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Author(s)	YONEMICHI, Hiromi
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stained with anti-CF and anti-HA antigen sera.

5) From the results described above, the author supposed that the CF and HA antigens, the components of virus particle, were mainly synthesized in the cytoplasm, then moved into the nucleus, and assembled into the virus particle.

ON THE SIGNIFICANCE OF MICROSCOPICAL LESIONS IN THE TEATS OF COWS

Hiromi YONEMICHI

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

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

The quarters (208 udders; 207 teats) from indiscriminately collected 52 slaughtered cows (Holstein-Friesian cows, 4~17 years of age) were investigated histopathologically and with special consideration of neuropathology. Formal pathogenesis and significance of lesions in the teats were discussed. One hundred and eighteen teats (119 quarters), which had no mastitis diffusa, mastitis lobularis or galactophoritis, were treated as the primary subject of discussion.

a) In all of the quarters, there were desolations having a character of poly-neuropathy (old or relatively fresh changes) in the nerves innervating the mammae (intramural nerve bundles in the teats, nerve bundles being distributed in the udder, and lumbar nerves (L₁~L₄) and their branches. b) In all of the teats, almost all of the blood vessels showed varying degrees of alteration (edematous loosening and swelling of the walls), and c) almost all of smooth muscle fibers manifested hydropic degeneration and loss. d) In the majority of the teats, the lamina propria and tela submucosa of the cistern and streak canal showed edematous conditions in which pseudolaminar edema beneath the epithelium was attracted notice, and e) the epithelium showed hydropic degeneration and desquamation (erosion and ulcer). f) The epithelium of the streak canal revealed hyperkeratosis and the epithelium of the cistern revealed squamous metaplasia.

As for the formal pathogenesis of the aforementioned lesions (a~f), the following discussions were done: Disturbances of the autonomic nerves which were signified by the a might bring on the b; the b might bring on the c and d; the d might bring on the e and f.

With regard to the significance of the lesions, discussions were attempted from the viewpoints of "the teat as a portal of infection". It may be possible

that the d, e and f are convenient for invasion and multiplication of pathogenic microorganisms.

Hokkaido University granted the degree of Doctor of Veterinary Medicine to Mr. T. HIROSE and Mr. C. ITAKURA on September 30, 1967 under a new regulation (1962) authorizing the granting of the Doctors degrees to qualified researchers who are not graduates of the Post-Graduate School. The authors' summaries of the theses are as follows :

**COLIC OF THE HORSE AND AUTONOMIC-NERVOUS
DISTURBANCES**
—PATHO-MORPHOLOGICAL INVESTIGATIONS*—

Tsuneo HIROSE

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

1) Fifty-seven cases which were clinically and pathologico-anatomically diagnosed as true equine colics (24 of constipation colic, 19 dislocation colic and 14 dyspepsia colic) were investigated histopathologically and with special consideration of neuropathology.

2) Common histopathological characteristics in the cases of the above-mentioned three colics each were composed of multiple degeneration and loss of parenchyma in the peripheral nervous system especially the autonomic nervous system (polyneuropathy), abnormality of the blood vessels (alteration; edematous loosening and swelling of the walls) in the alimentary canal, and degeneration and loss of smooth muscle fiber in the alimentary canal.

3) It was reasonably discussed that significances of these histo-pathological changes may have played important parts in formal pathogenesis of the three kinds of colics. Formal-pathogenetically occurrences of the three colics each may be decided according to quantitative conditions and localization of the disturbances of the autonomic nerves.

4) Occurrences of anamnestic and habitual colics may also be elucidated by means of disturbances of the autonomic nerves. Formal-pathogenetically it seems

* Original report of this summary appeared in *Nikkyokenpo* (Exp. Rep. eq. Hlth, Lab.), No. 4, 151, (in Japanese with English summary) (1967).