PATHOLOGICAL CONDITIONS OF CONDEMNED BOVINE LUNGS FROM
ABATTOIRS IN AKWA IBOM STATE, NIGERIA

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ABSTRACT

A study of diseases of the bovine lungs was carried out in Akwa Ibom State, Nigeria between (1999 – 2002). A total of 5,369 cattle were slaughtered within the study period out of which, 459 (8.5 %) lungs were condemned. Tuberculosis accounted for 183 (39.921), representing 3.4 % of the total cattle population. This was closely followed by Pneumonia, which was 180 (39.2 %), representing 3.4 % of this population. Abscesses, 93 (20.1 %) and Taenia sp Cysts 3 (0.7 %), representing 1.7 % and 0.1 % respectively of the total cattle population slaughtered also resulted in lung condemnations. The overall annual prevalence of the diseases amongst condemned bovine lungs shows that most of them were encountered in the last three years of study, 10.1 %, 9.7 % and 8.7 % for the years 2000, 2001 and 2002, respectively. There was a clear positive seasonal influence on the prevalence of these diseases. The prevalence rate of tuberculosis and abscesses decreased along the seasonal periods from LDS to EDS. The rainy seasonal periods (ERS and LRS) increased the prevalence of pneumonia more than the dry periods while Taenia cysts were only recorded during the early dry season (EDS). It was, therefore, concluded that tuberculosis and pneumonias, both accounting for over 79 %, were the major reasons for bovine lung condemnations at the abattoirs in Akwa Ibom State.

Keywords: Pathology, Bovine, Lungs, Abattoirs, Akwa Ibom

INTRODUCTION

Surveillance of animal diseases for the purposes of control and eradication is practiced all over the world. Clinical and post mortem diagnoses are conventional methods being widely used. In developed countries, new methods introduced have been proved very reliable for diseases surveillance, control and eradication. Developing countries are faced with both economic and technological difficulties in putting to use most of the modern methods of surveillance and as such abattoir condemnations based on physical observations is practiced (Alonge and Fasamni, 1979; Shadbolt et al. 1987; Matovel and Mwavemigela 1994; Ofokwu and Okwori, 2000; Okoli et al. 2000). Information generated from slaughter houses have equally been used to assess economic losses arising from the condemnations of bovine lungs and other organs (Okolo, 1985; Dipeolu et al. 1998; Halle, 1998).

Diseases are the major reasons for organ condemnations at the abattoirs. For example, 41.9 % of whole carcasses condemned between 1975 and 1977 in Nigeria were due to tuberculosis, and 22.2 % due to cysticercosis of Taenia spp (Alonge and Fasamni, 1979). Pneumopathies had also accounted for 20 % of abattoir condemnations in Nigeria (Atsanda and Agbade, 1999), while abscesses had accounted for 0.4 % of liver condemned in abattoirs in Akwa Ibom State (Opara et al., 2003).

Infectious diseases of respiratory tracts of farmed animals are caused by a combination of infectious agents and predisposing factors (Eddy et al., 1992; Blood and Radostits, 1994). Under rearing conditions most ruminant livestock harbour some disease conditions without clinical manifestation. During abattoir ante-mortem inspections, hundreds of such animals are passed for slaughter (Okolo, 1985; Okoli et al., 2002).

In Akwa Ibom State, thousands of cattle are processed as meat for human consumption each year. However no study has been carried out among cattle brought in for slaughter in Akwa Ibom State to determine the prevalence of the diseases affecting the lungs which play vital roles in the maintenance of normal physiological status of these animals.

The present study therefore examined bovine lungs from abattoirs in Akwa Ibom State, Nigeria, to ascertain the prevalence of bovine lung diseases in cattle processed for human consumption.

MATERIALS AND METHODS

The prevalence of some diseases affecting the lungs of cattle slaughtered in Akwa Ibom State, Nigeria were monitored for four years January-December (1999 – 2002), using meat inspection data collected from Public Health Unit of the Federal Livestock Department (FLD), State Zonal Office, Uyo.

Meat inspection records for the State were generated through the inspection activities of the State Veterinary personnel who cover all the abattoirs in the different local government areas. Monthly, records from the local government areas were pooled together and then resubmitted to the FLD Zonal office as monthly meat inspection report. The meat inspection report, contained disease conditions identified, overall yearly and monthly prevalence rates of the diseases encountered during post mortem inspections.
These data were further analysed for disease trends over the period of study, using descriptive analyses. Averages and percentages were also used to determine the prevalence rates and trends across four seasonal periods namely: early dry (October to December), late dry (January to March), early rains (April to June) and late rains (July to September).

RESULTS

The disease conditions in condemned lungs of cattle slaughtered at the abattoirs in Akwa Ibom State are shown in Table 1. Out of a total of 5,369 cattle slaughtered, 459 (8.5%) lungs were condemned. Tuberculosis was responsible for 183 (39.9%) of the condemned lungs. This accounted for 3.4% of the lungs condemned from the total cattle slaughtered. Pneumonia was encountered in 180 (39.2%) of the condemned lungs and 3.4% of the total cattle slaughtered. Abscesses were responsible for 93 (20.1%) of the condemned lungs which translated to 1.7% of the total cattle slaughtered. Taenia cysts accounted for 3 (0.7%) of the condemned lungs, representing 0.1% of the total cattle slaughtered.

Table 1: Disease conditions in condemned lungs of 5,369 cattle slaughtered at the abattoirs in Akwa Ibom state between January 1999 and December 2002

<table>
<thead>
<tr>
<th>Disease condition</th>
<th>No. (%) of cases</th>
<th>Percentage of total slaughter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>189 (39.9)</td>
<td>3.4</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>180 (39.2)</td>
<td>3.3</td>
</tr>
<tr>
<td>Abscesses</td>
<td>93 (20.1)</td>
<td>1.7</td>
</tr>
<tr>
<td>Hydatid cysts</td>
<td>3 (0.7)</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>459 (8.5)</td>
<td>8.5</td>
</tr>
</tbody>
</table>

The percentage monthly occurrence of disease conditions in condemned bovine lungs from abattoirs in Akwa Ibom State are shown in Figure 1.

Figure 1: Percentage monthly occurrence of disease conditions in condemned bovine lungs at abattoirs in Akwa Ibom State (1999-2002)

A cyclic pattern of tuberculosis monthly distribution was observed for bovine lungs condemned at abattoirs in Akwa Ibom State. A bimodal peak was exhibited in April (12.0%) and September (11.5%) for tuberculosis. On the other hand, a cyclic monthly distribution was recorded for bovine lungs infected with pneumonia. Peaks were recorded in the months of May (16.1%) and November (11.7%). Abscesses were highest in the months of January, February, March and April (12.9, 12.9%, 14.0 and 10.8%), respectively. Another lesser peak periods were (6.5%) in September, October (6.5%) and November (7.3%).
Table 2: Disease conditions in condemned lungs of 5,369 cattle slaughtered at the abattoirs in Akwa Ibom state between January 1999 and December 2002

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of animals slaughtered</th>
<th>Tuberculosis cases (%)</th>
<th>Pneumonia cases (%)</th>
<th>Abscesses cases (%)</th>
<th>Taenia cysts cases (%)</th>
<th>Total cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>1355</td>
<td>51 (3.8)</td>
<td>26 (1.9)</td>
<td>21 (1.6)</td>
<td>2 (0.1)</td>
<td>90 (6.6)</td>
</tr>
<tr>
<td>2000</td>
<td>973</td>
<td>32 (3.3)</td>
<td>45 (4.6)</td>
<td>36 (2.5)</td>
<td>0 (0)</td>
<td>58 (6.1)</td>
</tr>
<tr>
<td>2001</td>
<td>1430</td>
<td>50 (3.5)</td>
<td>45 (3.1)</td>
<td>36 (2.5)</td>
<td>0 (0)</td>
<td>131 (9.7)</td>
</tr>
<tr>
<td>2002</td>
<td>1611</td>
<td>50 (3.1)</td>
<td>64 (4.0)</td>
<td>25 (1.6)</td>
<td>1 (0.1)</td>
<td>140 (8.7)</td>
</tr>
<tr>
<td>Total</td>
<td>5,369</td>
<td>183 (3.4)</td>
<td>180 (3.4)</td>
<td>93 (1.7)</td>
<td>3 (0.1)</td>
<td>459 (8.5)</td>
</tr>
</tbody>
</table>

Table 3: Seasonal prevalence of disease conditions in condemned bovine lungs at abattoirs in Akwa Ibom state between January 1999 and December 2002

<table>
<thead>
<tr>
<th>Seasonal period</th>
<th>No. (%) of animals slaughtered</th>
<th>Tuberculosis (%)</th>
<th>Pneumonia (%)</th>
<th>Abscesses (%)</th>
<th>Taenia cysts (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDS</td>
<td>1017 (18.9)</td>
<td>56 (5.5)</td>
<td>26 (2.6)</td>
<td>37 (3.6)</td>
<td>0 (0)</td>
<td>99 (9.7)</td>
</tr>
<tr>
<td>ERS</td>
<td>1298 (24.2)</td>
<td>56 (4.3)</td>
<td>63 (5.0)</td>
<td>23 (1.8)</td>
<td>0 (0)</td>
<td>142 (10.9)</td>
</tr>
<tr>
<td>LRS</td>
<td>1442 (26.9)</td>
<td>48 (3.3)</td>
<td>48 (3.3)</td>
<td>17 (1.2)</td>
<td>0 (0)</td>
<td>113 (7.8)</td>
</tr>
<tr>
<td>EDS</td>
<td>1612 (30.0)</td>
<td>43 (2.7)</td>
<td>43 (2.7)</td>
<td>16 (1.0)</td>
<td>3 (0.2)</td>
<td>150 (9.3)</td>
</tr>
<tr>
<td>Total</td>
<td>5,369</td>
<td>183 (3.4)</td>
<td>180 (3.4)</td>
<td>93 (1.7)</td>
<td>3 (0.1)</td>
<td>459 (8.5)</td>
</tr>
</tbody>
</table>

LDS = Late Rainy Season; ERS = Early Rainy season; LRS = Late Rainy Season; EDS = Early Dry Season

Taenia saginata cysts had only a sporadic occurrence in the month of December (100%).

DISCUSSION

Tuberculosis and pneumonias accounted for 79.1% of the lungs condemned at the abattoirs in Akwa Ibom State during the study period. This finding agrees in part with Ajogi et al. (1995) that tuberculosis is the major cause of bovine lung condemnation in abattoirs.

Tuberculosis was considered to be under control in the 1970s and 80s, however the prevalence rate of 3.4% in 5,369 cattle slaughtered in Akwa Ibom State calls for concern. With the worldwide resurgence of tuberculosis in human beings (Dollin et al., 1994), the prevalence level reported in this study indicates its high endemivity.

Although tuberculosis was encountered in all the years studied, there was a decrease in the prevalence rates along these years. This could be as a result of the recent public enlightenment campaign about tuberculosis and better meat inspection activities in the abattoirs (Ukpong, 2002). Results from this study showed that tuberculosis of the lungs was more prevalent during the rainy seasons and decreased with the end of the rains. This is contrary to the reports of Alhaji (1976), Collins et al. (1983) and Ajogi et al. (1995) who recorded higher prevalence rates of this disease during the dry seasons.

The Fulani herdsmen are nomadic pastoralists. They bring their cattle to the southern parts of the country during rainy season to graze, and re-migrate when the rains begin in the North (Ogundipe et al., 1989). This prevalence of tuberculosis during the rainy seasons correlates with the migratory activity into the south to graze. Possibly these cattle might have acquired the infection upon north before embarking on the southward migration for pastures.

The prevalence rate of pneumonia in this study (3.4%) does not agree with the report of Halle (1998) and Odo et al. (1999) who reported higher prevalence rates of 6.8% and 18.9% in Enugu and Zaria respectively. It is on record (Okolo, 1985) and Okoli et al. (2002) that animals with pneumonia are usually passed for slaughter even though they harbour this condition during roaring and might have shown obvious or specific clinical signs. Some of the cattle examined in our work could have had pneumonia but were unnoticed and passed for slaughter. Pneumonia is of importance in all livestock production due to harsh weather conditions during the dry season and verminous pneumonia during the rainy season which often resulted in bovine mortality (Isson and Mann, 1977). In this study, pneumonia was recorded during the rainy and dry seasons and thus agrees with Halle (1998) who observed that both seasons exacerbate this condition in livestock. Bronchopneumonia and the accompanying abscessation (1.7%) in the lungs might have been brought about by secondary bacterial infections with Pasteurella and Mycoplasma species. Abscess was again observed to predominate during the dry than rainy seasons. This finding agrees with the reports of Ojo and Chineine (1980), Shadbolt et al. (1987), Shafro (1993), Matovelo and Mwanengele (1994) that lack of adequate pastures during the dry season encourages abscess formation in the organs as a result of lowered immunity against infectious agents.

The presence of cysts (0.1%) in the lungs of slaughtered cattle in Akwa-Ibom State agrees with the reports of Ajogi et al. (1995), Atsanda and Agbede (1999) who reported prevalence rates of 0.57% in Sokoto, 0.67% and 0.83% in Ibadan and Maiduguri, respectively. This confirms the lungs as predilection site for Taenia cysts. The cysts were encountered only at the early dry season. It is
possibilities that the isolated cases may have been acquired during the rainy seasons but were retained into the dry season because of favourable physiological conditions in the lungs.

Generally, the overall disease trends tended to increase from 1999 to 2002. This may be due to increasing number of slaughter per years which also increased the number of condemned lungs. In addition, *Blood et al.* (1979) reported a higher prevalence rate of diseases among female cattle than their male counterparts. *Opara et al.* (2003) had recently reported a higher female cattle slaughter figure in Akwa Ibom State than the male ones. These reasons could be ascribed to the overall annual increase in diseased bovine lung condemn in Akwa Ibom State.

**Conclusion:** Tuberculosis and pneumonia are the major reasons for bovine lung condemnations in the abattoirs in Akwa Ibom State. This calls for serious concern as the result of the present study presents information on carcass condemnations. Moreover, illiterate Fulani herdsmen who provide little or attention vis-a-vis disease control and prevention owned animals involved in this study and are the major providers of meat and milk in Nigeria. The information in this study emphasizes the need for improved surveillance and meat inspection programme.

**REFERENCES**


