T400-Series Surgical Protocol

Sheep Uterine Artery: Chronic Blood Flow Measurement

APPLICATION BASICS

Site:	Uterine artery
Species:	Sheep (ewe)
Weight:	40 kg
Duration:	Chronic - 15 days
Vessel Diameter:	4 mm

PROBE

Size:	4 mm (side exit)
Reflector:	L with sliding cover
Connector:	CRS10
Cable Length:	60 cm
Catalog #:	MC-4PSS-LS-WC60-CRS10-GC

FLOWMETER

TS420 Perivascular Module

Application

Uterine blood flow is used extensively in pregnancy research. Some investigators use blood flow in combination with arterial and venous sampling catheters to estimate the uptake of particular metabolites. Others use uterine blood flow in combination with pressure to monitor pharmaceutically induced changes in vascular resistance.

Surgical Approach

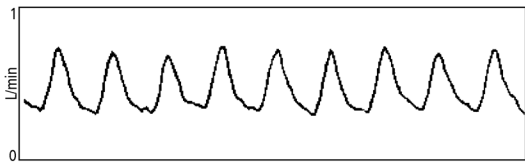
Sedate the ewe with 2 mg xylazine IM. Then give 600 mg ketamine IV slowly over a two minute period to induce anesthesia. Anesthesia may be maintained with an infusion pump delivering a 50 mg/ml concentration of ketamine at a rate of 0.2 ml/min.

Place anesthetized ewe in dorsal recumbancy and make a ventral paramedian incision from the umbilicus to a point 2 cm cranial to the udder. The skin incision is made 1 cm off midline to avoid the median subcutaneous vein. Retract the skin and associated vascular structures and continue the incision through midline of the abdominal wall. Locate the broad ligament and uterine artery lateral to the pregnant horn and follow the uterine artery down to the body of the uterus.

Dissect free a segment of the artery lateral to the body of the uterus and place the Probe around the artery. Close the slide and tighten the screw. Stable flow readings in the chronic implant occur much sooner when the Probe is firmly secured around the vessel. In this particular site, there is substantial

(Continued on next side.)

Flow Ranges Observed



Instantaneous flow ranges from 350 ml/min to 750 ml/min.

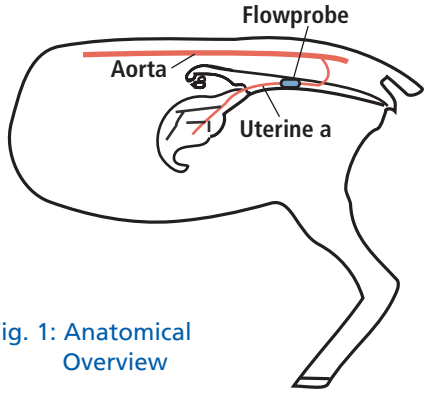


Fig. 1: Anatomical Overview

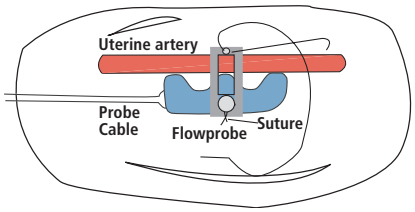


Fig. 2: Suturing the Probe to the vessel.

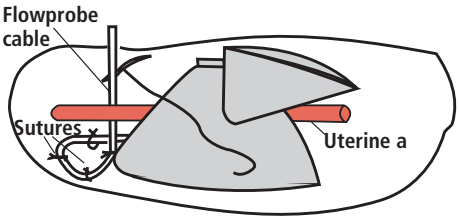


Fig. 3: Covering for the Probe.

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THE MEASURE OF BETTER RESULTS.

Sheep Uterine Artery: Chronic Blood Flow Measurement Cont.

Surgical Approach cont.

loose connective tissue that can be used to secure and bury the Probe. Place a suture through the bracket hole and connective tissue as shown in Fig 2. Next, cover the Probe with loose tissue and suture as shown in Fig 3. Other flaps can be pulled over the Probe and sutured to the first flap. Also suture a loop of the cable to the connective tissue for strain relief.

Use a trocar to puncture the abdominal wall in the paralumbar fossa. Enlarge the incision by scalpel to allow passage of Probe cable. Close the body wall and skin routinely. Close the exit site incision and suture the cable to the skin.

ACKNOWLEDGEMENT

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REFERENCES

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