

TOP STORIES

THE ROBOT WILL SEE YOU NOW

LI surgeon uses a non-human assistant for hair-transplant operations

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The surgeon probably could have chosen a physician to work alongside him performing hair transplants, but Dr. Baiju Gohil decided, instead, to partner with a robot, which he describes as a master of precision — an assistant quite literally designed to fit the task.

At his newly opened practice in Jericho for people suffering hair loss, it clearly is a team approach: Yes, the doctor will see you now. But so will the robot, the perfect employee: It never tires despite the tediousness of the work and it doesn't call in sick or ask for a raise.

Gohil meets with patients, decides how to most aesthetically restore their hair, and programs the robot.

The robot harvests the actual grafts to be transplanted, a delicate task once performed by the surgeon. Gohil describes the automaton as more dexterous at hair harvesting than a highly trained medical doctor.

"It has the precision of accuracy that you cannot get with the human hand," said Gohil, president and medical director of Robotic Hair Restoration of Long Island. His is the only robotic hair-transplanting practice on the Island; there are three others in the greater metro area.

Yet as futuristic as a robotic aid to hair transplants may seem, smart machines, in general, are moving into numerous areas of health care, from heart surgery to filling prescriptions in hospital pharmacies.

Some legal and ethics experts are calling these automatons transformative technology, part of a larger "bot brigade," the deployment of robots into diverse areas of everyday life — as personal robots, members of the workforce and the robotic drones involved in waging war. These experts are calling for laws governing the coming wave of robots.

Gohil simply wants to perform the per-



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A robot harvests a patient's hair Oct. 2 at LI Robotic Hair Restoration in Jericho.

fect hair transplant. His robot, which is called the ARTAS system, was developed by Restoration Robotics, a company in San Jose, California.

The machine's specialty, Gohil said, is "follicular unit extraction," removal of grafts from the rear of a patient's head, which are transplanted to balding areas on the scalp. The traditional method of hair transplantation called "strip surgery," involving a hand-held scalpel, can leave a prominent linear scar on the back of a patient's head. But because the robot is minimally invasive, there is almost no visible scarring at the harvest sites, and virtually no pain, Gohil said.

He noted that the robot takes away the "heavy lifting" of many aspects of the

transplant procedure, usually performed by the surgeon.

The bot removes anywhere from 2,000 and 3,000 grafts of hair. When the machine is done with its job, Gohil picks up the rest of the procedure, putting the perfectly plucked grafts into place.

The device was approved in 2011 by the U.S. Food and Drug Administration as a computerized robotic arm outfitted with both specialized hair follicle-removing technology and imaging capacities. It was designed to aid hair restoration in men affected by male pattern baldness.

The robot was not tested on women; therefore, the FDA could not approve it as an aid for female hair restoration. However, some doctors across the country



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Dr. Baiju C. Gohil, center, preps a patient. His robot is FDA-approved.

who have the robotic system report using it “off label” to address female hair loss. Off-label usage is legal for doctors who can deem a medical procedure or drug as helpful to a patient.

Traumatic for women

Dr. Doris Day, a staff dermatologist at Lenox Hill Hospital in Manhattan, said hair loss is problematic for both genders but is likely more traumatic for women than men. “In this society, women are not supposed to go bald or become gray,” she said.

While the robot may not be officially available for women, there are other ways to help restore female hair-thinning and balding, Day said. Minoxidil treatment

is one approach, she added, referring to the active ingredient in the hair-restoring drug, Rogaine. Conventional hair transplants also are an option for women.

Research is underway, Day said, involving the rheumatoid arthritis drug Xeljanz, which has been shown to stimulate hair growth lost to alopecia areata. That condition, which can affect either gender, is typified by patchy hair loss that can, in some instances, progress to total baldness. Preliminary research has shown the arthritis medication can restore a full head of hair.

More than a plug-in

In the meantime, Gohil is helping men restore youthful hair growth working

with his robot. A board-certified surgeon whose training was with the North Shore-LIJ Health System, Gohil said he had grown accustomed to working with robots while on staff with the local health care giant.

Gohil says his patients say the robot is far more than a plug-in; they think of it as the surgeon’s assistant that helped restore their hair.

North Shore has a variety of robots performing medical and surgical tasks. They range from the da Vinci Surgical systems, designed to execute numerous types of delicate operations, to the RP-7i, a so-called “remote presence” robot. That robot, which stands more than 5 feet high with a computer screen for a head, allows a physician to be teleported to a patient’s bedside, even if the doctor is out of the hospital, thousands of miles away.

RP-7i is operated by a physician from a laptop computer, and because the robot has wheels, it can move around the hospital.

Bots of all shapes and sizes have been entering the medical workforce for years. At the University of Miami, law professor Michael Froomkin will hold a conference in April to examine how the increasing sophistication of robots is affecting everyday life. He calls for laws governing robots.

“We’re primarily concerned with autonomous robots, what we call interesting robots,” Froomkin said. Autonomous robots, according to Froomkin, include drones and those with a higher level of artificial intelligence. He described the majority of medical robots as “fancy robots.”

“Doctors are controlling these robots the whole time,” Froomkin said. “So they are what I would call sophisticated tools. We’ve got the basics down on these robots. You just plug them in.”