

A Study on Causes of Condemnation of Carcass and Organs at Shah Alam Abattoir.

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RINGKASAN

Satu kajian selama dua minggu telah dibuat di Rumah Sembelih Shah Alam berkenaan sebab-sebab pemusnahan karkas dan organ. Di dalam spesies lembu, hati dan paru-paru merupakan organ utama dimusnahkan kerana infestasi fluke dan emfisema. Sembilan puluh lima peratus dari paru-paru babi telah dimusnahkan kerana 'back bleeding' manakala dalam biri-biri, caseous lymphadenitis adalah sebab pemusnahan organ yang utama terutama sekali terhadap paru-paru dan buku limf. Sepanjang masa kajian tiada pemusnahan karkas berlaku di dalam mana-mana spesies.

SUMMARY

A two-week study of the causes of condemnation at Shah Alam abattoir was conducted. In the bovine species, liver and lungs were the main organs condemned due to fluke infestation and emphysema respectively. Ninety-five percent of pig lungs were condemned because of back bleeding, while in sheep caseous lymphadenitis was the major cause of organ condemnation affecting mainly the lungs and lymph nodes. No total carcass condemnation was observed in any species during the study period.

INTRODUCTION

One of the principal functions of a modern abattoir is to provide efficient facilities for slaughter of livestock, meat inspection procedures and refrigeration to ensure production of wholesome meat. Savic (1972) supported the need for such an abattoir in Malaysia and the one at Shah Alam which started operation in 1974, represents the first of many being established by the Ministry of Agriculture and Fisheries through its agency 'Majuternak'.

The purpose of the present study was to obtain information on the spectrum of diseases and conditions leading to condemnation of carcasses and organs.

MATERIALS AND METHODS

This study at the Shah Alam abattoir was carried out over a two-week period extending from 15th December 1978 to 6th January, 1979 in the bovine and ovine/caprine sections, and from 9th to 20th January, 1979 in the porcine section. During these periods, all carcasses and organs were examined as to the cause of con-

demnation. The percentage of organs condemned and percentage of total condemned were calculated, using the following formulae:

$$\% \text{ of organ condemned} = \frac{\text{Number of named organs condemned for specific reason}}{\text{Total number of animal slaughtered}} \times 100$$

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Samples collected from the condemned carcasses and organs, were examined for bacteria and parasites. Specimens were collected under sterile conditions for bacterial culture, and parasites were preserved in 70% alcohol. Bacteriological examination of specimens included a direct smear stained by Gram's method and culture onto blood agar and MacConkey agar plates. Biochemical tests were performed to identify the organisms cultured.

RESULTS AND DISCUSSION

Bovine

Three hundred and sixty-four cattle and 6 buffaloes were slaughtered during the period. Most of the cattle were imported. No carcass was totally condemned. Table 1 shows partial condemnation. The main organs condemned were the liver and lungs. The rejection of the liver was mainly due to liver fluke infestation, which varied in degree and resulted in either total or partial condemnation of the organ. The fluke, identified as *Fasciola gigantica*, was found in the liver of buffalo and local cattle. Neither this fluke nor *Fasciola hepatica* was seen in imported cattle as was reported by Mohd. Anwar (1977). Of the 47 livers condemned, 20 had severe fluke infestation and were totally condemned while the remaining 27 livers were trimmed to remove the affected areas which were aesthetically repugnant and unmarketable. The economic loss due to this condemnation is substantial (Mohd. Fadzil, 1977).

Two of the three liver abscesses seen contained *Corynebacterium pyogenes* while the third abscess gave *Staphylococcus aureus* on culture.

The majority of the lungs were condemned because of emphysema and congestion which are common findings in lungs of cattle slaughtered by the Muslim method. There is little or no

justification for rejection of bovine lungs affected with emphysema. The lung worms in the local cattle were found mainly in the bronchioles and were identified as *Dictyocaulus viviparus*. Affected lungs were rejected as unfit for food. The two cases of pneumonia were in imported cattle. The lungs were condemned but the carcass was passed for food as there was no systemic involvement. *Pasteurella hemolytica* was cultured.

Porcine

A total of 8558 pigs were slaughtered during the study period. There was no total or partial carcass condemnation. Organ condemnations are shown in Table 2. The kidney, heart and liver were the main organs receiving close inspection. Back bleeding, oedema and haemorrhages, probably related to the stunning, sticking and scalding of the pigs, were the major causes of lung rejection. These lungs were classified as unfit for food because the blood in the tissues would reduce their keeping quality. A small number of lungs contained parasites identified as *Metastrongylus salmi*. The study also shows that congenital renal cysts are the main factor for kidney rejection, followed by nephritis and renal infarcts. Kidneys with a single small or large cysts, or multiple cysts, were condemned. While there is every justification for condemnation of kidneys with extensive congenital cysts, there is little or none for those with one or two small cysts.

TABLE 1
Condemnation of Offal in Cattle/Buffalo

Organs	Reasons for Condemnation	No. of organs condemned	% of organs condemned	% of total condemned
Lung	Emphysema	44	11.89	55.70
	Congestion	14	3.78	17.72
	Parasites	14	3.78	17.72
	Pleurisy	5	1.35	6.33
	Pneumonia	2	0.54	2.53
	Total		79	21.35
Liver	Liver fluke	47	12.70	88.68
	Abscess	3	0.81	5.66
	Fatty change	2	0.54	3.77
	Telangiectasis	1	0.27	1.89
	Total		53	14.32
Kidney	Cyst	4	1.08	100.00
Heart	Pericarditis	2	0.54	100.00

CAUSES OF CONDEMNATION AT SHAH ALAM ABATTOIR

The two liver abscesses observed gave pure growths of *Corynebacterium pyogenes* on culture.

Ovine/Caprine

Slaughter during the study period consisted of 150 sheep from Australia. Table 3 shows the reasons for condemnation. No total carcass condemnation was made. Back bleeding and abscessation were the main causes of offal con-

demnation representing 40% and 33% of condemnation respectively. All 49 abscesses were positive on culture for *Corynebacterium pseudotuberculosis*, the causative agent of caseous lymphadenitis. The rather high prevalence of this condition is attributable to the old age of the sheep slaughtered. These were culled Merinos raised for wool production and exposed to repeated trauma at shearing (van Tonder, 1971).

TABLE 2
Condemnation of Organs in the Pig

Organs	Reason for condemnation	No. of organs condemned	% of organs condemned	% of total condemned
Lung	Back bleeding	6909	80.73	95.00
	Emphysema	218	2.55	3.00
	Lung worm	37	0.43	0.50
	Pneumonia	16	0.19	0.20
	Others (oedema, haemorrhage)	94	1.10	1.30
	Total	7274	85.00	100.00
Kidney	Cyst	251	2.93	65.71
	Infarct	52	0.61	13.61
	Nephritis	42	0.49	10.99
	Hydronephrosis	18	0.21	4.71
	Congestion	7	0.08	1.83
	Pyelonephritis	2	0.02	0.52
	Others (haemorrhage)	10	0.12	2.12
	Total	382	4.46	100.00
Heart	Pericarditis	186	2.17	99.47
	Others	1	0.01	0.53
	Total	187	2.18	100.00
Liver	Milk spot	10	0.12	33.33
	Cirrhosis	5	0.06	16.17
	Fatty change	4	0.05	13.33
	Abscess	2	0.02	6.67
	Others	9	0.10	30.00
	Total	30	0.35	100.00
Gut	Peritonitis	3	0.03	75.00
	Gastroenteritis	1	0.01	25.00
	Total	4	0.04	100.00

TABLE 3
Partial Condemnation Carcass and Organs of Sheep

Organs	Reasons for condemnation	No. of organs condemned	% of organs condemned	% of total condemned
Lung	Abscess	23	15.3	27.7
	Back bleeding	60	40.0	72.3
	Total	83	55.3	100.0
Liver	Abscess	4	2.7	80.0
	Parasite (<i>Cysticercus tenuicollis</i>)	1	0.7	20.0
	Total	5	3.4	100.0
Kidney	Infarction	2	1.3	100.0
Lymph Node	Abscess	17	11.3	100.0
Carcass	Abscess	5	3.3	100.0

Since the condition seen was mild and localised in the lungs and a few lymph nodes only, the carcass was considered fit for human consumption after removal of the affected tissues.

In conclusion, it is obvious that the study period was too short to show a wide spectrum of diseases and conditions leading to condemnation of carcass or organs. The spectrum of diseases or conditions seen in cattle and sheep will depend to a large extent on the source of the animals. In pigs, factors such as the season could well play a part and may partially explain the absence of carcass condemnation during the period under review.

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