

# T400-Series Surgical Protocol

## Cat Renal Artery: Chronic Blood Flow Measurement

### APPLICATION BASICS

Site:	Renal artery
Species:	Cat
Weight:	4 kg
Duration:	Chronic
Vessel Diameter:	1.5 mm

### PROBE

Size:	2 mm (side exit)
Reflector:	L with sliding cover
Connector:	10-pin
Cable Length:	60 cm
Catalog #:	MC-2PSS-LS-WC60-CR510-GC

### FLOWMETER

TS420 Perivascular Module

### Flow Ranges Observed

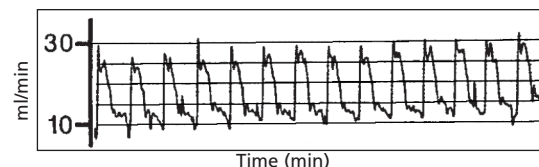


Fig. 1: Day 21: Instantaneous renal blood flow in a 4 kg cat varied in a pulsatile manner from 10 to 30 ml/min.

### Application

This protocol was used to validate transit-time flow measurement against microspheres. Renal blood flow also has been used to evaluate potential antihypertensive agents and to study eclampsia. Renal blood flow may also be useful in studies of nephrotoxic antibiotics, diuretics and inotropic agents. A retroperitoneal approach may be simpler when a single Probe is to be implanted.

### Surgical Approach

Premedicate with 0.02 mg/Kg Atropine. Anesthesia may be induced with 20 mg/Kg Ketamine and maintained on Halothane. With cat in dorsal recumbency, make a ventral midline incision from the xiphoid to the umbilicus. For access to the left kidney; lift the descending colon to displace the intestine to the right. For access to the right kidney: lift the descending portion of the duodenum and displace the other loops of intestine to the left. Note that the right kidney is cranial to the left kidney. Cover viscera with moist laparotomy packs.

(Continued on next side.)

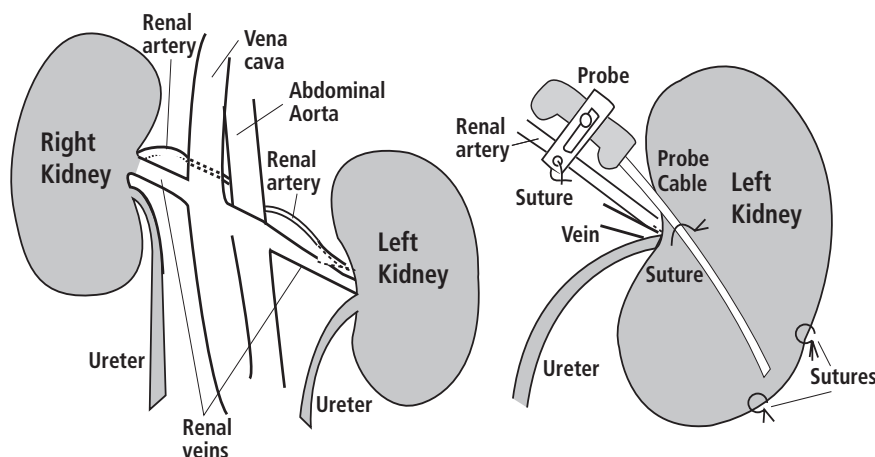


Fig. 2: Anatomical site.

## Cat Renal Artery: Chronic Blood Flow Measurement Cont.

### Surgical Approach cont.

Deflect the kidney laterally and gently dissect the tissue craniomedial to the hilus of the kidney. Take care not to damage the ureter which exits caudolaterally. Locate the renal vein and place a silk suture around it. Locate the renal artery and place a silk suture around it.

Place a 2PS Probe around the artery (or paired arteries) and close the sliding cover of the reflector. Position the kidney caudally and suture the renal capsule to the body wall. This helps stabilize the renal artery. Suture the cable to the renal capsule and the body wall and make a stab incision lateral to midline. Pass the cable through the stab incision and create a subcutaneous tunnel to bring the cable to a small subcutaneous pouch. Close the skin with simple interrupted sutures.

As cats are difficult subjects for chronic instrumentation, it is advised that the cable be left in the subcutaneous pouch until flow signals are required, then the cat may be lightly anesthetized to exteriorize the cable.

### ACKNOWLEDGEMENT

Dr. Alan Dobson, Dept. of Physiology, NYS College of Veterinary Medicine, Cornell University, Ithaca, NY 14853.

### REFERENCE

Rosin E: Nephrectomy. In Current Techniques in Small Animal Surgery, 2nd ed., Edited by M.J. Bojrab., Philadelphia, Lea and Febiger, 1983.



Transonic Systems Inc. is a global manufacturer of innovative biomedical measurement equipment. Founded in 1983, Transonic sells "gold standard" transit-time ultrasound flowmeters and monitors for surgical, hemodialysis, pediatric critical care, perfusion, interventional radiology and research applications. In addition, Transonic provides pressure and pressure volume systems, laser Doppler flowmeters and telemetry systems.

#### AMERICAS

Transonic Systems Inc.  
34 Dutch Mill Rd  
Ithaca, NY 14850  
U.S.A.  
Tel: +1 607-257-5300  
Fax: +1 607-257-7256  
support@transonic.com

#### EUROPE

Transonic Europe B.V.  
Business Park Stein 205  
6181 MB Elsloo  
The Netherlands  
Tel: +31 43-407-7200  
Fax: +31 43-407-7201  
europe@transonic.com

#### ASIA/PACIFIC

Transonic Asia Inc.  
6F-3 No 5 Hangsiang Rd  
Dayuan, Taoyuan County  
33747 Taiwan, R.O.C.  
Tel: +886 3399-5806  
Fax: +886 3399-5805  
support@transonicasia.com

#### JAPAN

Transonic Japan Inc.  
KS Bldg 201, 735-4 Kita-Akitsu  
Tokorozawa Saitama  
359-0038 Japan  
Tel: +81 04-2946-8541  
Fax: +81 04-2946-8542  
info@transonic.jp