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Citation	Japanese Journal of Veterinary Research, 31(2), 96-96
Issue Date	1983-05-13
Doc URL	http://hdl.handle.net/2115/2294
Type	bulletin (article)
File Information	KJ00002374121.pdf



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A STUDY ON CHANGES OF FOLLICULAR COMPONENTS
DURING THE ESTROUS CYCLE AND
THROUGHOUT THE FOLLICULAR ATRETIC PROCESS

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A total of 270 follicles that were more than 0.7cm in diameter was obtained from 129 cows at a slaughter house, and 6 follicular components, including the diameter of the follicles, were analyzed.

1) The mean diameter of the largest follicle obtained from the estrous phase was significantly larger ($P < 0.05$) than that of the other phases.

2) The follicular diameter (X) increased curvilinearly against the follicular volume (Y) ($Y = 0.49x^{2.54}$, $n = 256$), which indicated that the follicles were nearly spherical.

3) As for the value of icteric index (II) and total protein (TP), and electrophoretic figures, there was no significant difference between the 2 groups from among the 7 sexual cycles and the 9 follicular atretic processes, respectively.

4) As for the mean progesterone (P) concentration in the follicular fluid, there was no significant difference between the 2 groups obtained from the estrous cycle.

5) However, the P value at the pregnant phase was significantly lower ($P < 0.05$) than that of the estrous cycle, except for the estrous phase, and was significantly lower ($P < 0.01$) in comparison with that of the luteal phase. Therefore, it seemed that the P secretion from the corpus luteum had direct effects upon the increase of P value in the follicle for an extended period of time.

6) The mean P concentration in the follicular fluid obtained from the cystic and luteinized atretic follicles was significantly higher ($P < 0.001$ and $P < 0.01$, respectively) than that of the other atretic follicles. As compared with both, the P value measured for the luteinized atretic follicles was significantly higher ($P < 0.01$) than that of the cystic atresia. From the results obtained, it was surmised that the some relationships existed between the cystic or luteinized atresia and the clinical ovarian cyst.

7) However, there was no significant difference between the 2 groups obtained from among the other 7 atretic stages. Therefore, it seemed that granulosa cells in the atretic follicle had a P productive capacity.

8) The mean diameter of follicles with normal oocytes was significantly smaller ($P < 0.05$) than that of the ones with degenerative oocytes. The mean total protein levels in the follicular fluid of the former was significantly higher ($P < 0.05$) than that of the latter. As for the mean P value of follicular fluid, it was observed that the P value of the former was significantly lower ($P < 0.01$) than that of the latter.