T400-Series Surgical Protocol

Dog Superior Mesenteric Artery and Portal Vein: Acute Blood Flow Measurement

APPLICATION BASICS

Site:	Superior mesenteric artery
Species:	Dog
Weight:	16 - 20 kg
Duration:	Acute
Vessel Diameter:	3 mm

PROBE

Size:	4 mm (side exit)
Reflector:	L with sliding cover
Other:	Silicone Wrap
Catalog #:	MA-3PSS-LS-WC100-CM4B-GA
FLOWMETER	TS420 Perivascular Module

APPLICATION BASICS

Site:	Portal vein
Species:	Dog
Weight:	16 - 20 kg
Duration:	Acute
Vessel Diameter:	12 mm

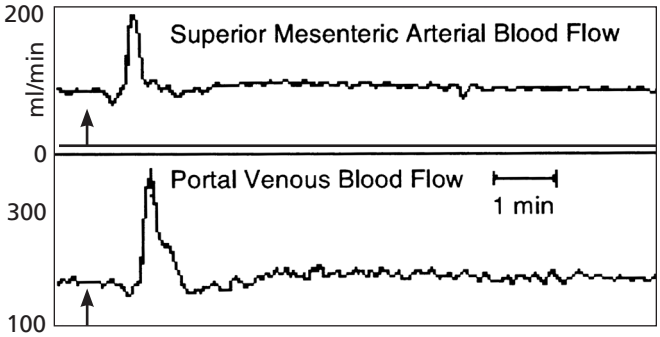
PROBE

Size:	12 mm (side exit)
Reflector:	U with Silicone Shield
Cable Length:	1 meter
Catalog #:	MA-12PSS-USW-WC100-CRS10-GA
FLOWMETER	TS420 Perivascular Module

Application

This protocol was developed to study the effect of neuro peptides in splanchnic flow. In one study, measurements of portal and mesenteric flow were combined with pancreatic capillary blood flow from a laser Doppler flowmeter. In another study, the pancreatic duct was cannulated to determine pancreatic juice volume and protein output.

Flow Ranges Observed



Recording of superior mesenteric arterial blood flow and portal venous blood flow, and their responses to 0.1 µg/kg of kassinin (arrow).

Surgical Approach

Anesthetize the dog with 25 to 30 mg/kg sodium pentobartital IV and mechanically ventilate. Note that pentobarbital will depress flow when compared to that of the conscious animal. With anaesthetized 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 lobes of the liver. Deflect the lobes of the liver cranially and identify the splanchnic vessels.

Carefully dissect free a 2 cm segment of the portal vein and strip all fat from it for proper ultrasonic (acoustic) transmission. Slip the large U bracket around the vein. Attach the body of the Probe and secure the screws.

Rotation of the Probe around the vein may be necessary to align the screwdriver with each screw. Suture the cable to the perivascular connective tissue. Identify the superior (cranial) mesenteric artery. Gently strip away the mesenteric

(Continued on next side.)

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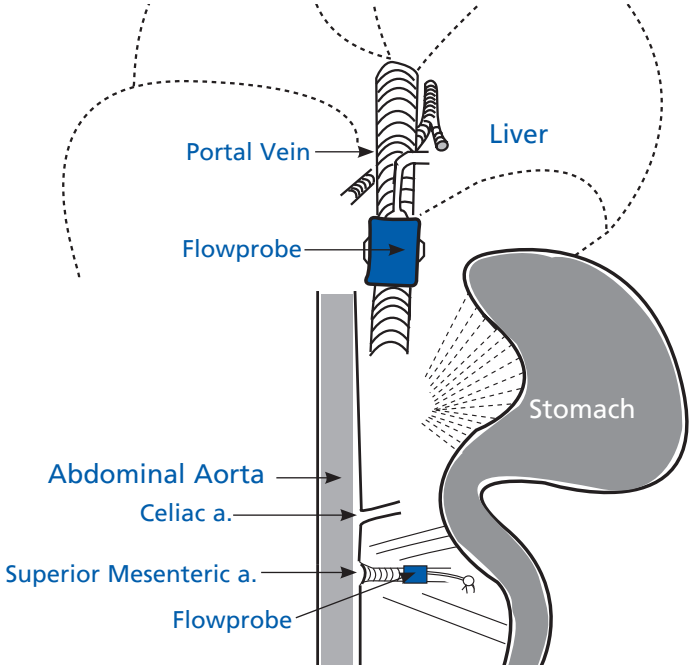
Dog Superior Mesenteric Artery and Portal Vein: Acute Blood Flow Measurement Cont.

Surgical Approach cont.

tissue to expose the artery. Strip all fat and pass the L bracket around the artery, close the slide and secure the screws. Suture the cable to perivascular tissue.

Remove the plunger of a 30 cc syringe and load the syringe with sterile acoustic gel. Make a special effort to prevent the formation of air bubbles. One technique is to top the syringe and let the gel flow down the side of the syringe. Using a flexible catheter on the tip of the syringe, liberally deposit gel between each Probe bracket and the respective artery. Press the test mode button on the meter to verify that signal amplitude is above 0.6 V. A low signal or an acoustic error can usually be traced to an insufficient amount of acoustic gel or to an air bubble.



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