

## 11785 P

## Implantation of Hormonal Substances in the Anterior Chamber of the Eye of Rats.\*

EUGENE CUTULY.

*From the Department of Anatomy, Wayne University College of Medicine, Detroit.*

Knowledge of the successful transplantation of endometrium,<sup>1</sup> ovary,<sup>2</sup> anterior pituitary,<sup>3</sup> testis,<sup>4</sup> and adrenal<sup>5</sup> to the anterior chamber of the eye, and the report that excellent results are obtained by subcutaneous implantation of estrogens<sup>6</sup> suggested the possibility that actual hormonal substances implanted in the anterior chamber of the eye might produce characteristic effects. To date ocular implants in rats have been made with testosterone propionate, stilbestrol, progesterone, and pregnant mare serum (PMS).† Clear-cut results have been obtained with all of these substances.

Pellets of testosterone propionate weighing from 1-4.5 mg were introduced into the anterior chamber of the eye of 3 newly castrated, 2 newly hypophysectomized, and 1 long-time hypophysectomized male rats. At autopsy, 21-35 days later, none of the implanted material was discernible in the eye of 2 of the castrates and of 1 of the animals hypophysectomized at the time of implantation. Approximately half of the original weight of substance was recovered from the eye of 1 of the castrates, 1 of the newly hypophysectomized, and of the long-time hypophysectomized male rats. In all 3 of these animals the accessory organs were well stimulated, and in the animal hypophysectomized at the time of implantation the testes were not normal in size but spermatogenesis had been maintained in some tubules.

Stilbestrol pellets weighing about 3 mg were placed in the eyes of

---

\* Since this article was submitted in June a report by Markee has appeared in the course of which are described some effects of crystalline estrone implants in the eye of monkeys (Markee, J. E., *Contrib. to Embryology*, 1940, **28**, 291).

<sup>1</sup> Markee, J. E., *Am. J. Physiol.*, 1932, **100**, 32.

<sup>2</sup> Goodman, L., *Anat. Rec.*, 1934, **59**, 223.

<sup>3</sup> Haterius, H. O., Schweizer, M., and Charipper, H. A., *Endocrinology*, 1935, **19**, 673.

<sup>4</sup> Turner, C. D., *Am. J. Anat.*, 1938, **63**, 101.

<sup>5</sup> Turner, C. D., *Proc. Soc. Exp. Biol. and Med.*, 1938, **39**, 133.

<sup>6</sup> Deanesly, Ruth, and Parkes, A. S., *Proc. Roy. Soc. London, s.B.*, 1937, **124**, 279.

† I am indebted to Dr. Erwin Schwenk of the Schering Corp. for the testosterone propionate, progesterone, and pregnant mare serum, and to Dr. J. A. Morrell, E. R. Squibb and Sons, for the stilbestrol.

2 female rats which had been hypophysectomized for several months. Vaginal estrus occurred about 24 hours later and continued for 9 days, at which time one of the animals died and one was autopsied.

PMS powder was made into pellets the weight of which ranged from 2.5 to 5.5 mg. A pellet was put in the eye of each of 2 female rats and in the eye of each of 6 male rats, all of which were hypophysectomized at the time of implantation. Continuous vaginal estrus was induced and maintained in the females for 17 days. No hormone was recovered from the eyes of these 2 females at autopsy, nor from the eyes of any of the males. Nevertheless the testes of 3 of the 6 hypophysectomized males were moderately large 3 weeks after hypophysectomy. The maintained testes revealed histological evidence of spermatogenic activity. There was but slight stimulation of the interstitial cells, as determined both by the small size of the accessory organs and by the histological appearance of the interstitial tissue. It will be noted that PMS tended to be only gametokinetic when implanted in the eye. The study of Saunders and Cole<sup>7</sup> suggests that this was a quantitative rather than a qualitative manifestation.

A progesterone pellet weighing 4 mg was implanted in the anterior chamber of the eye of a castrated male rat parabiotically joined with a hypophysectomized male. Gonadotropic hyperactivity of the anterior pituitary of the castrate was prevented by the progesterone, since the testes of the hypophysectomized twin did not remain normal, as has been reported,<sup>8</sup> but regressed.

*Summary.* Pellets of testosterone propionate, stilbestrol, pregnant mare serum, and progesterone implanted in the anterior chamber of the eye of rats produced effects characteristic of each particular substance.

## 11786 P

### Method for Preventing or Diminishing Peritonitis From Leakage After Intestinal Resection or Perforation.

HARRY KOSTER.

*From Crown Heights Hospital, Brooklyn, New York.*

The high degree of resistance to infection possessed by the peritoneum is well known. Despite that, the mortality from peritonitis

---

<sup>7</sup> Saunders, F. J., and Cole, H. H., *Endocrinology*, 1938, **23**, 302.

<sup>8</sup> Cutuly, E., and Cutuly, E. C., *PROC. SOC. EXP. BIOL. AND MED.*, 1937, **37**, 477.