

and jejunal mucosa, and the motor drive of the stomach affects chiefly the duodenal mucosa. If an ulcer occurs only in the duodenal mucosa, it would mean that it was caused by the acid plus the motor drive factor. If an ulcer occurs in both the duodenal and jejunal mucosa, it would mean that the acid factor was the chief cause. If an ulcer occurs in the jejunal mucosa only, it would mean that its mucosa is more susceptible to the action of the gastric contents than the duodenal mucosa.

We have at the present time results on 4 dogs all of which died from a large perforating jejunal ulcer approximately 2 months after the operation. The dogs do very well for several weeks after the operation, after which they vomit intermittently, lose weight and eat only part of their food.

These results show quite decisively that the jejunal mucosa is more susceptible to the action of gastric contents than the duodenal mucosa.

4669

On the Non-Existence of a Hormone for Salivary Secretion.

J. SACKS AND M. S. KIM. (Introduced by A. C. Ivy.)

From the Department of Physiology and Pharmacology, Northwestern University Medical School.

In view of the existence of both humoral and nervous mechanisms for the regulation of the secretory activity of the stomach and pancreas, it was decided to investigate the possibility of such dual control of the activity of the salivary glands. Although it has been tacitly assumed that no hormone mechanism for salivary secretion exists, the literature contains no definite statement on the point. Babkin¹ makes no mention of it in his monograph on the secretory activity of the digestive glands. Langley² and Malloizel³ found that substances which caused a flow of saliva when applied to the tongue were without effect on the paralytic secretion by the submaxillary resulting from section of the chorda tympani nerve.

Two methods were used in this work. The mucous membrane of the mouth and tongue of several dogs was extracted with 0.4% HCl. The application of this reagent to the tongue normally produces a

¹ Babkin, B. P., *Die Aeusere Sekretion der Verdauungsdrüsen*, Berlin, 1928.

² Langley, J. N., *J. Physiol.*, 1885, vi, 71.

³ Malloizel, L., *J. de physiol. et de path. gen.*, 1902, iv, 651.

marked flow of saliva. The extract was injected intravenously into dogs under barbital-ether anesthesia in which Wharton's duct had been cannulated. Quantities of extract sufficient to lower the blood pressure from 60 to 80 mm. of Hg were injected without any evidence of increased flow from the cannula. In each case stimulation of the chorda tympani nerve gave a marked response.

The second method was a study of the effect of the application of 0.4% HCl to the tongue of a dog in which one submaxillary gland had been denervated. A fistula of Wharton's duct was prepared in each of 2 dogs. After recovery from the operation, the dogs were placed in the stocks daily, and 0.4% HCl was applied to the tongue. A copious flow of saliva resulted. Three weeks after the first operation, the chorda tympani and cervical sympathetic nerves were sectioned, and the daily applications of acid to the tongue resumed on the second day after the operation. The nerve section caused an immediate cessation of the flow of saliva from the fistula, and in no case was there any effect produced by the acid.

Although the results reported were obtained in only 4 acute experiments and 2 fistula dogs, they are so consistently negative that we feel them adequate to support the conclusion that there is no hormone mechanism for salivary secretion in the dog.

4670

Attempts to Visualize the Gall-Bladder of the Rabbit with Tetraiodophenolphthalein.

H. C. LUETH AND A. C. IVY.

From the Department of Physiology and Pharmacology, Northwestern University Medical School.

In previous work¹ we were unsuccessful in attempts to record a gall-bladder contraction in the rabbit on the injection of cholecystokinin. It was reasonable to suppose by analogy from Graham's and Cole's² work, that we would be able to study the problem roentgenologically, after the administration of sodium tetraiodophenolphthalein. Graham, Cole and Copher³ report that they have visualized the gall-bladders of rabbits after the subcutaneous injection of

¹ Lueth, H. C., Ivy, A. C., and Kloster, G., *Am. J. Physiol.*, 1929-30, xci, 329.

² Graham, E. A., Cole, W. H., Copher, G. H., *J. Am. Med. Assn.*, 1925, lxxxiv, 15.

³ Copher, G. H., *J. Am. Med. Assn.*, 1925, lxxxiv, 1563.