

SOME CONSIDERATIONS UPON HIGH AMPUTATION OF THE RECTUM.

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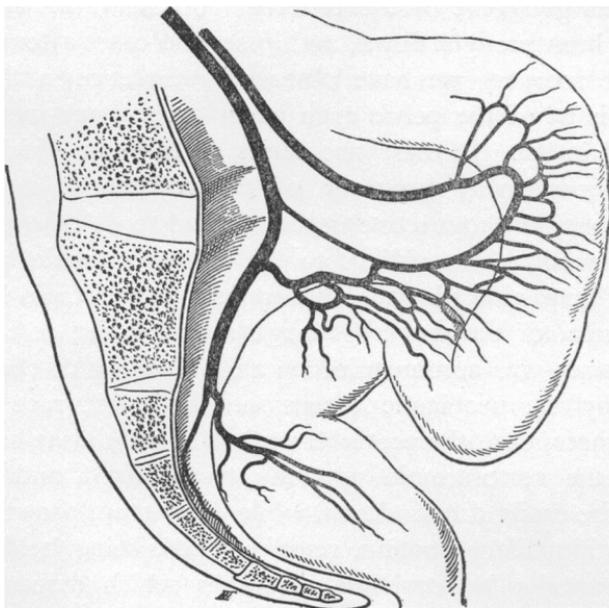
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AFTER high perineal amputations of the rectum we have twice seen gangrene of the terminal portion of the intestine that had been brought down, and in several cases after perfect operative recovery we have observed recurrence in the connective tissue of the pelvis even when the mucous membrane remained intact. In these two series of cases in which there was either primary gangrene of the rectum or secondary recurrence in the connective tissue, we had to do with patients in whom we had been obliged to cut the hemorrhoidal arteries quite high up, either because the cancers were located high in the ampulla, or the cancer—though seated lower down upon the mucosa—was accompanied by an infiltration of the mesorectum by the neoplastic extension. It is not rare to see in such cases, once the prerectal peritoneal cul-de-sac has been opened, the rectosigmoid portion present itself and permit itself to be easily drawn down, while the rectum proper, especially its ampullary portion, remains fixed, being held firmly by the superior hemorrhoidal branches which descend in a straight line from the aorta. In order to make possible the coming down of this portion of the intestine, it is absolutely necessary to cut the superior hemorrhoidal vessels. It is then easy to draw the rectum outside; but, as far as can be seen, there develops a consecutive gangrene, the pathogeny of which is explained by the anatomy of the vascular system of the region, the arterial circulation of the rectum being very different from that which is present in other portions of the intestine. While in the latter there are present a series of anasto-

moti loops, upon the rectum one sees the hemorrhoidal arteries descend without forming the slightest anastomotic loop.

This has been well shown by the researches pursued at my suggestion by de Dietrichs, in my laboratory. The injections which he has made indicate: First, that the ligature of the inferior mesenteric artery does not affect the circulation of the rectum, provided it be done between its origin and the giving off of its last important collateral branch which arises from 1 cm. to 1½ cm. below the promontory (see Fig. 1).

FIG. 1.



Arterial circulation of the rectum.—Note the difference in the arrangement between the arteries of the pelvic colon, which form an anastomotic loop, and the superior hemorrhoidal arteries, which present no important anastomosis. Note the constant situation of the last anastomotic loop, a little below and to the left of the promontory.

Second, that the ligature of the terminal portion of the inferior mesenteric below this last collateral branch produces almost complete suppression (or even complete) of the arterial supply of the rectum and of the rectosigmoid junction. The suppression is so much the more complete since in the course of the perineal amputation one separates the lower part of

the intestine from its peripheral connections, and since one cuts consequently the branches of the middle hemorrhoidal artery,—an accident less important indeed than the descriptions in recent treatises on anatomy would lead us to suppose. Third, that ligature of the trunks of the superior hemorrhoidal artery, right and left, produces suppression of the circulation in corresponding sides of the rectum. In a way, the superior hemorrhoidal arteries answer to the type of terminal arteries.

The results of these researches, in great part confirmative of those published two years ago by Sudeck (*Muench. med. Woch.*, 1907, pp. 13, 14), are that if the operator wishes to have an intestine which may be brought down to the level of the skin of the perineum without traction and still well nourished, it is necessary to avoid cutting the hemorrhoidal arteries at the point where one is led necessarily to divide them when working exclusively from the perineum. It is necessary to place a ligature high up on the common trunk of these arteries above the last anastomotic loop which, as we have said, is found a little lower than the promontory, and it is necessary to tie both ends, the blood flowing back in abundance by the inferior end. In consequence of not having done this last ligature we have lost a patient from hemorrhage.

The necessity of making this high ligature of the hemorrhoidal pedicle, obliges one to begin the operation through the abdomen, whereby the advantage is gained of being able to divide immediately, along the sides of the rectum, the peritoneum and the subjacent fibrous tissue which with the hemorrhoidal pedicle forms the chief source of fixation of the upper part of the rectum. The same path will be utilized also to strip up from in front whatever infected connective tissue surrounds the rectum, blood-vessels, lymphatics, and glands. At the same time while the operator will be protected from the danger of secondary gangrene, he will have accomplished an extirpation much more extensive than by the ordinary procedures through parts which may be invaded by the cancer. This done, he will have only to finish the operation by isolating through the perineum the lower part of the rectum, as one

does for low amputations of this segment of the intestine, and to bring it down until the outside portions shall be manifestly healthy. This is possible in a great majority of cases without the least traction, in consequence of the straightening out of the sigmoid flexure. However, when the meso of this loop is short, the intestine may be seen to descend vertically into the pelvis, like a clock pendulum, isolated on all sides, which is a bad condition for ultimate cure. The intestine ought, at the end of the operation, to be in contact with the neighboring parts, resting directly on the sacral concavity and following its curvature in such a manner that it may readily and quickly become adherent to the neighboring parts. To accomplish this in cases of shortness of the meso-sigmoid, it is necessary to incise the peritoneum alongside the colon in such a way as to mobilize downward and toward the median line the intestine with its vascular meso preserved intact. One may also cut the intestine across, fix its upper end in an iliac incision and extirpate the lower end in totality.

By following the technic that we have just indicated, the operator is able to prevent gangrene of the end of the intestine and will make a much wider removal of the cancerous growth along the lymphatic paths, realizing what one might call by analogy with the operations recently done for uterine cancer, wide ablation of cancer of the rectum.

It is true that up till now the results of abdominal and perineal amputations of the terminal parts of the intestine have not been very encouraging. We believe, however, that with the actual improvement of the technic they will become better, and that the abdominoperineal path is to be the path of the future. Personally, we have in these recent days done this abdominoperineal operation four times,—three times bringing down the pelvic colon through the perineum and once the upper end in an iliac incision and total extirpation of the lower end. We have had three cures and one death by hemorrhage (case mentioned above), the result of an operative fault which it should be possible to avoid.