

Scientists discover new explanation for controversial old patient-care technique

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You might not know what it's called, but if you've had general anesthesia before surgery, especially after an accident, it is likely you have received Sellick's maneuver. That's when fingers are pressed against a patient's throat to prevent regurgitation and spilling of stomach contents into the airway and lungs while anesthesia is being administered.

Such regurgitation could result in serious [lung](#) damage and even death.

The [maneuver](#) is a longstanding practice, first described in 1961 by British physician Brian Sellick. Performed dozens of times a day in hospitals, the procedure is accepted as "standard of care" and is a basic skill taught in all anesthesiology training programs. Anesthesiologists estimate conservatively that more than 100,000 people a year undergo the procedure.

But recently some physicians have begun to question the technique in the wake of a study challenging its effectiveness and ease of execution. And some have stopped using it altogether.

Now, researchers from University of Florida College of Medicine have used [magnetic resonance imaging](#) of the neck region to show that the maneuver works and that doubts about its effectiveness are based on a misunderstanding of what physical changes happen in the neck during the procedure.

"Sellick was right that the maneuver works — but he was a bit off on the

anatomy," said UF anesthesiologist Mark J. Rice, M.D., who led the study now online and to be featured on the cover of the November edition of the journal *Anesthesia & Analgesia*. The journal will also include two editorials on the controversial topic side by side with the UF paper, which has been selected by the editorial board as this month's graduate medical education article for November.

Also called cricoid pressure, the eponymous maneuver has for decades been described as the pinching of the esophagus between the cricoid — a ring of cartilage that surrounds the trachea — and the neck vertebrae.

It is most often used in accident victims whose stomachs might not be empty before surgery, or in patients who have bowel obstructions or slowed emptying of the [stomach](#) because of certain drugs or medical conditions.

Some doctors say that the procedure is hard to get right, and that not applying enough pressure and at a proper angle would cancel out any benefit.

A 2003 paper further cast strong doubt on the procedure's effectiveness with a finding that in 90 percent of cases, the esophagus moves to the side during the procedure. It is generally thought that the procedure is effective only if done at the midline of the neck. So researchers concluded that such movement of the esophagus means the maneuver can't effectively prevent regurgitation.

The UF researchers used open MRI imaging of the neck while the procedure was administered to volunteers. That allowed the person performing the technique to do so unimpeded, and increased the chance of reproducing how the procedure is carried out in a clinical setting.

It turns out, the imaging studies show, that the esophagus does not exist

at that point in the neck where the procedure is done. Instead, it is a structure called the hypopharynx — above the esophagus — that gets pinched between the cricoid and the bones of the neck. The esophagus exists only lower down, near the shoulders. So movement of the esophagus doesn't affect the procedure since it is not involved, Rice and co-authors Lori Deitte, M.D., Anthony Mancuso, M.D., Nikolaus Gravenstein, M.D., Charles Gibbs, M.D., and Timothy Morey, M.D. found.

"This is a major error that's been in the literature for 50 years," said Rice, who is chief of liver transplantation in UF's department of anesthesiology.

As for the sideways movement, the study showed that the hypopharynx and cricoid structures move together, so effective compression is achieved even if it is pushed to the side in the process.

"It turns out it doesn't matter," Rice said.

The new findings serve to reassure doctors that the procedure works, and that they don't have to do it "perfectly" for it to be effective.

"Astonishingly enough, our previous assumptions are totally wrong," said professor Scott Springman, M.D., director of ambulatory [anesthesia](#) at the University of Wisconsin-Madison. "Now I can explain to my residents more accurately why we're doing it. I will use it in more situations than I would if I still had grave doubts about its efficacy."

Although the study doesn't prove directly that Sellick's maneuver prevents regurgitation, that is reasonably inferred from the images.

"Because of Dr. Rice's study, Sellick's maneuver has again been shown to have anatomic efficacy, despite it occurring in a way that is different

from the classic description," Springman said. "It also shows us that previous assumptions are not always correct, and that new technology can help us refine our hypotheses."

Source: University of Florida ([news](#) : [web](#))

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