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Low Intestinal Obstruction with Biliary, Pancreatic, and Duodenal Secretions Short-Circuited Below Obstructed Point.*

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(Introduced by D. B. Phemister.)

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In a previous communication one of us (H. P. J.[1]) found that high intestinal obstruction with the biliary, pancreatic, and duodenal secretions short-circuited below the obstructed point was compatible with life for 12-33 days, with considerable changes in the blood chemistry over this period.

In the present experiments the obstruction was produced in the lower ileum 30-70 cm. from the caecum. The animals were prepared for the obstruction by a preliminary operation in which the pylorus was resected and gastro-jejunostomy performed. At a second operation the jejunum just beyond the ligament of Treitz and proximal to the gastro-jejunostomy was sectioned and the proximal end anastomosed to the lower ileum. The ileum just above this anastomosis was also sectioned. The free sectioned ends of the bowel were invaginated with purse string sutures. In this way the biliary, pancreatic, and duodenal secretions emptied into the lower ileum, and the stomach drained into the long obstructed loop of jejunum and upper ileum.

In 7 dogs the length of life after the second operation varied from 2 to 20 days, averaging 10 days. Vomiting occurred about every 2nd or 3rd day. The animals took fluids by mouth fairly well. The urine output averaged 150-350 cc. per day. Studies of the blood chemistry showed only a moderate fall in the chlorides in a few instances, whereas in several it was practically the same as before operation. Carbon-dioxide combining power did not show any constant marked change. The non-protein nitrogen was inclined to rise in several of the animals. At autopsy the stomach showed slight distension, the characteristic finding being a marked dilatation of the terminal portion of the obstructed bowel, which in some animals was 5 cm. in diameter. The proximal portion of the obstructed bowel showed relatively slight distension. The cause of death was definitely due to a complication in 4 ani-

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[1] Jenkins, H. P., *Arch. Surg.*, 1929, **19**, 1072.

mals; however, in 3 cases no cause other than the presence of the obstruction could be demonstrated at autopsy.

In comparing this experiment with the high obstruction previously described,[1] the length of life is considerably shorter in this series, the blood chemistry shows relatively slight changes, and the obstructed bowel is more markedly distended in the terminal portion. The length of life is approximately the same as observed in animals with ordinary obstruction at this level without short-circuiting the 3 secretions.[2] The relatively slight changes in the blood chemistry agree with other observations on animals with ordinary low obstruction.[2]

From these observations we feel that death in low obstruction cannot be explained primarily on the basis of loss of digestive secretion, and if death in this type of obstruction is due to the elaboration and absorption of a toxic substance in the obstructed bowel, the presence of the biliary, pancreatic, and duodenal secretions is not necessary for this process to occur and to cause its usual fatal outcome.

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The Absence of Gonad-Stimulating Hormone in the Urine and Blood of Patients with Pituitary Tumors.

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The gonad-stimulating effects of anterior pituitary implants were demonstrated independently by Smith[1] and by Zondek and Aschheim.[2] This was soon followed by the discovery of Zondek and Aschheim[3] of a gonad-stimulating hormone in the urine of pregnancy. It was thought that a similar substance might also be present in the urine or blood of acromegalics. Probstner[4] includes 2 acromegalics in a series of obstetrical and gynecological patients on whom he made the Aschheim-Zondek test, and simply remarks that both gave a negative reaction.

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[2] Elman, R., and Hartmann, A. F., *Surg., Gynecol., and Obstetrics,* 1931, **53**, 307.

[1] Smith, P. C., PROC. SOC. EXP. BIOL. AND MED., 1926, **24**, 131.

[2] Zondek, B., and Aschheim, S., *Arch. f. Gynäk.*, 1927, **130**, 1.

[3] Zondek, B., and Aschheim, S., *Klin. Woch.*, 1928, **7**, 831.

[4] Probstner, A. v., *Endokrinologie,* 1930, **7**, 161.