

Brief Communication

PULMONARY PHYCOMYCOSIS IN CAPTIVE ROCK
PTARMIGAN (*LAGOPUS MUTUS*) AND WILLOW PTARMIGAN
(*LAGOPUS LAGOPUS*) CHICKS

There are few reports about pulmonary phycomycosis in birds. *Kon & Linton* (1961) reported *Absidia ramosa* from caseous nodules in the lungs of a penguin that had lived in a zoological garden. *Migaki et al.* (1970) found organisms that were morphologically similar to the organisms causing phycomycosis in sections from the lungs of a 9 weeks old broiler chicken. *Parihar & Singh* (1971) detected phycomycosis in 11 birds (1 %) in their histological studies on the incidence of avian respiratory mycosis.

Ten day old rock ptarmigan chicks were caught in the mountains and taken to a game farm in a heat insulated bag with warmed barley (about 30°C) in the bottom. At the game farm they were placed outdoors in a heated cage together with 15 willow ptarmigan chicks of the same age. The chicks were fed concentrates, blueberry heather (*Vaccinium myrtillus*) and oak-fern (*Dryopteris linnaeana*). Right from the beginning of the experiment the rock ptarmigan chicks appeared listless and weakened. Many of them showed increased respiratory rate, and a few opened the mouth while breathing. Coughing was not observed. After 3 days 2 died, and during the following 3 weeks all the rock ptarmigan chicks and 6 of the willow ptarmigan chicks were found dead.

Post-mortem examinations showed oedema, congestion and small greyish-white nodules in the lungs.

Histo-morphologically there were lesions associated with bronchi and parabronchi in birds which had survived for 2—3 days. The lesions were composed of heterophilic leucocytes, lymphocytes and coenocytic hyphae centrally, circumscribed by epitheloidal cells (Figs. 1 and 2).

In birds which had survived for a longer time the lesions featured granulomas in the respiratory tissue. These granulomas had either central caseous necrosis or they were composed of

epitheloidal and giant cells, mostly foreign body, but also Langhans type (Fig. 3). Tubercle bacteria could not be demonstrated in Z.N.-stained sections.

Cultures were made on ordinary mycological and bacteriological media from the lungs of 7 chicks. From all lungs the same

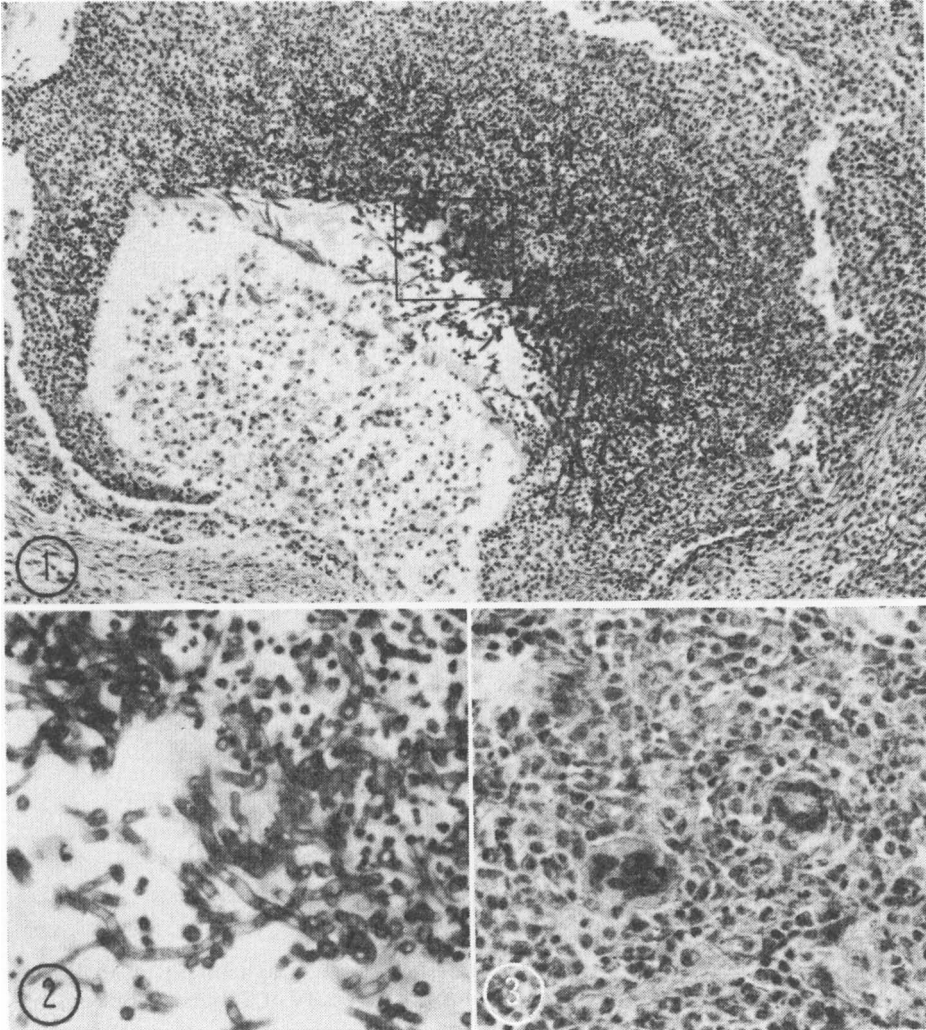


Figure 1. Bronchus partly with inflammatory cells and fungal hyphae. Rock ptarmigan chick 3 days old. PAS 100 \times .

Figure 2. Rectangel of Fig. 1. PAS 400 \times .

Figure 3. Granuloma composed of epitheloidal and giant cells. From the lungs of a 6 days old rock ptarmigan chick. H.E. 400 \times .

fungus was isolated, sometimes in mixture with yeasts, and subsequently it was identified to be *Rhizopus arrhizus* (Zycha *et al.* 1969). The diagnosis was verified by Centralbureau voor Schimmelcultures, Baarn, Holland. Pathogenic bacteria were never isolated from these lesions.

According to Ainsworth & Austwick (1973) no reliable data are available on the epidemiology of phycomycosis. Unfortunately specimens from the barley that were used during the chick transport were not available for mycological investigation after the diagnosis was known. As lung lesions only occurred in this one cage and the same concentrates were given to all chicks in the game farm, it is likely that the primary source of infection was the barley, and that secondary infection of the willow ptarmigan chicks occurred through inhalation of spores from the plumage or expectoration of the rock ptarmigan chicks.

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