



HOKKAIDO UNIVERSITY

Title	HISTOPATHOLOGICAL STUDIES ON THE REPRODUCTIVE ORGANS, PITUITARIES, THYROIDS, ADRENALS AND LIVERS FROM SLAUGHTERED CATTLE IN HOKKAIDO
Author(s)	KANAGAWA, Hiroshi
Citation	Japanese Journal of Veterinary Research, 11(2), 61-64
Issue Date	1963-06
Doc URL	https://hdl.handle.net/2115/1777
Type	departmental bulletin paper
File Information	KJ00002373378.pdf



INFORMATION

The Hokkaido University has granted the degrees of Doctor and Master of Veterinary Medicine to the following two graduates on March 25, 1963. The authors' summaries of the theses for the Doctor's and Master's Course are as follows :

Thesis for the Doctor's Course

HISTOPATHOLOGICAL STUDIES ON THE REPRODUCTIVE ORGANS, PITUITARIES, THYROIDS, ADRENALS AND LIVERS FROM SLAUGHTERED CATTLE IN HOKKAIDO

Hiroshi KANAGAWA

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

(Summary of Doctor's thesis written under direction of Dr. T. ISHIKAWA)

Histopathological studies were made on the reproductive organs, pituitaries, thyroids, adrenals and livers which were obtained from 159 cows and 33 heifers slaughtered at the Sapporo Abattoir from 1955 to 1961. They comprised 186 Holsteins, 2 Guernseys, 1 Jersey, 1 mixed breed between Jersey and Brown Swiss and 2 Japanese Black Cattle, ranging from 1.5 to 15 years of age.

The results obtained may be summarized as follows :

1. So-called "small cystic degeneration" in the ovary was observed in 69 cases (35.9%). In a few cases (7.2%) in which small cysts were prominent in size and number, this condition was considered as a main factor in the sterility. It was noteworthy that these severe cases were accompanied with an increase in basophilic cells in the anterior pituitary and with a high incidence of struma.

2. Follicles showing cystic degeneration were classified histologically into "cystic follicle" and "follicular cyst" on the basis of presence or absence of the zona granulosa. Cases of these two classes were 19 and 26, respectively. In the anterior pituitary in most of these cases basophiles had slightly increased.

3. Luteal cyst of type I according to JOEST's classification was found in 23 cases (11.9%). In these cases endometritis catarrhalis chronica, nodular hyperplasia in the zona fasciculata and increase of width of zona glomerulosa in the adrenal were observed in the ratios of 11.9, 52.0 and 39.0 %, respectively.

4. Luteal cyst of type II, JOEST's classification, was found in 7 cases (3.6%). In this group a slight increase in number of basophiles was found in the anterior pituitary.

5. In large follicles of which the zona granulosa entirely disappears, the theca folliculi was replaced by a thick layer of connective tissue, the outer layer of the theca folliculi became a narrow layer with abundant capillaries, and sometimes the theca folliculi contained degenerated luteal cells; such changes were named "connective tissue-formation of follicular wall" by the present author. Such finding was observed in 10 cases (5.2%). In the anterior pituitary of these cases, a marked increase of acidophiles was noted.

6. Follicles with fold-formation at the follicular wall were distinguished into two groups on the basis of occurrence or non-occurrence of activity of the theca interna; one is "intra-follicular abnormal corpus luteum formation" and the other is "abnormal follicle having atretic processes".

7. Rete ovarii was found in 114 cases (59.1%). In a few cases (5.2%) in this group, the rete ovarii showed adenoma-like features and also had a resemblance to so-called "small cystic degeneration" from the viewpoint of histogeny.

8. Abnormal pregnancy was noted in 9 cases (4.7%). Most of the cases in this group showed accompanying nodular hyperplasia in the zona fasciculata of the adrenal gland and/or pathologic alterations of the ovary.

9. Of the pathologic alterations in the uterus, endometritis catarrhalis chronica was most frequent (49 cases or 25.6%).

10. No specific activity in PAS, carmine and alkaline phosphatase reactions in the endometrium was found among various pathologic groups in the endocrine organs and ovaries.

11. By the bacteriological examination of uterine content, cases of 40.0 % in the endometritis group and 20.4 % in the group without uterine pathology were found positive with regard to microorganisms, respectively.

12. Three cell types, acidophile, basophile and chromophobe, were noted in the anterior pituitary. Distribution of these cells varied with cases to a certain extent. In general, acidophiles were mainly distributed in the peripheral zone of the pars distalis, while basophiles in the central zone of the pars distalis.

13. As for changes in proportion of the anterior pituitary cells with the progress of age, acidophiles tended to increase in number in cases during the period of 2 to 4 years of age, but in cases beyond 5 years acidophiles tended to decrease and chromophobes to increase.

14. Histological features of acidophiles and basophiles of the anterior pituitary varied with some stages in the sexual cycle. In cases at the time immediately after ovulation, both of these sorts of cells were enlarged and weakly stained, being

abundant in granules in the cytoplasm, while in cases at luteal phase, these cells were small and dark-stained, being scant in cytoplasmic granules.

15. In the pituitary in cases at early stage of normal pregnancy, acidophiles, which were slightly enlarged, increased in number in the peripheral zone of the pars distalis. Similar findings were observed in some cases of abnormal pregnancy and in cases with pyometra.

16. Colloid cyst in the pituitary was found in 88 cases (53 cases in the pars distalis, 22 cases in the pars intermedia and 13 cases in both). No correlation was noted between the incidence of colloid cyst and age of the animal, nor between such incidence and pathological changes in the reproductive organs.

17. One or two large cysts in the pituitary were detected in 13 cases (6.7%). In most of these cases there were an accompanying nodular hyperplasia in the zona fasciculata of the adrenal and various pathologic alterations of the ovary.

18. The incidence of struma was very high (24.6%). In the struma group, pathologic alterations in the adrenals and ovaries were frequently observed.

19. Acidophilic granules in the glomerulosa cells of the adrenals were found in 3 cases (1.5%); they were associated with cystic degeneration in the ovary.

20. Nodular hyperplasia in the zona fasciculata of the adrenal gland was observed in 50 cases (26.1%). In other organs in the animals of this group, various pathologic conditions were diagnosed in comparatively high percent: large cyst in the pituitary (20.0%), struma (24.0%), liver cirrhosis (22.0%), luteal cyst of type I (40.9%), so-called "small cystic degeneration" (40.0%), abnormal corpus luteum formation (36.3%), luteal cyst of type II (33.3%) and abnormal pregnancy (66.6%).

21. Extramedullary myelopoiesis in the adrenal gland was noticed in 16 cases (8.3%).

22. Ingrowth of the adrenal cortical tissue into the medulla was found in 166 cases (86.9%), most of which were bilateral (104 cases). There was no correlation between the age of the animal and this condition.

23. Liver cirrhosis was seen in 25 cases (14.3%), most of which were accompanied with cystic degeneration in the ovary.

24. As for neoplastic changes, granulosa cell tumor of the ovary (1 case), leiomyoma uteri (1 case), adenoma colloides of the thyroid (1 case) and hypernephroma corticalis sarcomatodes (2 cases) were observed.

25. In Holstein-Friesian cows aged 7 years, the confidence limit of mean of body weight (confidence degree, 95%) was 528 ± 28.34 kg (N=25), likewise the confidence limits of mean of weight of pituitary, thyroid and total adrenals were 3.23 ± 0.31 g (N=25), 31.29 ± 2.72 g (N=25) and 30.76 ± 2.89 g (N=19), respectively.

26. The difference between weight of the pituitary or total weight of the

adrenals in the group with pituitary large cyst and those in the group without pituitary large cyst, was statistically significant; the former group was heavier than the latter less than 0.01 level on the pituitary and 0.05 level on the adrenals, respectively.

Thesis for the Master's Course

**AN INHIBITORY EFFECT OF IMMUNE SERUM ON
INTRACELLULAR MULTIPLICATION OF
TOXOPLASMA GONDII WITHIN
MACROPHAGES DERIVED FROM RATS**

Rikio NIKI

*Department of Hygiene and Microbiology,
Faculty of Veterinary Medicine,
Hokkaido University, Sapporo, Japan*

(Summary of Master's thesis written under direction of Dr. K. HIRATO)

Monocytes from normal and immunized rats were cultivated separately in normal and immune dog serum, and the behaviour of *Toxoplasma gondii* within macrophages and inhibitory effect of immune serum were studied.

The monocytes were cultivated on slides with a film of formvar on a transparent gel of rat-tail collagen following EHRMANN and GEY.

1. Monocytes from immunized rats were cultivated in dog immune serum and they were infected with toxoplasma. Intracellular multiplication of toxoplasma was almost completely inhibited up to 96 hrs. incubation.

2. Monocytes from normal rats cultivated with normal dog serum exhibited no inhibitory activity and rate of infected monocytes and number of intracellular parasites increased with lapse of cultivation time.

3. Monocytes from normal rats, combined with immune dog serum had inhibitory power to the same extent as was observed with the combination of immune monocytes and immune serum.

4. With the combination of monocytes of immunized rats and normal dog serum, the mode of the intracellular multiplication was similar as is indicated in 2.

These results seem to indicate that some antitoxoplasmic substance is a determining factor in the existence of immunity against toxoplasma infection.