



Title	ON THE FORMAL PATHOGENESIS OF ALIMENTARY CANAL ULCERATION, WITH PARTICULAR REFERENCE TO GASTRIC ULCERS, SEEN IN DOGS, CATS AND SWINE : NEUROPATHOLOGICAL INVESTIGATIONS
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effects as the same dose of Nembutal used alone.

4) The use of intravenous morphine (1 mg/kg) as a preanesthetic decreased the total amount of Nembutal required for surgical anesthesia to two-third or four-fifth of the standard anesthetic dose required when morphine was not used.

5) In a few cases a transient excitement period was observed with the intravenous use of morphine at the dosage of 1 mg/kg and the running movements seen with the use Nembutal did not disappear even in the morphine-Nembutal combination.

**ON THE FORMAL PATHOGENESIS OF ALIMENTARY CANAL
ULCERATION, WITH PARTICULAR REFERENCE
TO GASTRIC ULCERS, SEEN IN DOGS, CATS AND SWINE
—NEUROPATHOLOGICAL INVESTIGATIONS—**

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(Summary of Masters thesis written under direction of Dr. Y. FUJIMOTO)

Histopathological investigations were conducted on the alimentary canals (stomachs, small and large intestines, esophagi) and some autonomic nerves innervating the alimentary canals (gastric plexuses, vagi, sympathetic trunks, and anterior and posterior plexuses) from 29 dogs, 4 cats and 7 swine, each of them taking various disease conditions of which names were pathologically diagnosed. Each individual animal had macroscopical ulcerative lesions (erosions and ulcers) in the stomach or in some segment of the alimentary canal (duodenum, jejunum, ileum, rectum or esophagus).

Significant microscopical changes were observed in areas of the alimentary canal having no relationship to the macroscopical lesions and in the autonomic nerves. Those microscopical changes developed regardless of species, diseases or cases, and had the common character. The changes were as follows: microscopical ulcerative process (erosion), hydropic degeneration of the epithelium, solution of continuity of the epithelium, edema of the lamina propria (primarily pseudolaminar edema just beneath the epithelium), microvascular alteration (edematous loosening and swelling of the walls of the small blood vessels), hydropic degeneration of the smooth muscle, atrophy of the mucosa, mucosal calcinosis, edematous induration of the lamina propria, squamous metaplasia of the epithelium

in the esophageal region of the stomach in the swine, degenerative process in the intramural plexus (containing degeneration of vascular nerves), and degenerative process of the autonomic nerves (polyneuropathy).

Formal-pathogenetically the ulcerative processes (erosion and ulcer) in the stomach (or alimentary canal) may develop on the basis of the edema of the lamina propria and hydropic-degenerative process of the epithelium, and the edema and degenerative process may be neurogenic-angiogenically brought about in consequence of a functional disorder of the autonomic nerves (neurogenic erosion and ulcer). The degenerating epithelium signifying the decrease of resistance may be desquamated by means of a natural transition and/or an action of the gastric contents (acid, pepsin, microorganism, etc.).

A STUDY OF THE FINE STRUCTURE AND PILI FOUND IN *CORYNEBACTERIUM RENALE*

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Corynebacterium renale is a Gram-positive organism causing pyelonephritis in cattle. This paper is a study of the fine structure of *C. renale* using sections fixed with osmium tetroxide and embedded in Epon 812.

1) Pili of *C. renale*, which were discovered by YANAGAWA et al. (1967), were confirmed and studied in detail.

2) Around the cell wall of 40~60 Å a outer-most layer was observed which had a thickness of 30~50 Å.

3) All observations of *C. renale*'s fine structure were almost identical to those of other Gram-positive bacteria except for the pili and the outer-most layer.

Since pili have not been found before in Gram-positive bacteria, the pili found in *C. renale* have been compared to those of Gram-negative bacteria.

1) The diameter of these pili was about 20 Å, which is comparative to type II strain No. 35 and type III strain No. 42.

2) Electron microscopic studies of *C. renale* failed to turn up the subunit normally seen in Gram-negative bacteria.

3) The pili seen in *C. renale* were present under all observed conditions which cannot be said of the pili of Gram-negative bacteria as they disappeared in some of these conditions.