T400-Series Surgical Protocol

Dog Pancreaticoduodenal Vein: Chronic Blood Flow Measurement

APPLICATION BASICS

Site:	Pancreaticoduodenal vein
Species:	Dog
Weight:	31 - 39 kg
Duration:	Chronic
Vessel Diameter:	4 mm

PROBE

Size:	4 mm (side exit)
Reflector:	L with sliding cover
Cable Length:	60 cm
Catalog #:	MC-4PSS-LS-WC60-CRAS0-GC

FLOWMETER

TS420 Perivascular Module

Flow Ranges Observed

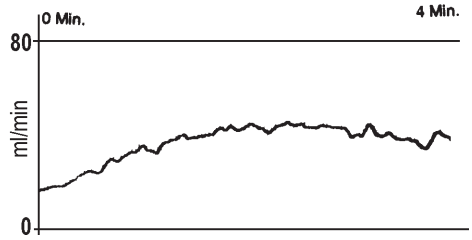

Fig. 1: Mean flow in anesthetized laporotomized dog was 5-15 ml/min. In the conscious dog after recovery, basal flow was 5-45 ml/min. This increased to 3 to 5 fold within 1.5 min. of feeding.

Application

This protocol was developed to study the neurohumoral regulation of insulin secretion. Sampling catheters are also implanted so that the concentration of various neuropeptides and hormones may be determined simultaneously in pancreatic venous and peripheral arterial plasma. Given the A-V concentration gradient, pancreatic blood flow and hemotacrit measurements, a researcher may directly calculate the local output of neurotransmitters and hormones from the duodenal lobe of the pancreas in conscious dogs.

Surgical Approach

Administer Kefzol antibiotic (1 gm IV) preoperatively and collect 30 cc of blood in a clot tube. Induce anaesthesia with 18 mg/kg thiamylal and maintain on methoxyflurane. With anesthetized dog in dorsal recumbency, make a midline skin incision from the xiphoid cartilage to the umbilicus. Continue the incision through the linea alba and the peritoneum to expose the duodenum and associated lobe of the pancreas.

Identify the cranial pancreaticoduodenal vein. It drains the right lobe of the pancreas and merges into the portal vein. Pass the L bracket around the vein, close the slide and secure the screw. Pack the previously clotted blood between the Probe and the vessel. The blood acts as an acoustic couplant for acute measurements and encourages the formation of fibrous tissue needed for acoustical coupling chronically. Suture the reflector bracket to the fatty tissue around the duodenum. Also place a single suture around the cable for strain relief.

Exit the Probe cable through a stab incision just below the last rib. Make a skin incision behind the shoulder between the shoulder blades and create a subcutaneous tunnel from the stab incision to the skin incision. Pull the cable through the subcutaneous tunnel. Close the body wall and the subcutaneous tissue with 2-0 silk sutures in an simple interrupted pattern. Close the skin with 2-0 Dexon in a subcuticular pattern and the stab incisions with a simple interrupted pattern. Apply betadine ointment and a sterile Collodion to all wounds, coil and tape excess Flowprobe cable, and apply a dog vest. Continue Kefzol postoperatively and administer Buprenex as needed.

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THE MEASURE OF BETTER RESULTS.

Dog Pancreaticoduodenal Vein: Chronic Blood Flow Measurement Cont.

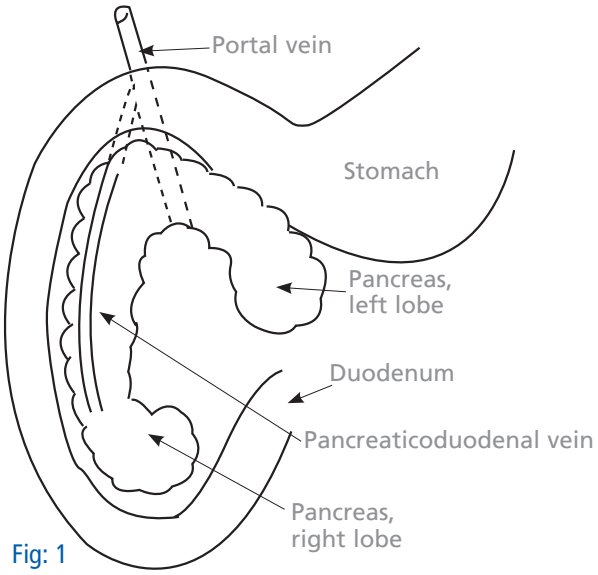

Fig: 1

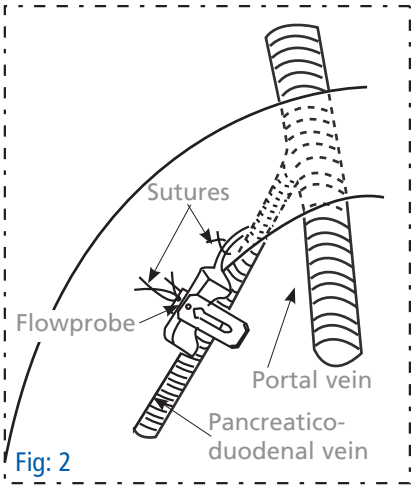

Fig: 2

ACKNOWLEDGEMENT

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REFERENCES

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