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A New and Simple Method for Preparing Large Pavlov Pouches.*

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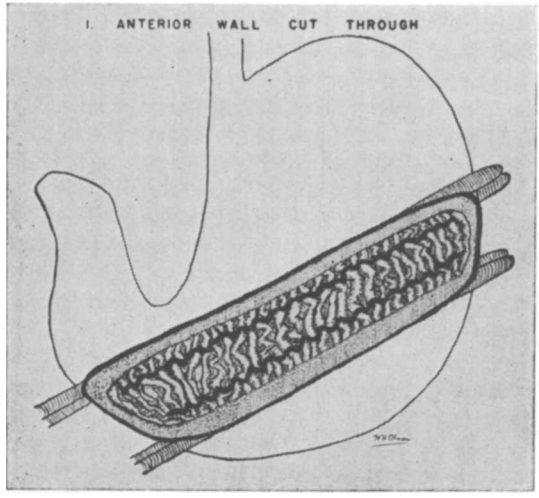
The original method of Pavlov for the preparation of Pavlov pouches in dogs has been criticized recently by Hollander and Jeremin.[1] They devised a new technic in which practically the entire vagal supply to the pouch was left intact. Their method yields excellent pouches, but is difficult and time-consuming. In our hands the eversion of the entire stomach through a small incision seemed to produce marked surgical shock, and increased greatly the danger of peritoneal contamination. Suturing of the mucosa was difficult and perforation between main stomach and pouch likely to occur. We therefore devised a simpler operation which yields big pouches with large amounts of secretion, which we feel worthwhile to make known to other workers in this field.

Procedure. Dogs were fasted for 24 hours and anesthetized with morphine-atropine and ether, or sodium pentobarbital. The stomach was exposed through a left rectus incision. The blood vessels at



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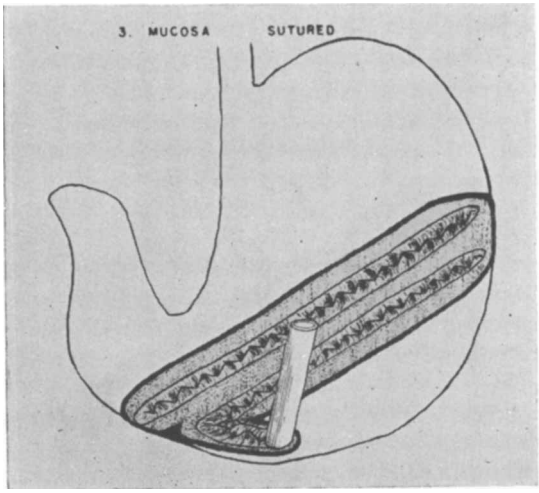
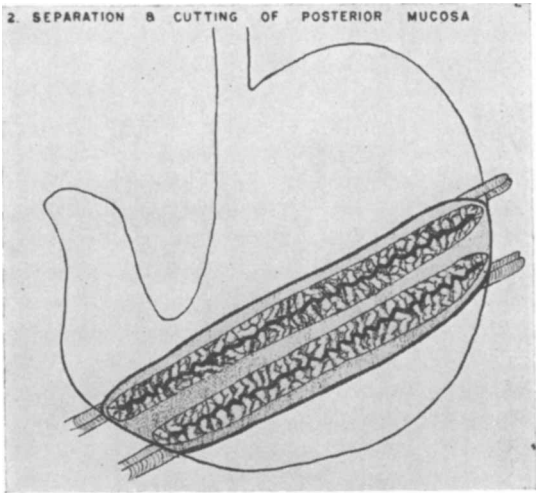
1 Jeremin, E. E., and Hollander, F., Proc. Soc. Exp. Biol. and Med., 1938, **38**, 139; Hollander, F., and Jeremin, E. E., Proc. Soc. Exp. Biol. and Med., 1938, **39**, 87.

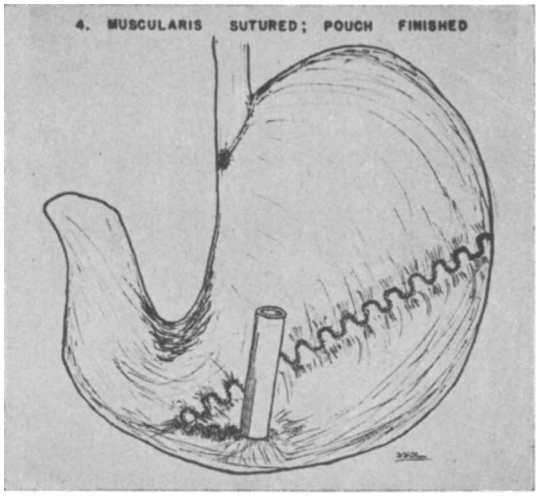
the greater curvature, below the angulus, were ligated and cut. Rubber-covered elastic clamps were put across the lower one-third of the fundus (Fig. 1). A straight incision through the entire anterior wall was performed (lately we cut only 4/5 of the anterior wall). The mucosa of the posterior wall was cut and about 1 cm was dissected away from the muscularis on each side of the incision (Fig. 2).



The main stomach was closed by an inverting running suture of the mucosa. The mucosa of the pouch was similarly closed, beginning at the upper end of the incision. The elastic clamp was removed, when about ½ of the pouch had been closed. At the lower pole of the



pouch a brass cannula (recently stainless steel) was inserted, and the submucosal suture carried in such a way that an angle was formed (Fig. 3). This is important because it avoids perforation between pouch and main stomach by the round base plate of the cannula. Muscularis of pouch and main stomach were united by Lembert suture (Fig. 4). Omentum was wrapped round the base of the



cannula. A small skin incision was made to the right of the midline at the height of the greater gastric curvature. A sharply pointed trocar with sleeve was pushed through this opening, the trocar withdrawn, the cannula pushed into the sleeve and the latter withdrawn. Iodized gauze was placed round the external base of the cannula and a collar attached to it to prevent its slipping back into the pouch. The abdomen was closed in the usul way. Twenty-four hours after operation the iodized gauze was taken off, and the collar move up, in order to prevent pressure on the skin. The wounds were washed with hydrogen peroxide. One to 2 weeks after operation the dogs were ready for use. Active appetite secretion and immediate response to a meal characterized them as Pavlov pouches, *i. e.,* pouches with good vagal supply. Intravitam and postmortem inspection of a number of these pouches showed no irritating effects of the metal cannula. Strong adhesions had formed between the neck of the pouch and the parietal peritoneum round the cannula.

Secretion is collected in 2 ounce glass bottles with screw cap. A collar is soldered on top of the cap, which is attached to the cannula by a screw. The weight of the bottle is supported by straps attached to the screw cap, which are fastened over the back of the animal.

TABLE I.
Male Dog, 25 kg, 30-Min. Samples.

Volume cc	Acidity clinical units	
	Free	Total
0.2	0	7
	Fed 200 g Pard, 200 cc water	
35	140	154
45	150	161
48	149	161
53	152	165
61	157	169
45	154	165
42	158	169
30	149	158
23	162	172
11	132	146

The secretion is water clear. An example of secretion to a meal consisting of ½ pound of Pard dog food with 200 cc of water is given below.

Table I demonstrates that the pouch in the fasting dog has a minimal amount of secretion (0.07 cc per minute), no free and a minimal amount of total acid. Following a meal, free and total acid reach high values within the first half-hour and stay near the physiological maximum of acid secretion for 4½ hours. The total volume of fluid secreted during this period amounted to 382 cc, *i. e.,* 1.4 cc per minute. Likewise the response of these pouches to histamine is excellent.

The posterior wall of the pouch has a complete vagal supply. The greater part (4/5) of the vagus branches of the anterior wall has been cut. In view of the excellent secretory performance of the pouch one can assume that the submucous plexus of the anterior wall receives sufficient vagal innervation from the remaining 1/5 of its connection with the musculature of the anterior wall, and from complete muscular bridge with the posterior wall of the main stomach. Dogs with such pouches have been in use in this laboratory for one year, and their pouch secretion has not changed. They are in fine physical condition and have no erosions or irritation round their cannula.

Summary. A new, simple and efficient method for preparation of Pavlov pouches in described, leaving intact more than 50% of the normal vagus supply to the pouch. The pouch has hardly any basal (fasting) secretion, with no free and very little combined acid. These pouches respond with maximal secretion, both volume and acidity, to food and histamine.