Ethiopia [30]. On the other hand, this result is significantly lower than the 54% from Maiduguri [31] and the 18.9% from Zaria [32]. The low prevalence recorded in this study may be due to subclinical diseases that were undetected during ante-mortem and the uncontrolled use of antibiotics in feeds by farmers to curtail bacterial infections [31. Pneumopathies account for 20% of lungs condemned in abattoirs in Nigeria [19,33]. It is necessary to note that these conditions may have been acquired from areas where the animals originated since they were not kept for very long periods after arrival before slaughter.

A prevalence of 1% was recorded for emphysema in the present study. However, this finding is lower than the 4.71% recorded at Zaria [2] and the 5.2% in Ethiopia [5]. The emphysema observed in this study could be as a result of excessive intake of air while gasping for air during slaughter. Fatigue during long

journeys in search of pasture and exposure to polluted air in their environment, predispose animals to respiratory distress and have been shown to promote lung emphysema [34,35].

Organs such as livers infected with *Fasciola* species were trimmed off and passed as fit for human consumption while heavily infected ones were condemned if the animal was in good body condition. In the case of generalized tuberculosis affecting the liver and spleen the entire carcass was condemned while in localized cases affecting only the lungs resulted in the condemnation of the affected lungs only

From the present study, we concluded that 18.2%, 16.1% and 2.1% of the liver, lung and spleen inspected at the Ubakala abattoir were affected by various diseases, some of which are of zoonotic importance and the diseases include tuberculosis and fasciolosis. The condemnation of such organs resulted in economic losses although these were not estimated in this study. The results of this study highlight the need for proper meat inspection in order to prevent the spread of diseases to the populace. There is need for further studies to estimate the economic losses associated with organ and/or carcass condemnation at the Ubakala abattoir.

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