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ROENTGENOGRAPHICAL AND ROENTGENOSCOPICAL STUDY
ON THE DEVELOPMENT OF THE NEONATAL BOVINE STOMACH

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This paper describes a study on the development of the bovine stomach in a calf using a roentgenographic and roentgen television fluoroscopic apparatus.

The results were summarized as follows:

- 1) The following method was suitable for observation of the calf until 4 weeks of age.
 - (1) The omasum and abomasum were observed by roentgenography and roentgenoscopy after administration of BS by sucking.
 - (2) Then, the rumen and reticulum were observed after additional administration of BS by using a rumen catheter.
- 2) Passage rate of BS in the alimentary tract of the calf decreased gradually from 5 weeks of age. The method of observation was thus changed as follows after the calf reached 5 weeks of age.
 - (1) The omasum and abomasum were observed after administration of BS.
 - (2) After 24 hours, the rumen and reticulum were observed after additional administration of BS. If BS was presented in the alimentary tract, the observation was delayed for 4 to 10 hours until it disappeared.
- 3) The movement of the stomach of the calf at 1 to 6 weeks of age could be observed clearly by roentgenoscopy. But after 7 weeks of age, the observation was very difficult because of increased contents in the rumen, growth of the calf and the small size of the screen of the roentgenoscopic apparatus.
- 4) The volume of rumen could be estimated by the body weight of the calf and the area of rumen by roentgenography.
- 5) There was no influence clinically and grossly at autopsy of the calves which were irradiated with roentgen ray doses of 4 to 30 R per minute, 12 to 24 times for 4 months. The number of lymphocytes in the blood examination was decreased slightly during the observational period.
- 6) Concerning the blastogenic responsibility of peripheral blood lymphocytes against three mitogens (PHA, Con-A, PWM) by the ^3H -thymidine incorporation method, there was no significant influence due to X-ray irradiation of the above mentioned dose.

From these results, it was suggested that roentgenography and roentgenoscopy are useful for observation of the development of the bovine stomach in calves and that they are helpful when used with the pressure recording method.