

TRANSPLANTATION OF A DENERVATED GASTRIC POUCH INTO THE OMENTUM

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The study of the mechanisms of secretion of the gastric glands cells for the use of several operative methods, including some the isolated gastric pouch is totally denervated [1-3, 6]. For a long time the Heidenhain pouch has been used for this purpose. It has been abundantly and convincingly shown, however, that the Heidenhain pouch preserves its sympathetic innervation almost completely, and its parasympathetic supply in part [1, 6].

Attempts to achieve total denervation of the isolated gastric pouch have proceeded in two directions. In 1912, Bickel and Katsch [5] suggested their modification of the classic operation. After the formation of the isolated pouch on the greater curvature by Heidenhain's method, these authors divided all the nerves visible to the naked eye passing from the greater omentum. Nevertheless, the Bickel and Katsch pouch was not completely denervated.

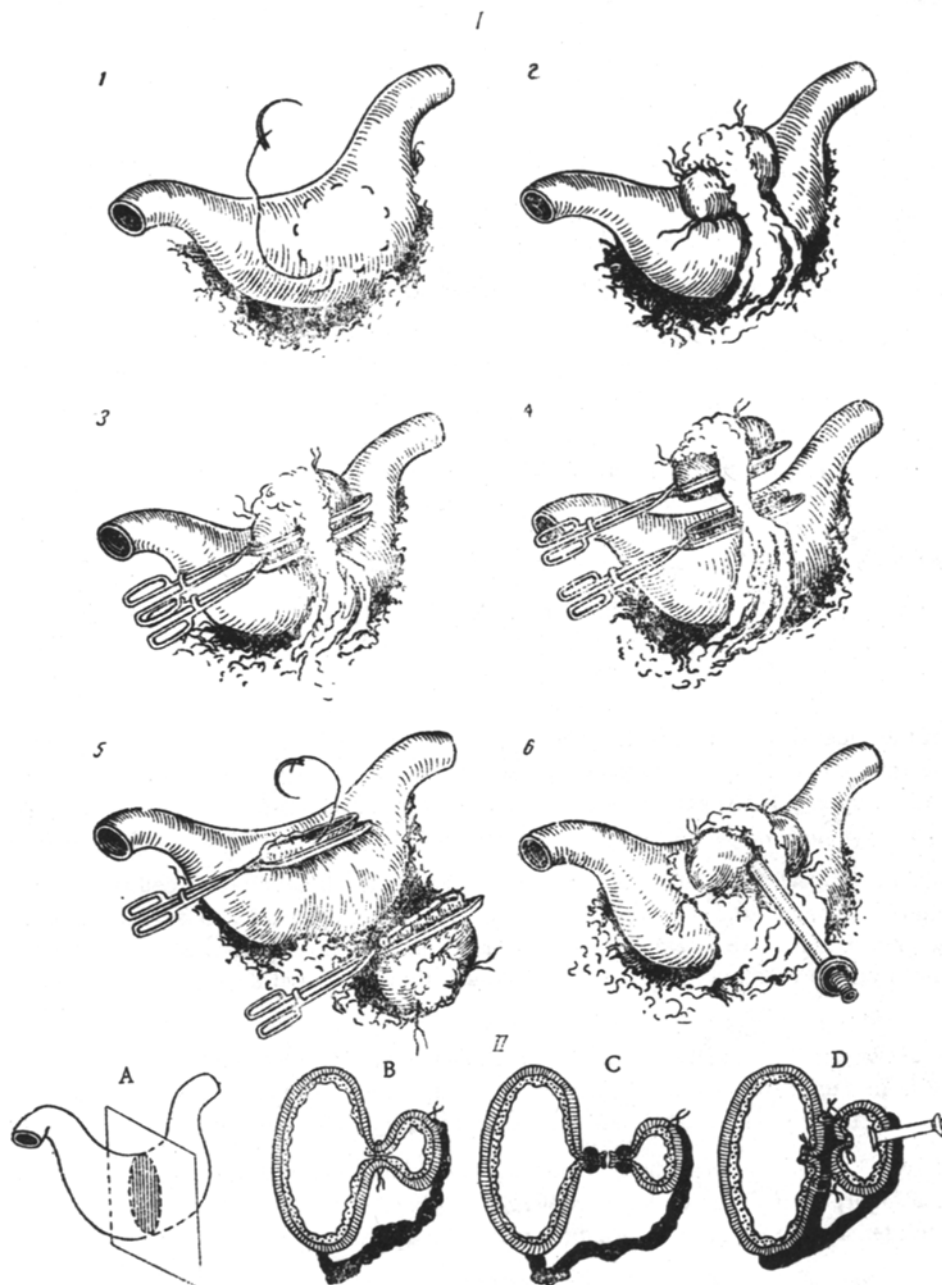
Ivy and his co-workers [8] used another method, the essence of which was that a portion of stomach receiving its blood supply from one or several major vessels was transplanted into the mammary gland of the dog. After a collateral circulation had become established, the neurovascular bundle was divided.

Gregory and Ivy [6] later suggested the subcutaneous transplantation of the fundal portion of the stomach, preserving the blood supply through the splenic vessels. Just as in the operations described earlier, the neurovascular bundle was divided 4-8 weeks after the establishment of a collateral circulation.

Grossman, Robertson and Ivy [7] increased the size of the transplanted area and transplanted the pyloric portion of the stomach.

Transplantation into the mammary gland has been widely used in the study of various organs, but the fundamental principle of the operation is not free from a number of serious defects. This does not mean simply that the method is technically difficult; only those organs and parts of organs which can be isolated and yet maintain an adequate blood supply can be transplanted into the mammary gland; furthermore, transplantation is possible only when the vascular bundle is sufficiently long and mobile; finally, during transplantation of part of the stomach, pancreas or loop of bowel beneath the skin, some degree of trauma to the organs is inevitable.

The transplantation into the omentum described in this article is largely free from these defects. We based our work on the numerous clinical observations of the use of the omentum for the creation of a collateral circulation.



Course of the operation (I) exterior view, II) schematic section). First stage of the operation (I, 1, 2 and II, B): 1) purse-string suture demarcating the transplanted area of stomach; 2) the purse-string suture is tied and the edge of the omentum is sutured to the transplanted area; B) the same moment of the operation in section. Second stage of the operation (I, 3-6 and II, C, D): 3) stomach clamps applied to the neck of the diverticulum; 4 and C) the pouch is resected between the clamps; 5) suture of the stomach and the pouch, transplanted to the omentum; 6 and D) sutures peritonized, gastric pouch fixed to the anterior wall of the residual stomach, and a fistula made into the pouch.

First stage of the operation. The portion of stomach to be transplanted is selected. If this area is in the anterior wall, a purse-string suture is applied to the serous and muscular layers. The approximate boundaries of the future pouch are shown in the figure.* The purse-string suture is loosely tied so that the cavity of the greater stomach communicated freely with the diverticulum thus formed. Incisions are then made in the serous mem-

* The gastric pouch thus formed is analogous to the pouch on the anterior wall with its nerve supply intact[4]. We take this opportunity to express our deep gratitude to our artist, V. N. Lebedev, for the drawings illustrating this paper.

brane on the surface of the diverticulum by 3-4 sutures. The first stage of the operation is now complete. The abdomen is closed in layers in the usual way.

Second stage of the operation. The development of a collateral circulation has usually reached the necessary stage 2-3 weeks after the first operation, and the next stage should be carried out at this time. After a month (or more), the vessels passing to the pouch from the omentum have become so large that the control of bleeding is made more difficult.

The technique of the second stage is as follows: two stomach clamps are applied to the neck of the diverticulum (see Figure) and an incision is made through all the layers between the clamps. Next, without removing the clamps, sutures are inserted into the stomach itself and the pouch. The sutured surface is peritonized with omentum. The pouch is then fixed to the anterior wall of the stomach by two or three sutures.

The operation is technically simple and its principle may be used in the transplantation of other abdominal organs.

SUMMARY

The author describes a 2-stage transplantation of a completely denervated isolated stomach pouch to the omentum.

This is a technically simple operation and gives almost the same results as the transplantation of organs into the mammary gland. It has, however, some advantage over the classical method.

The principle of this operation may be employed for transplantation of other abdominal organs.

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*Original Russian pagination. See C. B. translation.