

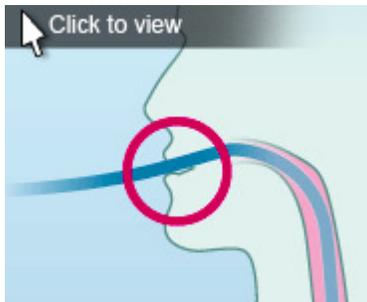
## No-Scar Surgery Through the Mouth or Vagina

### Some hospitals are removing gallbladders and appendixes in "natural orifice" operations

By *Lindsay Lyon*

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Awilda Sanchez had her gallbladder out last May, but you wouldn't know it to look at her belly. Unlike the thousands of other gallbladder removals each year, Sanchez's operation left not even the tiniest scar. "It's like it never happened," marvels Sanchez, 31. "I can still get into a bikini." The plum-size organ, usually extracted through tiny holes in the abdomen, was pulled out through her vagina.



(Rob Cady—USN&WR, Inset Photograph: USGI Medical)

The unusual operation, performed at New York-Presbyterian Hospital/Columbia University Medical Center, where Sanchez works as a neonatal pediatric respiratory therapist, was a milestone in the burgeoning field of "natural orifice transluminal endoscopic surgery," or NOTES® for short. Surgeons at a handful of medical centers are now testing the approach, which involves snaking flexible instruments through the body's natural openings and making internal incisions—through the [stomach](#) wall, say—to get to and remove diseased organs. The University of California San Diego Medical Center, Northwestern Memorial Hospital in Chicago, and Legacy Good Samaritan Hospital in Portland, Ore., are

among the centers already doing NOTES surgery; more are expected to begin trials—and start recruiting patients—by next year.

**Less invasive, less pain.** So far, doctors have removed both gallbladders and appendixes through the vagina and mouth; last month, the first "sleeve [gastrectomy](#)," a weight-loss procedure that removes much of the stomach, was performed by way of the vagina. Abdominal operations through the anus may be next. Until Sanchez, U.S. surgeons had jabbed a minuscule camera through the bellybutton for guidance; most centers plan to continue to do so for added safety. In her case, no external cutting was done.

The small number of people who have so far chosen natural orifice surgery have found the sales pitch appealing: By sidestepping incisions through the abdominal muscle—even the tiny slits used in laparoscopic operations—you can avoid scars and potentially experience less pain and enjoy a lickety-split recovery. "The goal is to snap your fingers, and the patient is better," says Marc Bessler, director of the Minimal Access Surgery Center at New York-Presbyterian and the surgeon who operated on Sanchez. While these procedures do entail snipping through the vaginal wall behind the uterus or through the stomach, the areas aren't wired for pain in the way that abdominal muscles are, experts say—and avoiding outer incisions should also pay off in fewer infections and [hernias](#) and less recovery time.

But at what cost? "This doesn't pass my sniff test," argues Frederick Greene, chairman of the department of surgery at Carolinas Medical Center in Charlotte, N.C., who has editorialized on the subject in *General Surgery News*, a trade newspaper of which he is senior medical editor. "It's totally senseless to put a hole in a perfectly good organ." If the stomach wall is not closed properly, he points out, acid and bacteria can seep into the abdominal cavity—potentially a medical emergency. Because of this risk, Bessler thinks it's safer to stick to the vaginal route for now.

Yet that method, too, poses some unknowns. There's been a small worry that slitting the vaginal wall might cause scarring or infections that could later affect fertility, though gynecologists who've been making similar incisions for some time for [pelvic exams](#) and [vaginal hysterectomies](#) have quieted those concerns, says Bessler. And all NOTES operations carry a risk of [infection](#), says Greene. Because doctors must inflate patients with carbon dioxide to have space to work, an internal incision could become a portal through which organisms normally confined to certain areas are blown throughout the abdominal cavity.

Even surgeons who belong to the Natural Orifice Surgery Consortium for Assessment and Research, a group formed to advance the research on and safety of these procedures, have reservations. "What are the real benefits, after you get past all the marketing and hype?" asks NOSCAR® Research Subcommittee Co-chair Steven Schwaitzberg, chief of surgery at the Cambridge Health Alliance in Massachusetts. When laparoscopic surgery arrived in the late '80s, the benefits were clear cut and dramatic—though it, too, was at first met with doubt, he recalls. No longer were long incisions required for simple [gallbladder removal](#), for example. NOTES doesn't offer patients that same gain, he says, especially now that laparoscopic surgery itself may just require a single incision through the bellybutton. "People's lives are not devastated by having three or four holes on their abdomen," he says. So how much risk makes sense in order to avoid a small scar and some [pain medication](#)?

**Quick recovery.** David Askay, a 26-year-old Ventura, Calif., native, found the decision an easy one. Faced with a necessary [appendectomy](#) with only weeks until he had to drive cross country for graduate school, he chose to have his appendix out through his mouth in June. His mother, however, wasn't so keen on the idea. "What about your vocal cords? This is crazy!" he recalls her saying. (It took two weeks for Askay to convince her that his doctor wasn't a "wackadoo.") "It was really nice that I was healed up, being able to enjoy my trip," he reflects, "as opposed to having open wounds."

The same was true for Sanchez, for whom scarring might mean keloids—the large, rubbery lesions she believed she was prone to as a black Hispanic. "One little scar can turn into a huge scar," she says. Too few surgeries have been done to create much dissatisfaction yet, but in at least one case, an out-the-mouth gallbladder operation led to an extremely [sore throat](#) and days of vomiting.

Until there's a critical mass of data on these procedures, they're unlikely to spread beyond the research institutions, says Santiago Horgan, director of UCSD's Center for the Future of Surgery and the surgeon who operated on Askay. "I think it will take two to three years to become mainstream," he predicts. Meantime, patients making a choice will have to rely on anecdotal success stories and a surgeon's reputation for guidance and be comfortable with the fact that their doctor may have mastered the technique in pigs. "I asked seven patients before the first one said they were interested," says Lee Swanström, director of Legacy Health System's Minimally Invasive Surgery Program in Oregon, who has removed four gallbladders through the mouth. When patients wondered how many of the procedures he had performed, his "you'd-be-the-first-one" response elicited some dubious glances.

Swanström expects that rather than becoming a widely used new way to treat gallbladder and appendix disease, NOTES will lead to better ways of performing other operations—colon resection, for example, in which a diseased piece of the [large intestine](#) is sliced out and the remaining parts stapled back together. Even when resection is done laparoscopically, most patients require a 4-to-6-inch incision. It may also prove useful as a minimally invasive way of appraising the stage of a patient's [cancer](#). And [obese](#) patients may do better with natural orifice operations, since many have trouble with wound healing.

Anthony Kalloo, a professor of medicine and chief of gastroenterology at Johns Hopkins University School of Medicine and one of those who pioneered the approach years ago, sees numerous possibilities if a sterile environment becomes less important: battle-site surgery for injured soldiers, operations at the scene of an accident, surgery at the bedside of patients too sick to be moved. In the lab, his

team is also testing whether natural orifice surgery can lead to safer ways to [operate on fetuses](#).

Call him a traditionalist or a curmudgeon, Greene says, but he doubts that NOTES will ever be embraced by the surgical community. On the other hand, he allows, "I may be sitting in the assisted-living facility in five or 10 years, saying, 'I was wrong.' "