New York Section

New York Academy of Medicine, April 17, 1935.

8008 P

Technique of Preparing Transplanted Uterine Fistulae.*

SANFORD KAMINESTER.† (Introduced by G. B. Ray.)

From the Department of Physiology, Long Island College of Medicine.

The purpose of the present paper is to describe a surgical preparation for studying the relationship between the extrinsic and intrinsic innervation of the rabbit's uterus and the myometrial response to oestrin and progestin. This method consists of transplanting the uterus to the anterior abdominal wall, thus severing all the pathways of the motor sympathetic nerves to this organ. It was necessary to perform the operation in 3 stages. After a brief experience it was found desirable to use animals that had dropped at least one litter. Adequate results can often be obtained in animals made pseudopregnant.

First stage. A mature female rabbit weighing approximately 3½ kg. was anesthetized with ether. A longitudinal incision was made to the right of the midline, starting about 3 cm. above the symphysis and extending cephalad a distance of about 6 to 8 cm. The right uterine cornu was brought up into the wound, the tubal end clamped, ligated and incised. Included in this ligature was the ovarian artery and whatever veins accompanied it. The free border of the uterus was then scarified as was an area on the peritoneal surface of the anterior abdominal wall. This area paralleled the original incision and was about ½ cm. lateral to it. The scarified area on the uterus was then brought into contact with that on the anterior abdominal wall and fixed there by means of interrupted sutures of plain catgut.

*Aided by a grant from the Committee for Research in Problems of Sex, of the National Research Council.

† From the Department of Obstetrics and Gynecology, Long Island College of Medicine.

These sutures penetrated about half the thickness of the muscle coat. Thus, this stage resulted in a ventro-fixation of the uterus.

Second stage. After an interval of from 1 to 3 weeks the second stage was undertaken. The abdomen was again opened, this time in the midline. The index finger of the left hand was passed over the cervical region of the uterus into the lateral gutter produced by the adhesions between the uterus and the anterior abdominal wall. In this manner the entire mesometrium was brought into view. This tissue was now incised and ligated with interrupted catgut suture-ligatures in order to sever the entire connection of the uterus from its original surrounding tissues except for the cervical attachment.

Third stage. After another interval of from 1 to 3 weeks the abdominal cavity was again entered. The vaginal tube was transected, care being taken to include all mesometrial tissue on the right side. The left uterine cornu was then cut across close to the cervix. As a result the uterus on the right terminated in a cuff of vagina containing 2 cervices, the transplant now being completely separated from the original contiguous tissues. Thus the uterus was dependent for its nutrition upon the vessels passing through the adhesions to the anterior abdominal wall and, occasionally, the intestines. The vaginal cuff was now brought up through the abdominal incision and anchored to the skin in such a way that the 2 cervices protruded so that a small balloon could be inserted for the recording of motility at some later time.

In some animals, at the beginning of the third stage the transplanted uterus was severed from its cervix and its lowermost portion brought up through the abdominal wall, resulting in a transplanted, cervicectomized uterus. Contractions could thus be recorded in the same way as in the non-cervicectomized uterus.

Occasionally localized infection in the operative region produced dense adhesions obliterating landmarks. Animals in which this difficulty was encountered were rejected since it could not be positively determined that all the mesometrium was severed. As a control, stimulation of the presacral nerves was used before sacrificing each animal. If a contraction of the transplant followed, the records obtained from that animal were rejected.

Occasionally, especially in the earlier animals, there was so much distortion of the transplant that it was difficult or impossible to insert a balloon.

The right ovary was removed at the time of the first stage, the left at the completion of the third in those animals in which ovariectomy was desired.

A detailed report of the application of this procedure and a study of motility in the rabbit's uterus under the influence of various hormones and drugs is now in the process of being completed.

8009 P

Innervation to and Within the Uterus.*

SAMUEL R. M. REYNOLDS AND SANFORD KAMINESTER.† (Introduced by George B. Ray.)

From the Department of Physiology, Long Island College of Medicine, Brooklyn.

In the course of certain experiments it became desirable to know the nature of the distribution of nerve paths from the pelvic plexus to their ultimate destinations in the uterus. Accordingly, we have performed a series of experiments in suitable ovariectomized rabbits. In some of these the parametrium was cut through progressively and the uterus left intact. In others, the uterus was cut first and the parametrium left entire. These experiments showed that when some spot in the middle third of the parametrium is cut, the uterus above the level of section fails to respond to lumbar sympathetic stimulation, even though the uterus itself is still intact. With the parametrium uncut, but the uterus severed, the whole organ still responds to pre-sacral nerve stimulation. Experiments on the essentiality of the utero-vaginal junction (containing the uterine cervical ganglia) were performed. This whole region, including cervices, could be excised without modifying the responses of the uterine cornua when the lumbar sympathetic nerves are stimulated. Section of a selected small region of the parametrium at the level of and close to the site of the cervices, promptly abolishes uterine responses to sympathetic nerve stimulation.

In other experiments point stimulation of suitable places on the parametrium was made progressively from the tubal end, caudad. It was found in favorable experiments that the uterus contracts more or less locally, directly opposite the site of parametrial stimulation. This local contraction spreads very slowly in both directions, cephalad and caudad.

Our results indicate, therefore, that lumbar motor sympathetic

* Aided by a grant from the Committee for Research in Problems of Sex, of the National Research Council.

† Member of the Department of Obstetrics and Gynecology.