

sweet recovery

After scary symptoms put Carol Sweet out of work, she's back on the job again-thanks to treatment at Barrow for normal pressure hydrocephalus

Carol Sweet, Gold Canyon, is one of at least 150,000 Americans with normal pressure hydrocephalus (NPH), a condition that causes disturbing symptoms similar to those of Alzheimer's and other disorders associated with aging. Fortunately, treatment for NPH is usually very effective.

In November 2005, Carol, 64, suddenly began experiencing problems with her balance, memory and concentration. Her condition worsened, and in January 2006, she took medical leave from her job in the warehouse of Arizona Correctional Industries in Florence. She knew something was very wrong.

Her primary-care physician referred her to Barrow Neurological Institute, where she underwent a CT and an MRI scan as part of her evaluation. "I wasn't home an hour after the scans when I got a call from the neurosurgeon saying I had to be admitted to the hospital immediately," Carol says.

NPH causes, symptoms

"We could tell from the images that the ventricles in her brain were very enlarged," says Barrow neurosurgeon, Joseph Zabramski, MD.

"The ventricles are the fluid-filled spaces in the brain that contain cerebrospinal fluid (CSF)," he explains. "Enlargement of the ventricles (called hydrocephalus) occurs when the normal flow or absorption of the CSF is blocked. Complete blockage of the CSF pathways results in elevated pressures in the brain and rapid deterioration in neurological function."

"But if the changes occur slowly, as in NPH, the ventricles gradually dilate to accommodate the increased volume of fluid, and the CSF pressure remains

normal. We didn't know why Carol's ventricles were so enlarged, but we knew we had to help her right away."

The hallmark symptoms of NPH are memory loss, problems with balance and walking, and urinary incontinence, says Jiong Shi, MD, PhD, the medical director of the NPH Clinic at Barrow. The condition typically strikes people 55 years and older, and because the symptoms mimic other conditions of advancing age, "NPH is very under-recognized," Dr. Shi says. "It's been estimated that about five percent of the three million Americans with dementia have NPH." Unlike other causes of dementia, such as Alzheimer's disease, NPH can be successfully treated.

Neurologists, surgeons working to improve NPH diagnosis, care

Doctors at Barrow, including neurologists, neuropsychologists, neuroradiologists and neurosurgeons, are conducting clinical research into NPH. Their goal is to determine whether a multi-pronged approach to evaluating patients with these symptoms can definitively diagnose NPH and identify which patients with NPH can benefit from the recommended treatment.

The hallmark symptoms of normal pressure hydrocephalus-memory loss, problems with balance and walking, and urinary incontinence-are sometimes mistaken for signs of Alzheimer's disease.

Treatment involves the placement of a programmable shunt (one-way valve) in the brain to drain excess CSF and prevent it from building up in the ventricles.

But before treatment occurs, the patient is carefully evaluated. "We take images of the ventricles, and if NPH is suspected, we perform a memory assessment and a walking and balance test before the lumbar puncture," says Dr. Shi, the principal investigator for the research project. "Then we perform a lumbar puncture and repeat the memory and walking assessments to see if the patient has improved as a result of withdrawing cerebrospinal fluid."

"A dramatic response to spinal taps means that most or all of the patient's problems are related to NPH and will improve with a shunt," says Hal Rekate, MD, a neurosurgeon at Barrow.

A dramatic recovery

Shunt placement can bring instant, remarkable results. For Carol, the difference was striking. "It was one of the most dramatic recoveries I've

ever seen in a patient," says Dr. Zabramski. "Within a week of the shunt placement, her husband was raving about her improvement."

The programmability of the shunt means that if an adjustment is required, the patient won't have to undergo another surgery.

A magnet is used to adjust the setting on the shunt if it becomes necessary, explains Maggie Varland, RN, the program coordinator. "We've only had programmable shunts for about five years," Maggie says. "Before then, successful treatment was more challenging."

"The programmable valve has decreased the complication rate from almost one in three to one in 20," Dr. Rekate says.

"I'm feeling much better. My memory and concentration are back to normal and my friends say I've never looked better."

Carol Sweet

The research project at Barrow is important because doctors want to make sure that a patient who receives a shunt will truly benefit from it. "There are risks associated with shunt placement," Maggie says, "such as possible infection and hemorrhage. We want to make sure that a shunt is the best option for the patient."

For Carol, who returned to her job in May, it certainly has been the best choice. "I'm feeling much better," she says. "My memory and concentration are back to normal and my friends say I've never looked better."