

Production of Placentomata in Normal and Ovariectomized Guinea Pigs and Albino Rats.

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The work of Loeb¹ in producing placentomata in the normal guinea pig by irritating the uterine mucosa between the fourth and ninth days after oestrus, suggested a comparable experiment in the albino rat. Negative results were obtained in the normal rat and were perhaps due to the oestrous cycle being so short that insufficient time elapses for a proliferation of decidual cells before the next cycle occurs. With the discovery that potent extracts of the corpus luteum could be prepared, as described by Hisaw² the problem was attacked from a different angle. The corpus luteum hormone when injected into the rat caused an inhibition of ovulation. This hormone was injected into rats for 2 days following oestrus, at which time the uterine mucosa was stimulated and the injections continued for 4 days. The rats were killed at this time and placentomata were found.

Ovariectomized rats were treated with corpus luteum hormone in the same manner and no placentomata were formed. If, however, such rats were first brought into oestrus artificially by injections of the follicular hormone and then treated as above, placentomata were formed. Apparently the follicular hormone is necessary to put the uterus in a proper physiological condition before it will respond to the corpus luteum hormone. Moreover in ovariectomized rats which have been injected first with follicular hormone followed by the corpus luteum hormone, stimulation of the uterine mucosa at any time during the interval between artificial oestrus and the fourth day after, produced these effects, while the normal rat is unresponsive until the third or fourth day after oestrus. Experiments are now being carried on to determine the length of time which may elapse before this physiological condition produced by the follicular hormone disappears so that placentomata can not be formed even though the corpus luteum hormone is present.

In guinea pigs, which on the fourth day after oestrus were ovariectomized and in which the uterine mucosa was stimulated, no placentomata were noted when the animals were killed 4 days later. If, however, the corpus luteum hormone were administered at the time of operation and continued for 4 days, then placentomata were

formed. Attempts were made to produce placentomata in the guinea pig between the ninth and fourteenth days after oestrus, a period during which they cannot normally be produced in the animal. These animals were injected daily with the corpus luteum hormone from the sixth to the fourteenth day. The mucosa was stimulated on the tenth day but no placentomata were formed. It would seem as though too long an interval had elapsed since the previous oestrus, and the effect of the follicular hormone had been lost. This, too, is being investigated at the present time.

These results are in accord with the findings of Brouha,³ who by injecting extracts of the anterior lobe of the hypophysis into the rat causes a great enlargement of the corpus luteum and the inhibition of ovulation over extended periods. He finds that in such rats placentomata may be produced only between the fourth and seventh days after ovulation, although the corpora lutea persist without any indication of involuntary changes having taken place. The probable explanation of this is that the follicular hormone is absent after the seventh day so that the uterus is not in the proper physiological condition to respond. Hisaw, by experiments in which the pelvic ligaments of the guinea pig were relaxed by injections of corpus luteum extracts, finds that relaxation occurs only when the animal is under the influence of the follicular hormone. This influence is manifested from the fourth day before oestrus until 7 days after, the intensity reaching a maximum at oestrus and gradually diminishing until practically all effect is lost after the seventh day. The reaction in this case occurs under the same conditions as those found necessary for the production of placentomata.

¹ Loeb, Leo, *J. Am. Med. Assn.*, 1908, 1, 1897.

² Hisaw, F. L., reported at the meeting of the A. A. A. S. at Nashville, Tenn., 1927.

³ Brouha, L. L., *Proc. Soc. Exp. Biol. and Med.*, 1928, xxv, 488.

3918

Erythrocytaphagic Capacity of the Hepatic Peritoneum in the Splenectomized Horned Toad, *Phrynosoma Solare*.

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The data are a byproduct of splenectomy experiments. From an operative standpoint the horned toad seemed the most favorable