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Vomiting reflex from stomach after vagotomy.

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In 1889 Openchowski¹ published the conclusion that the afferent paths from the stomach to the vomiting center are confined to the vagi; and the same belief has since been repeatedly expressed by eminent pharmacologists, at least up to 1922. Last summer, in trying to have a class of students demonstrate this, we were surprised to find that all the vagotomized dogs to which zinc sulfate solution was administered, vomited rather promptly, and in some cases, before the controls. We have repeated the experiments with the same results; all the vagotomized dogs tried vomited promptly, some immediately.

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Drainage in intestinal obstruction.

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The following experiments were carried out to establish the value of intestinal drainage and other procedures for intestinal obstruction.

These obstructions were termed early, intermediate, or late in a previous communication. Classifications were arbitrarily based upon the duration and severity of the associated toxemias.¹

¹ Openchowski, T., *Centblt. Physiol.*, 1889, iii, 1

¹ Eisberg, H. B., *Ann. Surg.*, 1921, lxxiv, 584.

| Experimental technic | Total animals used | Duration of obstruction before corrective procedure | Corrective operative procedure | Average duration of life |
|--|--------------------|---|---|-------------------------------|
| Duodenal fistula | 4 | No obstruction | No operative procedure performed. | 70 hours* |
| Jejunal fistula | 2 | No obstruction | No operative procedure performed. | 1 week* |
| Duodenal obstruction | | | | |
| a. Severed gut type | 2 | 24 hours | No drainage; reconstruction after 23½ hours. | 4 weeks† |
| | 3 | 24-72 hours | Duodenal drainage after 72 hours. | 46 hours after drainage |
| | 2 | 72 hours | Duodenal drainage after 96 hours. | 6 hours after drainage |
| b. band type | 3 | 24-72 hours | Removal of band after 24 hours; no drainage. | 4 weeks† |
| Exclusion and occlusion of segment | | | | |
| a. in duodenum | 2 | 1-5 hours | Removal of segment after 5 hours; immediate reconstruction of canal. | 4 weeks† |
| | 3 | 1-10 hours | Removal of segment after 7 hours; drainage of duodenum; reconstruction of canal after 24 hours. | 20 hours after reconstruction |
| b. in ileum | 2 | 1-12 hours | Removal of segment after 6 hours; | |
| | 2 | 18-24 hours | a. immediate drainage. | 4 weeks† |
| | | | b. Drainage after 24 hours.‡ | 4 weeks† |
| c. in ileum (Segment placed between fascial planes of abdomen) | 3 | 18-24 hours | Removal of segment after 18½ hours; immediate drainage. | 4 hours after drainage |
| d. in ileum (Segment left outside abdomen) | 3 | 72 hours | Removal of segment after 20 hours; immediate drainage. | 10 hours after drainage |
| | 2 | | Removal of segment after 3 days; reconstruction of canal. | 4 weeks† |
| e. in colon | 3 | 36 hours | Removal of segment after 10 hours; immediate drainage. | 4 weeks† |

*Duration of life is equal to that of animals that have been obstructed at these same points and have not developed toxemia.

†These animals were observed to be in good condition at end of 4 weeks.

‡Animals remained toxic for 24 hours until relieved by ileostomies.