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THE PATHOLOGY OF KIDNEY DISEASES IN SHEEP

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Pavlos Georgiou Tournazos

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ABSTRACT

Renal diseases in sheep form a diverse spectrum of pathology and an extensive literature review of spontaneously occurring and experimentally induced diseases of the sheep kidney is presented in Chapter 1 of this thesis to provide a comparison with the lesions found in a survey of kidneys in slaughter-house killed sheep. The presentation of results of this survey form the major part of this thesis and provides information on these diseases relative to large populations of sheep which is only sparsely reported elsewhere. The abnormal kidneys under study were obtained from 444 of 13,988 sheep slaughtered over a consecutive five day period at the Borthwick's freezing works, Longburn in January 1980. The prevalence of renal disease was 3.18 per cent and no significant variation ($p < 0.05$) in the prevalence of lesions was found between the various lines, chains and daily totals of sheep examined. From these sheep a total of 830 diseased kidneys were found and these were categorized into seven groups according to the major pathological lesion in each. In some kidneys additional minor lesions were present, making a total of 1212 macroscopic lesions identified.

White spots and streaks constituted the major gross pathological finding in 188 kidneys; pale, red and brown discolouration in 174, 120 and 179 respectively; scars in 107; cysts in 37 and nodules in 25 kidneys. Abscesses, neoplasms and focal space occupying lesions of uncertain aetiology were included under the category of nodule.

Pieces of tissue selected from 181 kidneys to represent the various lesions seen at gross examination were examined histologically. These were identified, recorded and graded according to the anatomical location, pattern of distribution, tissue changes and degree of severity.

The main histopathological feature of the white spotted kidneys was

chronic, mainly multifocal inflammation of the cortical interstitium. Similar but radially disposed inflammatory lesions with marked fibrosis occurred in the scarred kidneys. The pattern of these lesions suggested a haematogenous distribution of a pathogen in the spotted kidneys while the scarred kidneys were probably the result of ascending inflammation or infarctive processes.

Kidneys with pale discolouration showed mild to moderately severe nephrosis of the cortical epithelial cells; while kidneys with brown discolouration showed corticotubular intracytoplasmic and intralumenal haemosiderin deposition. In some kidneys haemosiderosis was restricted to areas of scarring. Red discoloured kidneys showed patchy or diffuse congestion.

Cystic lesions were either parasitic or the result of urinary retention caused by blockage of tubules. In the latter, the blockage was either congenital or associated with chronic inflammation.

With the exception of nephrosis and congestion all the lesions were chronic in nature and for most of them a definitive aetiological diagnosis was not established. In fact, in only those lesions containing Echinococcus granulosus hydatid cysts could such a diagnosis be made.

Additional studies are indicated for the provision of further information on (a) the prevalence of renal diseases in different geographical locations, (b) variation of disease types from area to area and (c) the causes of the lesions identified from this type of investigation.

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