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Author(s)	KOTANI, Tadao
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relatively high dilution. I also found they had at least three common precipitation lines in gel diffusion test.

5) In studying these 30 strains of mycoplasmas I found that their biological activity varied widely, especially the carbohydrate fermentation tests depending on methods used.

6) The thirty strains of mycoplasma isolated from chickens showing signs of CRD were classified into four groups by the gel diffusion test. Three strains of these organisms belong to *M. gallisepticum*, five to *M. gallinarum*, and one to *M. iners*. However, the remaining strains did not form any distinct precipitation lines with the mycoplasmas antiserums.

### CLINICAL AND HEMATOLOGICAL OBSERVATIONS OF MORPHINE-PENTOBARBITAL ANESTHESIA IN DOGS

Tadao KOTANI

*Department of Veterinary Surgery  
Faculty of Veterinary Medicine  
Hokkaido University, Sapporo, Japan*

(Summary of Master's thesis written under direction of Dr. T. SAKAI)

This experiment was carried out to establish the anesthetic effects of Sodium Pentobarbital (Nembutal) combined with morphine in dogs. We carried out our study in three phases:

1) We premedicated dogs with morphine administered intravenously (1 mg, 3 mg and 6 mg per kg of body weight) and recorded our clinical observations and hematological findings (leucocyte count, eosinophil count and acid-base balance).

2) We administered Nembutal intravenous to dogs (8 mg, 16 mg, 20 mg and 25 mg per kg of body weight) and recorded our clinical observations and hematological findings.

3) We used a morphine-Nembutal combination (1 mg/kg of morphine given about 20-25 minutes before and 8 mg, 16 mg, 20 mg and 25 mg/kg of Nembutal) and recorded our findings as before.

A summary of the results follows:

1) Judging from a clinical point of view better results were achieved using 1 mg/kg of morphine as a preanesthetic than using 3 mg/kg or 6 mg/kg.

2) Considerable variation was seen in the hematological observations of the group using just Nembutal whereas with the combination of morphine and Nembutal the results were constant.

3) The morphine-Nembutal combination achieved about twice the anesthetic

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—**

Ryozo MORIGUCHI

*Department of Comparative Pathology  
Faculty of Veterinary Medicine  
Hokkaido University, Sapporo, Japan*

(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