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The Effect of Gastric Distention on Gastric Secretion.

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Associated with ileus there is a dehydration and hypochloremia due to the loss of fluids and chlorides in the gastric secretions which normally are reabsorbed. In order to remove these stagnant secretions which produce nausea and vomiting, continuous duodenal drainage is used clinically. An objection raised to continuous duodenal drainage has been that it is likely to increase dehydration and increase the loss of electrolytes.

Herrin and Meek[1] have shown that increased secretion results when the bowel is distended. Raine and Perry[2] observed that distention of the stomach with liquid albolene increased gastric secretion. Lim, Ivy, and McCarthy[3] observed an increased gastric secretion in dogs with stomach pouch preparations when continuous drainage was used. They believed that gastric tone constituted the adequate stimulus to secretion.

The present investigation was undertaken to study the effects of gastric distention on gastric secretion. Thirty-seven dogs were used. Only those surviving long enough for observations are included in the results. In each animal the esophagus was ligated near the cardia with umbilical tape, the jejunum was severed 8 cm. below the ligament of Treitz, and both ends were closed blindly. A cannula of the type described by Owings, *et al.*,[4] was placed in the stomach in order that the gastric contents could be removed at will. The animals were given 70 cc. of Hartmann's solution per kilo of body weight per day. Blood chlorides were determined daily. The volume of each drainage was measured and the activity of each determined.

Fifteen observations were made upon 4 dogs which were drained continuously. The average daily secretion was 133 cc. The acidity of the specimens rose steadily until it was approximately 3 times

1 Herrin, R. C., and Meek, W. J., *Arch. Int. Med.*, 1933, **51**, 152.

2 Raine, F., and Perry, M. C., *Arch. Surg.*, 1929, **19**, 478.

3 Lim, R. K. S., Ivy, A. C., and McCarthy, J. E., *Quart. J. Exp. Physiol.*, 1925, **15**, 13.

4 Owings, J. C., McIntosh, C. A., Stone, H. B., and Weinberg, J. A., *Arch. Surg.*, 1928, **17**, 507.

the normal for these animals. Twenty-eight observations upon 2 animals drained every 6 hours showed an average daily secretion of 78.1 cc. Twenty-four observations on 2 dogs drained every 12 hours showed a daily average secretion of 76.4 cc. Seven observations on 2 dogs drained every 24 hours showed a daily average secretion of 76.2 cc. Thirty-seven observations on 5 dogs drained every 48 hours showed a daily average drainage of 87 cc. In none of the animals except those drained continuously did the gastric acidity rise. The blood chlorides remained within normal limits in all animals. Marked daily variances were observed in the amounts secreted in several of the animals.

Assuming that there was relatively little gastric distention within 6 hours and that gastric distention occurred after 12 hours, the animals were divided into 2 groups. Group I included those animals drained continuously and every 6 hours. The average daily secretion of 22 observations on 6 animals was 115.8 cc. The second group included those drained every 12, 24, and 48 hours, respectively. Thirty-seven observations upon 9 dogs in this group showed a daily average secretion of 83.4 cc.

It thus appears that in the absence of distention there is an increase in the amount of gastro-duodenal secretions.

Although the clinical use of continuous duodenal drainage is justified because it prevents nausea, vomiting, and abdominal distention, these investigations suggest that when it is used there is an increased gastric secretion and a greater loss of electrolytes.

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Failure of Ant. Pituitary Extracts to Maintain Fasting Carbohydrate Levels of Hypophysectomized Rats After Preliminary Treatment.*

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It has been reported previously that the low muscle glycogen levels of fasted hypophysectomized rats may be maintained at normal or supra-normal levels by the injection of suitable anterior lobe

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