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New technology can help patients after surgery

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The same sort of detection technology that's used to discourage retail theft could help locate sponges left inside patients during surgeries, according to a new study.

Leaving foreign objects behind in the body is one of the more serious goofs surgical teams can make during an operation, increasing the risk for infection and complications and sometimes death. Two-third of the objects left behind are surgical sponges, research shows.

The study published in the latest issue of the Archives of Surgery demonstrated that detection technology could locate such sponges inside the body before surgeries end.

Currently, surgical teams count sponges at least three times before and during an operation. Even so, one study in Massachusetts found that an object is left behind in one out of every 10,000 operations.

Another recent study reported that surgical patients with instruments or sponges left behind faced an average of four added days of recovery in the hospital in 2000, and 57 died from the errors that year.

"The risk significantly increases in emergencies, with unplanned changes in procedures and with patients who have a higher body mass index," said Alex Macario, a professor of anesthesia at Stanford University and lead author of the study.

The test was done during eight operations involving elective abdominal or pelvic surgery at Stanford.

Macario and colleagues used sponges developed by ClearCount Medical Solutions of Pittsburgh that are equipped with a 20-millimeter-diameter radio-frequency ID chip. All the patients consented to having the test done.

During each surgery, a surgeon inserted one or two of the tagged sponges while the patient's incision was still open. Another surgeon then used a prototype detection wand attached to a frequency generator about the size of a toaster oven to detect the sponges while the other doctor held the incision closed.

In each case, the surgeon accurately located the tagged sponge or sponges in less than 3 seconds. The wand never failed to detect a sponge and never indicated a sponge when none was present, the researchers said.

Similar detection technology is used in retail stores when items are tagged, triggering an electronic monitor when they're not properly removed or scanned by a clerk.

In a survey given as part of the medical study, surgeons said they liked the speed and accuracy of the technique, but most found the prototype wand to be somewhat cumbersome. The company is testing a smaller device elsewhere, Macario said.

Operating room teams also expressed some concern that human error could still interfere with the system's effectiveness.

Macario and his colleagues agree than any technical tracking system should be used to supplement manual counting of sponges and other surgical gear.

"We need a system that is really fail-safe; where, regardless of how people use this technology, the patient doesn't leave the operating room with a retained foreign body," the researcher said.