

# T400-Series Surgical Protocol

## Horse Cecal Artery: Chronic Blood Flow Measurement

### APPLICATION BASICS

Site:	Lateral cecal artery
Species:	Horse
Weight:	400 kg
Duration:	Chronic
Vessel Diameter:	3 - 4 mm

### PROBE

Size:	4 mm (side exit)
Reflector:	L with sliding cover
Cable Length:	1 meter
Other:	Delrin skin button
Catalog #:	MC-4PSS-LS-WC100-CM4S-GC

### FLOWMETER

TS420 Perivascular Module

### Application

This protocol was developed to study the pathogenesis of equine colic. In these investigations, intestinal motility is often measured with extraluminal strain gauges. In one experiment, the simultaneous measurement of blood flow and contractile activity was used to study the effect of endotoxin.

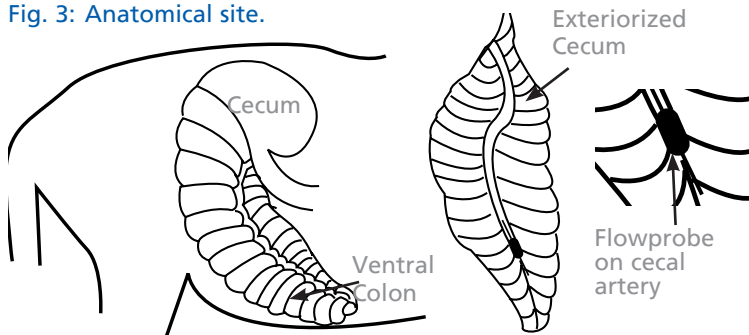
### Surgical Approach

Pre-medicate with 10,000 U/kg penicillin. Induce anesthesia with guaifensin (10 mg/kg, IV) and thiopental (4.4 mg/kg, IV) and maintained on halothane and oxygen.

While not necessary for the approach to the cecum, rib resection is routinely used. This approach results in fewer postoperative incisional problems than when the incision is made lower in the paralumbar fossa. Place the horse in left lateral recumbency. Make a skin incision over the last rib. Continue the incision to

*(Continued on next side.)*

Fig. 3: Anatomical site.



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### Flow Ranges Observed

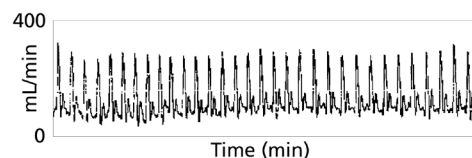


Fig. 1: Instantaneous flow in the lateral cecal artery in a conscious healthy horse ranges from 80 to 320 ml/min.

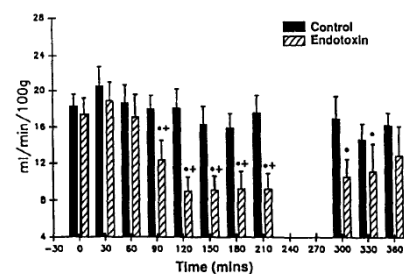


Fig. 2: Infusion of saline solution in Session A (controls) from 30 to 90 mins did not alter lateral cecal arterial blood flow. Lateral cecal arterial bf during and after infusion of endotoxin (cumulative dosage 0.03 µg/kg/bwt) in saline solution in Session B (endotoxin) was significantly less than that before endotoxin infusion(\*). Lateral cecal arterial bf during Session B was significantly less than that during Session A (\*).

### ACKNOWLEDGEMENT

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## Equine Cecal Artery: Chronic Blood Flow Measurement cont.

### Surgical Approach cont.

expose the 18th rib. Transect the rib proximally, disarticulate it at the costochondral junction and remove it. Open the peritoneum to expose the viscera. Exteriorize the cecum, and palpate the lateral band to locate the lateral cecal artery. Dissect out a 3 cm segment of the artery, Place the Flowprobe around the artery. Close the slide and secure it. Place a single suture in each of the two bracket eyelet holes to anchor the Probe to cecal tissue. Place another suture around the cable close to the body of the Probe. Make a stab incision in the abdominal wall dorsal to the original incision. Continue the exit path with a subcutaneous tunnel to a Delrin skin button high on the body wall. The skin incision required for insertion of the skin button should be sutured and cemented with methyl methacrylate. The cement creates a seal and decreases the incidence of infections around the cable.

Close the peritoneum with a simple interrupted pattern of a #0 synthetic absorbable suture. Close the intercostal muscles with a 2 absorbable suture in the same pattern. Close the external abdominal oblique and the fascia with a #1 synthetic absorbable in a simple interrupted pattern. Appose the subcutaneous tissues with a simple continuous #2-0 synthetic absorbable suture. Close the skin with a nonabsorbable synthetic suture in a Ford interlocking pattern. Apply an Elastoplast gauze bandage over the main incision. Postoperative care consists of trimethoprim sulfamethoxazole (30 mg/kg PO BID) for five days and phenylbutazone (2 mg/kg).

### REFERENCES

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Clark ES, Moore JN, "The effects of slow infusion of a low dosage of endotoxin in healthy horses," Equine Colic 1989; 33-37.

McIlwraith CW, Turner AS, Techniques in Large Animal Surgery, 2nd Ed., Philadelphia, Lea & Febiger, 1989.



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