



A medical team at Maisonneuve-Rosemont Hospital, led by surgeon Dr. Flavio Rezende, left, succeeded in partially restoring Sandra Cassell's vision by implanting a prosthesis in her left retina. DAVE SIDAWAY

## Montreal surgeon implants bionic eye in blind woman

AARON DEFEU

Sandra Cassell embraced her two-year-old son, Evan, as he climbed into her lap at Maisonneuve-Rosemont Hospital Thursday morning. He peered into her eyes and she stared back at him, smiling with the boundless love of a proud mother.

That simple exchange of glances would have been impossible at most a year ago. For the past 16 years, a rare eye disease — retinitis pigmentosa — slowly robbed the Lachine resident of her eyesight to the point where she needed a white cane to cross the street.

But on Feb. 8, a medical team at Maisonneuve-Rosemont Hospital succeeded in partially restoring Cassell's vision by implanting a prosthesis in her left retina, turning it into a bionic eye. The four-hour operation, led by eye surgeon Flavio Rezende, represents a medical first in Quebec.

"I never thought I'd be able to see again," the 42-year-old social worker said.

"But now I can see. I see light, I see contrasts of different things, in black, in white and grey. It's like an ultrasound picture."

Where once Cassell needed to slide her cane in front of her when

make out the white stripes of the crosswalk. Where once she was unable to see her son running toward her, she can now look down to pick him up.

"My hope for the future — because Dr. Rezende has spoken about future innovation — is that the next generation (of technology) will be in colour, in high definition and will have facial recognition, which I don't have."

There is no cure for retinitis pigmentosa, a genetic disorder affecting about 1.2 million people around the world. Until her operation, Cassell had to rely totally on the skills she acquired at the former Montreal Association for the Blind, now part of the MAB-Mackay Rehabilitation Centre.

Even after the operation, Cassell had to learn to see again with the help of the staff at the hospital. Nazareth Louis-Draillege

"It's very challenging, in terms of the surgical techniques and the rehabilitation of the patient," Rezende explained in an interview after Thursday's news conference. "A patient who has been in the dark for years, for them to understand and relearn how to see in a different way — in a digital environment, if you will — is nothing but challenging."

which continues with the medical team, Rezende insisted.

"This is innovative technology, gives depth to people with vision loss caused by degenerative diseases of the retina," he added. "We are proud to be part of this revolution."

The bionic eye was developed by Second Sight of California.

The Argus II Retinal Prosthesis System features a camera with a sensor retinitis pigmentosa to wear

special glasses with a camera on the bridge. The video images taken by the camera are processed by a smartphone-sized computer worn around the waist. The images are then transmitted wirelessly to the eye implant, which is a tiny electrode array that looks like a computer chip that is embedded in the retina.

The electrode array bypasses the dead cells of the retina for those that are still active, and those cells convert the impulses into signals for the brain.

Also part of the Argus II Prosthesis will not be made available for everyone with vision problems. Only those patients with profound retinal dystrophy (which includes retinitis pigmentosa) will be eligible for the implant.

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