T400-Series Surgical Protocol

Fetal Sheep Umbilical Artery (Ventral Approach): Chronic Blood Flow Measurement

APPLICATION BASICS

Site:	Paired umbilical arteries
Species:	Fetal Sheep
State of Gestation:	109-120 days
Duration:	Chronic, 5 days
Vessel Diameter:	4 mm

PROBE

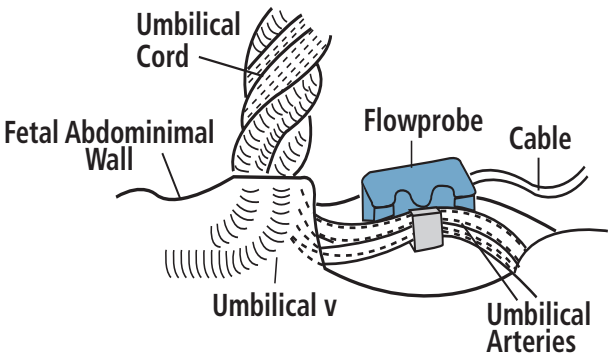
Size:	4 mm (side exit)
Reflector:	J
Connector	10-pin
Cable Length:	60 cm
Catalog #:	MC-4PSS-JN-WC60-CRA10-GC

FLOWMETER

TS420 Perivascular Module

Flow Ranges Observed

Umbilical flow was 210 ml/min/kg fetal weight in two fetuses and 105 ml/min/kg in one fetus.



Application

Umbilical arterial blood flow is used extensively in pregnancy research. Some investigators use blood flow in combination with pressure to measure changes in vascular resistance induced by pharmaceutical agents. Others look for diurnal patterns associated with parturition.

Surgical Approach

Premedicate with 0.4 g glycopyrrolate IM, induce with 1 g ketamine IM and maintain anesthesia on 1.5% - 2% halothane.

Place anesthetized sheep in dorsal recumbency 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. Identify and exteriorize the uterine horn containing the fetus. Palpate the fetus to identify the orientation and make a transverse incision in the uterus to allow exteriorization of the fetus. Once the fetus is exposed make a midline skin incision just caudal to the umbilical cord to expose the paired arteries. Place the J bracket around the paired arteries and suture the Probe in place. Close the abdominal musculature and the fetal skin in separate layers with 2-0 simple continuous sutures. Secure the Probe cable to fetal skin with a 2-0 simple interrupted suture.

Close the uterus with a continuous Cushing pattern oversewn with a continuous Lembert, the Probe cable is exteriorized through this incision. Extend the Lembert pattern slightly to oversew the cable for 2 cm. Pass the Probe cable through the abdominal and close the body wall and skin routinely. Suture the cable to the skin of the ewe near the exit site.

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THE MEASURE OF BETTER RESULTS.

Fetal Sheep Umbilical Artery (Ventral Approach): Chronic Blood Flow Measurement Cont.

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