# Novel Sensor Monitors Endograft Leaks Remotely

BY TIMOTHY F. KIRN
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SCOTTSDALE, ARIZ. — Vascular interventionalists may soon routinely implant pressure sensors that can detect endoleaks during both thoracic and abdominal aneurysm repair.

"Remote pressure sensing for endovascular repair is feasible," Dr. Ross Milner said at an international symposium on endovascular interventions sponsored by the Arizona Heart Foundation. The sensors have no battery. They are activated by energy waves generated by external probes, which also read the measurement.

In a recent publication, Dr. Milner, of the division of vascular surgery at Emory University, Atlanta, said there are two devices in development, one that uses ultrasound waves and the other, radio waves. Both devices—the ImPressure ultrasound device, Remon Medical Technologies Inc., and the Endosensor, CardioMEMS Inc.—have been implanted in human trials.

The Endosensor device was approved for U.S. marketing in November, based on a 12-center trial. In a report on the trial at the most recent Society for Vascular Surgery meeting, the investigators said the device was implanted in 70 patients undergoing endovascular repair of abdominal aortic aneurysms without complication. It accurately measured pressure in 65 of the patients and detected all 15 endoleaks that occurred during the procedure.

Dr. Milner and his colleagues at Emory have begun using the ImPressure device in thoracic aneurysm repairs, with the first implant done in Brazil last July. That device continued to function well 8 months after implantation, and it has shown a dramatic, continued drop in pulse pressure within the aneurysm sac.

He predicted that, in time, use of these pressure devices may omit the need for CT angiography at the end of procedures to be sure the graft has completely sealed off the aneurysm, thus sparing patients some exposure to contrast agent. "Pressure sensing will be feasible in the thoracic aorta and may add a lot to the follow-up of these patients as it allows for appropriate intraoperative exclusion as well as long-term follow-up," he said. The sensors are compatible with any graft system, he added. ■

# Fibrin Glue Seals Endoleaks After Aneurism Repair

SCOTTSDALE, ARIZ. — Type II endoleaks after endovascular aneurysm repair were prevented by using fibrin glue in all but 2 of 84 consecutive patients, Dr. Mauro Zanchetta said at an international congress on endovascular interventions sponsored by the Arizona Heart Foundation.

The patients were treated over a 2-year period, up to December 2005, with a mean follow-up period of 14 months, at which time 76 of the patients had no complications, he said. The complications that did occur were not due to the fibrin glue, which induces thrombosis of the side branch vessels. There were graft-deployment problems in two patients, implantation problems in two patients, and systemic complications in three patients. One patient died during the procedure.

In all patients without endoleak, subsequent examinations showed sustained aneurysm shrinkage. The fibrin glue treatment is "easy, effective, and durable," said Dr. Zanchetta of the Ospedale di Cittadella in Padua, Italy. "This approach reveals a new strategy for routine prevention of type II endoleaks." He said the bifurcated grafts were deployed from a right femoral access. The fibrin sealant (5 mL) was injected directly into the aneurysm sac using a double-syringe delivery system inserted through a 23-cm, 5-F sheath, and advanced from a left access over a guidewire that remained in place after angiography between the aorta and the graft. A balloon was inflated in the left limb of the stent graft to prevent the sealant from leaking and causing distal embolization. It was left in place for 1 minute after injection. Intraoperative angiography and color Doppler ultrasound showed the majority of the patent side branches found and treated were peripheral lumbar arteries, with a range of one to three per patient. Ten patients also had patent inferior mesenteric arteries treated.

**—Timothy F. Kirn**