

Robotic surgery at Nebraska Medical Center can remove thyroid tumor without leaving visible scar

By Julie Anderson // World-Herald staff writer Sep 12, 2017



From left, Luke, Zeke and Katie O'Callaghan.

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Katie O'Callaghan was checking out a customer at her parents' grocery store in Hastings, Nebraska, when the woman, a retired nurse, noticed a lump in O'Callaghan's neck.

O'Callaghan, then 24 years old and four months pregnant, told her obstetrician. A biopsy indicated that she probably had thyroid cancer.

After Zeke was safely born, O'Callaghan in late May underwent the Nebraska Medical Center's first robotic thyroidectomy, a remote-access procedure performed with a surgical robot.

Instead of making the usual incision at the base of the neck, Dr. Estelle Chang went in behind O'Callaghan's right ear and used the robot's arms to reach down and remove the tumor — all without a visible scar. What remains after the incision is fully healed should be nearly hidden in O'Callaghan's hairline, even when she wears her long hair up in a ponytail.

The behind-the-ear, or face-lift, approach is one of three remote thyroid surgery procedures the medical center now offers. Another involves entering through the underarm. With the third, the transoral, a surgeon enters through the mouth, going down between the lower lip and teeth. That one is more commonly done laparoscopically, without the robot.

To prepare, Chang, a head and neck surgeon with Nebraska Medicine, completed a six-month fellowship at Severance Hospital of the Yonsei University Health System in 2016 in Seoul, South Korea, working with the doctors who devised both the underarm and face-lift approaches. An assistant professor in the department of otolaryngology and head and neck surgery at the University of Nebraska Medical Center, she also traveled to Thailand to train in the transoral technique.

Dr. Abbey Fingeret, an assistant professor in the UNMC surgery department's surgical oncology division, also has completed a robotic surgery fellowship in South Korea. She focused her three months of training on the underarm procedure. She performed the procedure for the first time at the medical center late last month, and it went well.

Chang said knowing a variety of techniques allows her to tailor the procedure to the patient. Caucasians who tan easily, African-Americans and Asians all have a greater tendency to scar. So do young people, such as O'Callaghan, who have more of the structural protein collagen in their skin.

"You would think it's just a simple scar," Chang said, "but for a lot of people — more than expected — if they have the choice of avoiding the visible scar, they will take that option."

Luke O'Callaghan, Katie's husband, said concern about scarring was one reason his wife's obstetrician referred her to the medical center.

Katie O'Callaghan, who is about 5-foot-10, has a long neck and a scar would have been noticeable. Her height, and the distance that would have been involved, also counted among the reasons Chang opted for the face-lift approach rather than the underarm technique.

"There are different patient characteristics that make me decide one way or the other," Chang said.

As suspected, O'Callaghan's tumor was cancerous, although surrounding tissue and lymph nodes were clear. Chang removed half of her thyroid rather than the entire gland, according to O'Callaghan's wishes and revised guidelines the American Thyroid Association issued in 2015. The new guidelines allow that option for cancers measuring less than 4 centimeters and showing no other signs calling for more aggressive treatment.

Previous guidelines called for removing the entire gland. More recent studies, however, have indicated that the risk of recurrence and survival rates were the same whether surgeons removed half or all the gland. One recent study indicated that some patients who have the entire gland removed may develop chronic fatigue, even when taking a synthetic replacement hormone, Chang said.

Thyroid nodules are quite common, occurring in about 30 percent of people in the United States. The vast majority, however, are benign, with only 5 to 10 percent being cancerous. The majority of patients don't have symptoms, unless the nodule is very large.

Chang said she believes robotic surgery will be part of the future of thyroid cancer treatment. The procedure, developed in South Korea in 2007 and brought to the United States in 2009, has been slower to take off in the U.S. because of the time needed for proper training and the cultural and language barriers involved. It's more common in Europe and South America.

Chang, who was born in South Korea and moved to the United States at age 10, had a leg up because she speaks the language. Today she is among a handful of surgeons in the United States who perform the robotic procedures.

Fingeret, the state's only fellowship-trained endocrine surgeon, said she learned the underarm approach because she wanted another option for patients.

At the same time, the size of the neck incision now used in most open surgeries has shrunk, leaving less of a scar to begin with.

Fingeret and Chang both said the robotic procedures are as safe — both in terms of the surgery itself and their ability to remove the tumor — as the open surgery.

Fingeret said the robotic procedures take a little longer and may not be a good option for people who aren't in good health.

"But for everyone else, it's of equal safety," said Fingeret, who also uses the robot for surgery on the adrenal gland and pancreas.

In addition to those procedures, the medical center's DaVinci surgical robot is used for cardiothoracic, urology, transplant, gynecologic and general surgery. With the procedures so new, the hospital hasn't yet worked out cost or insurance coverage.

Chang said she explains to patients that the robot isn't doing the procedures on its own. It works more like an extension of her arms, and it is controlled by her while she sits at what looks like a computer station.

But the robotic system provides greater magnification than the standard eyepieces that surgeons wear, allowing her to navigate the tiny structures of the neck more easily. The robotic arms

allow a greater degree of rotation than laparoscopic tools, and the robotic system filters out tremor.

Dr. Kopal Patel, co-chairman of the American Thyroid Association's surgical affairs committee, said the organization's statement on remote-access thyroid surgeries says it's a viable option with the right patient and the right tumor.

It also should be performed by a surgeon who does it routinely and has the necessary expertise.

"It's an appropriate use of the technology in the appropriate patients," said Patel, chief of the endocrine surgery division at New York University's Langone Medical Center.

O'Callaghan is just glad to have the tumor gone, with no obvious scar to mark it. "It was nice to know that it wasn't invading," she said.

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