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EXPERIMENTAL PATHOLOGICAL ANALYSIS OF THE DEVELOPMENTAL
PROCESS OF REOVIRAL TENOSYNOVITIS IN CHICKENS.

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This study was carried out to elucidate the developmental process of lesions from the subacute to chronic stages of reoviral tenosynovitis in chickens. The tenosynovitis was induced by oral inoculation of a reovirus (58-132 strain) into 1-day-old SPF chicks. Histopathological and electron-microscopical examinations were made chronologically from two days to 10 weeks after inoculation. The hock joints were examined histologically, and early lesions were seen in mucosal bursae including synovial spaces, paratendon and tendon sheaths. They consisted of marked infiltration or exudation of inflammatory cells including macrophages, heterophils, lymphocytes and plasma cells. The bursae were dilated with heterophil and macrophage exudation. However, it was frequently difficult to differentiate the involved bursae from the surrounding tissues because of conspicuous cell infiltration. As the early lesions advanced, the repairing process occurred by a proliferation of synovial intimal cells, surface cells (fibroblasts) and lining cells of the mucosal bursae, and by fibrocytic increase (fibrosis). In addition, progressive fibrotic changes were seen in the epitendineum of the tendon fasciculus, and the endotendineum or medial fasciculus. Sometimes, the tendon was replaced with fibroma-like tissue.

On electron-microscopical examination, the tendon tissues of chickens seemed to be undifferentiated compared with other connective tissues. Therefore, lining cells of all the mucosal bursae might well show hyperplastic changes as the synovial intimal cells of the joint capsule did, although the former lesions were not so severe as the latter.

With immunohistochemical staining for reoviral antigen, a positive reaction was present in fibroblasts of the tendon sheath, epitendineum and interstitium of the surrounding skeletal muscle fibers. These positive findings were mostly consistent with inflammatory changes. Viral replication appeared to be minimal in the chronic stages of the present lesions. However, the inflammatory changes were always progressive. Therefore, other factors might be involved in the development of the lesions. Ultrastructurally, no viral particles were detected in any of the tissues of the hock joints during the experimental period.