The third case was not any better after ilio-colostomy, but complete colectomy was followed by improvement.

CASE III.

J. W., a sickly-looking and thin lad, presented himself with multiple tuberculous foci but with no bone lesion. He had abscesses in both legs, in the right hip, and in the neck. Numerous operations had been performed, and he still had abscesses when the ilio-colostomy was performed in 1913. He left hospital in due time, when his wounds showed some improvement.

Two months later, however, he was readmitted with the foci discharging as badly as ever; four months after ilio-colostomy was performed, as there was no improvement, Professor Morison took out the whole colon. The patient was lost sight of until July, 1921, when he was found to be greatly improved in condition, and although the wound was not healed he was able to do light work and sew canvas cover-sheets in the pursuance of his occupation. His wounds are now healed, but every now and then he is laid off work on account of sores breaking down over the left knee-joint. He has fluid in the knee-joint, which, when last seen, was hot and showed active signs of inflammation. He states that his bowels are moved once daily with a solid motion, and that he has no diarrhoea.

I am indebted to Professor Rutherford Morison for his kindness in allowing me to publish these cases.

THE FUNCTION OF THE CHROMAPHIL TISSUES IN RELATION TO SPLANCHNIC STIMULATION.

BY

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THE rise of blood pressure brought about by stimulation of the peripheral end of the splanchnic nerve is not simple, and the alterations (if any) produced in the curve by the elimination of the secretion of the chromaphil tissue of the adrenals from the circulation has not yet been precisely determined. The normal curve of splanchnic stimulation, according to several observers (¹ to ³) consists of a rise on which is usually a "hump" followed by a marked "dip," and succeeded by a secondary rise prolonged as long as the stimulation lasts. Such a curve has been consistently obtained in dogs, cats, and rabbits.

When the adrenal secretion is eliminated, then, according to Pearlman and Vincent,⁵ in all these animals the "dip" is abolished, and the result of stimulation is a simple and prolonged rise. Gley and Quinquaud,² on the contrary, maintain that there is a difference between dogs and cats. They think that in the cat elimination of the adrenals makes no difference to the splanchnic stimulation curve, "dip" and secondary rise being maintained, while in the dog their results conform to those of Pearlman and Vincent, the "dip" and secondary rise being abolished.

The difference between these two sets of observers is fundamental, because the observations govern the interpretations of the curves. Gley and Quinquaud consider that the alteration of the curve in the dog is due to damage to some of the splanchnic vaso-constrictor fibres necessarily brought about while tying off the adrenals because of the anatomical conditions present, while in the cat the anatomy is such that the adrenals can be tied off without damaging the splanchnics and therefore the curve is unaltered—that is, withdrawal of adrenal secretion from functioning by way of the circulation has no effect on the curve.

Pearlman and Vincent, who found the "dip" abolished in all animals they investigated, naturally concluded that the alteration is due to withdrawal of adrenal secretion. There is no doubt that the anatomical connexions of the main splanchnic trunk and its associated ganglia with the adrenal body are more intimate in the dog than the cat. We have confirmed this by dissections. A drawing in Ellenberger and Baum's book⁶ shows well the condition in the dog. We consider, however, that while undoubtedly some nerve damage takes place in tying off the adrenals in the dog, it is not of such a character as to interfere with the main characteristics of the splanchnic curve. All observers are agreed that the main pressor effects persist. While in the cat the anatomical connexions are not so intimate certain nerves are undoubtedly damaged in it; as in all animals, in tying off the adrenals—namely, the nerves to the adrenal itself and the nerves to the kidney lying close behind the adrenal.

The majority of the experiments of Pearlman and Vincent were carried out on dogs. The present series has, therefore, been conducted on cats, with the simple object of ascertaining

whether the "dip" and secondary rise after adrenal elimination are abolished or maintained.

The animals were anaesthetized with ether or ethanesal and anaesthesia maintained by intravenous injections of urethane. Blood pressure was taken from the carotid artery. After opening the abdomen the splanchnic—usually the left—was isolated between the diaphragm and the semilunar ganglion, divided where it left the muscular fibres of the diaphragm, and the peripheral length of nerve thus obtained—about 3 to 4 cm.—stimulated with various strengths of current. Prior to stimulation preparations were usually made for tying off the adrenals completely, or tying or clamping the adrenal veins, so that as short a time as possible should elapse between the stimuli. The anatomical conditions in the cat are such that the adrenals can be easily tied off without interfering with the main splanchnic connexions.

The results of these experiments show that by any method of adrenal elimination the normal curve is seriously altered. The "dip" is frequently abolished and is always considerably reduced. But a small "dip" sometimes persists after total elimination of the adrenals, and if this observation be true there is no escape from the conclusion that a part of the "dip" is due to factors other than the passage of a certain amount of adrenin into the circulating blood. Further investigations are required to determine completely the origin of the "dip," and we realize that one experiment where the "dip" is not entirely abolished is of more significance than any number where it is.

It should be added as confirmatory of adrenin effect that in two experiments the "dip" was practically abolished when the veins were clamped and subsequently restored to its full extent when the veins were released.

The "dip," in part at all events, is probably due to liberation of adrenin into the blood through vaso-constrictor impulses reaching the adrenals and causing them to contract, the small amount liberated having a vaso-dilator effect on the peripheral arterioles. This effect is quite temporary, the rise being again produced and maintained as long as the stimulation lasts.

SUMMARY.

1. Peripheral splanchnic stimulation in cats produces a characteristic curve in which an initial rise is followed by a marked "dip" and a prolonged secondary rise.
2. Elimination of the adrenals from the circulation abolishes or reduces the "dip," the more usual effect of splanchnic stimulation being a simple prolonged rise.
3. While the adrenal elimination is probably an important factor in altering the curve, further experiments are required to determine completely the origin of the "dip." Since some "dip" may occur after adrenal elimination, a part of the effect must be normally due to influences other than chromaphil secretion.

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THE RELATION OF THE CORPUS LUTEUM TO MENSTRUATION AND PREGNANCY.*

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THE ovary, according to our present knowledge, performs a double function—the production of ripe ova and the elaboration of internal secretions, of which the chief is formed in the corpus luteum.

Fraenkl in 1903, experimenting on rabbits, formulated the theory that the corpus luteum regulates the blood supply of the uterus and thereby controls the process of menstruation and the implantation of the ovum in the uterus. I find that if this controlling influence be removed, either by excision or rupture of the corpus luteum, a woman will either menstruate

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