A NEW METHOD FOR PRODUCING AN ISOLATED GASTRIC POUCH

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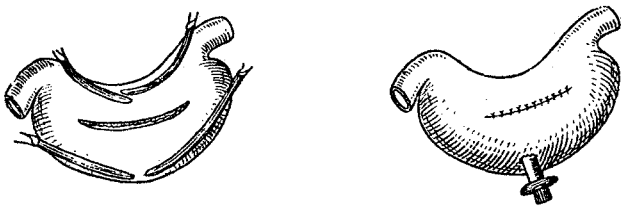
The formation of an isolated gastric pouch is a method which makes possible an objective study of gastric secretion, and enables some information on motor function to be obtained. The qualification is necessary, because the separation of the pouch either partially or completely from the main stomach appreciably alters the motility of the latter. The problem is still more severe if two gastric pouches are formed simultaneously. It is then almost impossible to determine the motility of the main portion of the stomach. In our opinion, the motor responses made in stomachs with isolated pouches should be interpreted as the reaction of muscular tissue in general to various stimuli.

Many of the operations described [1,2,3,9,10,11,12,14,15,16] have the common feature that the cavity of the pouch is formed by cutting through all the layers of the stomach, while the isthmus is made from the serous and muscular wall, which is not cut. In the method proposed by A. V. Solov'ev [9,10], bilateral innervation is preserved, so that a detailed study of secretion can be made, and some information on motility may be obtained.

We here describe a modification of the method of forming an isolated pouch which can be applied to any part of the stomach. The innervation and blood supply remain intact, and there is scarcely any change in the anatomical relationships. The operation is performed as follows (Figs. 1 and 2). An incision is made through all the layers of the anterior wall of the stomach, parallel to the greater curvature. The anterior gastric wall is folded outward where it is intended to form the isolated pouch. In the middle of this region, the normal intestinal fistula is established. Around the fistula, the mucosa is cut in a circle having a diameter of approximately 5 cm. The edges of the mucosa are pulled back 1 cm in both directions. The edges of the inner portion are then sewn up with a purse-string suture and are stretched as an arch over the fistula. In this way, the isolated pouch is formed from all three layers of the main stomach, while the arch is formed only from the stretched mucosa.



a b

Fig. 1. Initial and final stages of the operation. a) Incision in the anterior gastric wall (the vessels to the greater and lesser curvatures are compressed by clamps); b) external view of stomach after formation of the gastric pouch.

To increase the strength of the arch, the mucosa is sewn from above in a cross-shaped suture so as to include the submucosal layer of the isthmus. The suture makes for better isolation and accelerates the growth of connective tissue which effectively separates off the gastric pouch which has been formed. The free edges of the mucosa may readily be drawn together with a purse-string suture to complete the lining of the main stomach. The incision in the anterior wall of the stomach is sewn up in the usual way, so that the main stomach remains intact.

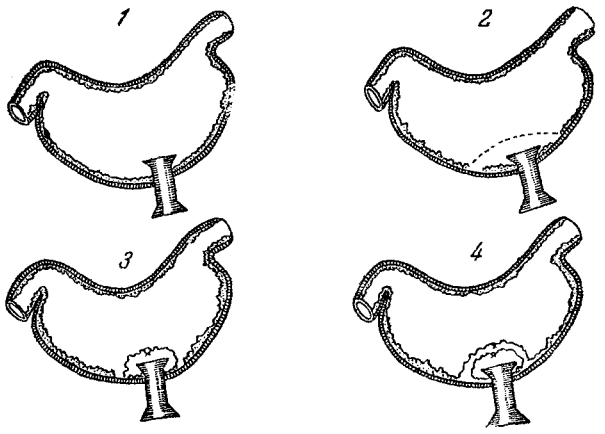


Fig. 2. Principal stages of the operation (diagrammatic). 1) A fistula is established in the stomach in the usual way; 2) the mucosa is freed around the fistula; 3) an isolated gastric pouch is formed by drawing the mucosa together over the fistula; 4) by means of a purse-string suture the gap in the mucosa of the main stomach is closed, which makes the lining continuous.

The operation is comparatively simple and takes 30-40 min. The secretion obtained shows that the innervation and the blood supply are well preserved. If a small balloon is placed in the fistula, or if the fistula is merely connected by means of a rubber tube to a Marie's capsule, it is easy to obtain a record of the movements of the main stomach which are not distorted on account of numerous incisions in the gastric wall. The operation is very convenient when it is required to make a simultaneous study of secretion and motility.

SUMMARY

A new method is described of forming an isolated gastric pouch in any part of the stomach. Its advantages are that the innervation and the blood supply remain intact and anatomical relationships remain almost unchanged. A stomach pouch formed by this method is convenient for making a simultaneous study of secretion and motility. The operation is illustrated in Figures 1 and 2.

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