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## MYONECROSIS IN FREE-LIVING AND RECENTLY-CAPTURED MACROPODS

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**Abstract:** Necrosis of skeletal muscles was found in a pademelon (*Thylogale billardieri*) and two Bennett's wallabies (*Macropus rufogrisea*). The possible involvement of over-exertion in precipitating the condition is discussed.

### INTRODUCTION

Necrosis of skeletal muscles has been described in a number of free-living and recently captured wild animals,<sup>2,3,4</sup> and it is the purpose of this communication to record the occurrence of this condition in two species of Macropodidae.

The animals concerned were a pademelon (*Thylogale billardieri*) and two Bennett's wallabies (*Macropus rufogrisea*). The former species is a relatively small, compact macropod whereas the Bennett's wallaby is larger and not as stout. Both species occur over much the same range, although Bennett's wallabies tend to be more common and pademelons are seldom found far from low scrub cover.

### MATERIALS AND METHODS

The affected animals were submitted to the laboratory accompanied by brief histories.

Complete necropsy examinations were carried out immediately upon receipt of the carcasses, and appropriate material was taken for microbiological and histological examinations. Amongst the procedures routinely employed were complete examination of the central nervous system, inoculation of white mice for the detection of *Toxoplasma* and testing of sera for the presence of a range of antibodies.

### FINDINGS

#### 1. Pademelon

The affected animal was a mature female which had been captured by neck

snare approximately a week before death.

The history stated that the animal showed the nervousness and disinclination to eat that usually occurred with most recent acquisitions. However, in the final stages of the animal's illness it remained almost completely immobile, moving only with great reluctance.

At necropsy the only significant gross lesions detected were those of the skeletal muscles. There was symmetrical paleness of many muscle masses, but especially those of the hind legs and back, and histological examination of the affected tissues showed hyaline degeneration with scattered areas of calcification (Fig. 1).

#### 2. Bennett's wallaby

One animal was found virtually unable to move in sand-dune country and the other was recently-captured; both were dead on arrival at the laboratory. Owing to the scrub-covered terrain and lack of supervision in the animal park submitting the recently-captured wallaby, the only history provided was that the animal was found in a moribund condition. However, the proprietor did volunteer the information that some wallabies captured in the same area previously had died under similar circumstances.

Gross lesions were similar to those found in the pademelon, but in addition the muscles of mastication were severely affected. Upon histological examination hyaline degeneration was found in the muscles of both animals and marked interstitial oedema was noted in the muscles of the free-living wallaby.

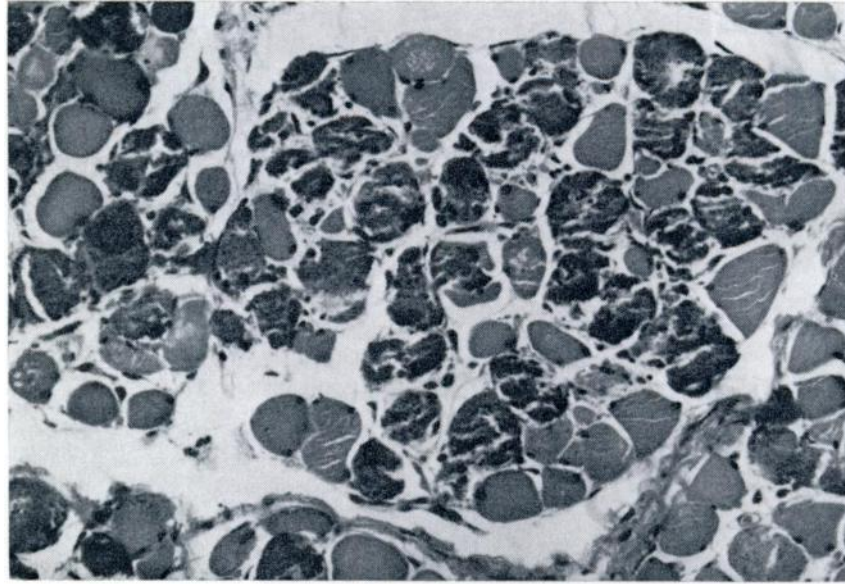


FIGURE 1. Section of pademelon (*Thylogale billardierii*) muscle illustrating hyaline degeneration with prominent calcification of affected muscle fibres. (Haematoxylin and eosin X 300).

#### DISCUSSION

The absence of other significant lesions, together with the distribution and type of myonecrosis found in the affected animals, led the author to conclude that the condition was most likely nutritional in origin.

A number of factors have been implicated in the aetiology of nutritional muscular dystrophy, but it is generally agreed that these conditions can be designated as selenium - and/or vitamin E-responsive.

Unfortunately, it was not possible to obtain selenium or vitamin E analyses on

the tissues of the affected animals and therefore the exact aetiology remains obscure. The recently-captured Bennett's wallaby originated in an area where selenium-responsive myopathy is relatively common in sheep but, even so, it must be remembered that Kakulas<sup>2</sup> found that nutritional myopathy in quokkas was vitamin E, but not selenium-responsive.

The possible role of extreme muscular activity in precipitating myopathic conditions, must be borne in mind in relation to the captive animals which may have had 'biochemical lesions' that under conditions of normal activity might not have led to overt disease.

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