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A Modified Total Pancreatic Fistula.* (26819)

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The difficulty of maintaining dogs with a total pancreatic fistula in good electrolytic and nutritional balance is well-known(1,2). During our experiments a total fistula was required for various 24-hour collection periods and for spot testing. However, at other times there was no contraindication to returning the pancreatic juice to the animal and thus circumventing these difficulties. After the following preparation is functioning, no intravenous fluids or oral pancreas are required for maintenance:

The pancreatic ducts are located and all except the accessory duct are ligated and transected. The duodenum is transected 2-3 cm on either side of the accessory duct. A steel cannula is inserted into the duodenum containing the duct and this pancreatico-duodenal pouch is then closed. The transected duodenum is now anastomosed in continuity. A second cannula is placed in the distal duodenum, wrapped with omentum and brought through the body wall to the outside about 6 cm from the cannula of the pancreatico-duodenal pouch. A stiff-walled rubber tube is then used several days later to connect the 2 cannulae (Fig. 1).

Obstruction of the duodenal cannula by food can be controlled by doing a gastro-jejunostomy, inserting the cannula into the ileum, or constructing a one-way rubber flutter valve from a Penrose drain. The external portion of the fistula is protected by a cloth bag to prevent the dog chewing the tube.

If the pancreatico-duodenal fistula and gastro-jejunostomy are to be done, operative mortality can be reduced by doing the operation in 2 stages.

During collection periods a balloon or foot-ball-bladder on a threaded connecting tube is screwed into the cannula of the pancreatico-duodenal pouch. The duodenal cannula is blocked by a threaded plug.

Dogs can be maintained without difficulty for several months (or longer) on routine kennel diet and care. Occasional inspections must be made to remove concretions of precipitated salts from the lumen of the steel cannula. The

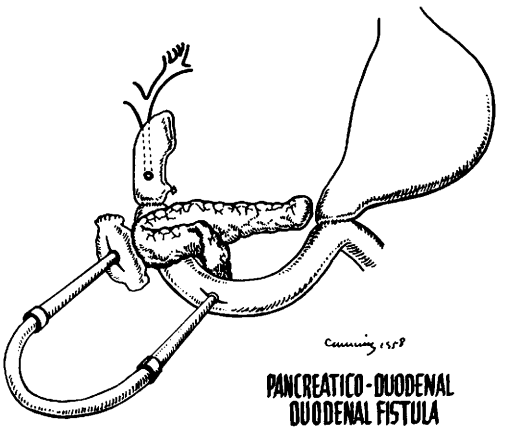

FIG. 1. A diagrammatic view of the preparation. During collection periods a balloon is attached to the pancreatic cannula and the duodenal cannula is capped.

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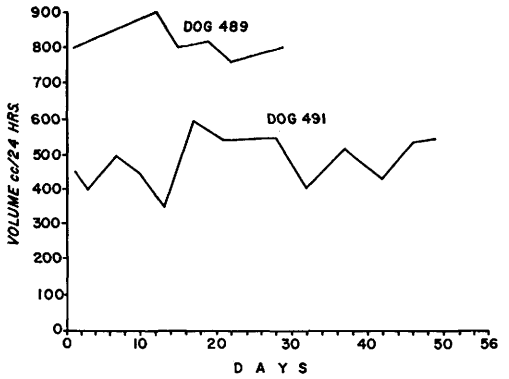

FIG. 2. Twenty-four-hr volumes of pancreatic juice from 2 dogs.

24-hour volumes of pancreatic juice of different dogs varied from 300-700 cc. However, the individual rate did not vary appreciably as the graph shows (Fig. 2).

At autopsy, there was no gross or histological evidence of duct dilatation or of pancreatitis.

Summary. This report describes a surgical procedure for preparing a pancreatico-duodenal fistula and shows the daily volume of secretion for 2 dogs.

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Antithyroid Effects of an Iodinated Hydroquinone Derivative.* (26820)

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A number of iodinated diphenyl ether derivatives have been evaluated with respect to their thyroid hormone-like or antithyroid properties(1). No simple iodinated hydroquinones or their derivatives have been evaluated however with respect to these characteristics. Since 2,6-diiodohydroquinone (DIH) has been suggested to be a potential degradation product of thyroxine(2) it was considered of interest to determine whether this simple hydroquinone or its derivatives possess hormonal or antihormonal characteristics. Preliminary studies of the effect of DIH on O_2 consumption in mice revealed that its toxicity interferred with an evaluation of its hormonal or antihormonal qualities. The diacetyl derivative of DIH (DDIH) however proved relatively non-toxic and exhibited antithyroid effects. This paper reports the extent and nature of these characteristics of DDIH.

Methods. The antithyroid characteristics of DDIH were measured through a study of its influence on the elevated O_2 consumption of mice injected with L-thyroxine or L-triiodothyronine. Methods and equipment used were essentially those of Maclagan *et al.*(3) except that exogenous L-thyroxine and L-triiodothyronine were injected at levels of 2 mg/kg and 1.68 mg/kg respectively. DDIH dissolved in cotton seed oil was injected in 2 equal portions, the first injected intraperitoneally approximately 5 hours prior to the injection of the thyroid hormone, and the second 24 hours later. Measurement of O_2 uptake was made 48 hours after first injection of DDIH.

Results. The influence of DDIH on O_2 consumption of mice is shown in Fig. 1. DDIH at a dose level of 400 mg/kg has no significant influence on O_2 consumption of untreated mice. Mice injected with 2 mg/kg of L-thyroxine, however, have significantly inhibited O_2 uptakes in presence of DDIH ($P = < 0.001$).

The influence of various concentrations of DDIH on O_2 uptake of mice is shown in Fig. 2. DDIH appears to induce a measurable effect at a total dose of 300 mg/kg. The maximum inhibitory effect appears to be at 400 mg/kg. Beyond this level the inhibitory action appears to have reached a plateau.

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