South Shore Hospital Neurosurgeons Upgrade Neuronavigation System for Brain and Spine Surgery
Specializing in Minimally Invasive Techniques, South Shore NeuroSpine Group Offers Coordinated Neurosurgical Care to Patients on the South Shore

By Laurel Mayer-Homer

Committed to providing the highest quality of coordinated neurosurgical care to patients in the community, South Shore Hospital, in cooperation with South Shore NeuroSpine Group, LLC, recently introduced the use of an advanced, image-guided brain and spine surgery system.

South Shore NeuroSpine Group in South Weymouth, MA, which includes South Shore Hospital neurosurgeons Stephen H. Johnson, M.D., FACS, and Juan R. Ortega-Barnett, M.D., specializes in cranial and spinal surgery, treating patients with immediate or chronic problems. With services such as minimally invasive spine surgery, neuro-oncological surgery and peripheral nerve surgery, the group offers a broad spectrum of surgical treatments, performed almost exclusively at South Shore Hospital.

“We offer a comprehensive spine and brain program on the South Shore,” says Dr. Johnson. “We continue to grow so that we can offer the full range of services.”
The newest addition to the South Shore Hospital neurosurgical program is an image-guided navigation system that is used in brain and spine surgical procedures.

“The new technology allows us to perform neuro-navigational surgery,” says Dr. Ortega-Barnett. “The way I like to explain it to patients is that it’s like having a GPS system in the operating room.”

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The image-guidance technology is an advanced guidance system that includes a camera, a pointer and a computer. Using infrared localization, the device identifies images, MRI and CT-scan targets that are loaded onto the computer in advance of or even during surgery.

Guided technology provides pinpoint accuracy, enabling the neurological surgeons to identify the exact location for surgical intervention, and determine the effectiveness of surgery based on comparative imaging.

“We can be very precise in our approach, make smaller incisions and be very targeted in what we remove or fix,” explains Dr. Johnson.

Dr. Ortega-Barnett adds that surgical medicine is advancing fast and South Shore Hospital is pleased to offer this advanced, image-guided surgical technology to patients.

Image-guided brain surgery is just one of several minimally invasive techniques that South Shore Hospital neurosurgeons employ. With the aid of specially designed instruments that assist in the visualization of the surgical field, the surgeons repair and remove tumors with very little damage to the surrounding tissue.

One of the neurosurgeon’s specialties, balloon kyphoplasty, is a minimally invasive spinal surgery procedure to treat vertebral compression fractures. Using this technique, Drs. Johnson and Ortega-Barnett access where the fracture has occurred with a small needle. Through the small needle, they introduce a balloon tamp to elevate the fracture. Once the bone is pushed back to the appropriate place, the balloon is removed. They then use the small needle to apply bone cement, essentially curing the fracture.

“The imaging helps us accurately place the needle, without the need for big incisions,” explains Dr. Ortega-Barnett. “We can perform these techniques through very small openings just large enough to place a needle.”

In addition, Dr. Johnson has a special interest in an advanced minimally invasive approach to treat lumbar spinal stenosis (LSS).
“We have substantial experience with minimally invasive procedures for both degenerative and trauma disorders,” notes Dr. Johnson.

LSS, a common spinal problem, results from a narrowing in the lumbar spinal canal that carries nerves to the legs. Traditionally, surgery to treat LSS required extensive bone and tissue removal.

However, with a minimal access technique, the neurosurgeons can open the canal by making a small incision and inserting a tiny device. The procedure alleviates the pain without destroying bone.

Both Drs. Johnson and Ortega-Barnett bring specialized training and expertise to the practice. After graduating from Columbia and the University of Pennsylvania School of Medicine in Philadelphia, Dr. Johnson trained in general surgery for several years at the George Washington University Hospital in Washington, DC. While there, Dr. Johnson completed a research fellowship focused on novel treatments for spinal cord injury.

Dr. Johnson then completed a neurosurgery residency at Medical Center Hospital of Vermont during which he gained additional spine surgical experience on the orthopaedic spine service. Upon completion of his neurosurgical training in 1994, Dr. Johnson moved to the South Shore of Massachusetts and joined South Suburban Neurosurgical Associates, Inc. The practice later reorganized under the name South Shore NeuroSpine Group, LLC. In addition, Dr. Johnson is Chairman of the Division of Neurosurgery at South Shore Hospital.

Dr. Ortega-Barnett graduated from the Universidad La Salle Medical School, where he received both his undergraduate degree and medical doctorate. Dr. Ortega-Barnett completed residencies in general surgery and in neurosurgery in Mexico City. Dr. Ortega-Barnett’s interests in cranial surgery led him to continue his training in the United States. He completed four years of general surgery at West Virginia University prior to completing a neurosurgical residency, including one year as chief resident at Allegheny General Hospital in Pittsburgh.

Dr. Ortega-Barnett received specialty training under Peter Jannetta, M.D., the world-renowned neurologic surgeon who developed innovative treatments for trigeminal neuralgia and hemifacial spasm. One of those treatments, microvascular decompression, now widely used by the neurosurgical community, is a technique for patients with chronic facial pain or chronic facial muscular spasms. Dr. Ortega-Barnett then completed a fellowship specializing in brain tumor management at Brigham and Women’s Hospital in Boston. Dr. Ortega-Barnett, a staff surgeon at South Shore Hospital, joined South Shore NeuroSpine Group, LLC in 2007.

Drs. Johnson and Ortega-Barnett say they appreciate the opportunity to apply their expertise and advanced skills to benefit the community on the South Shore.

“Patients are choosing to have their medical treatment locally if they can, without the need to go to a large medical center,” says Dr. Ortega-Barnett. “And I think they have a great opportunity here in a local community hospital.”

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— Stephen H. Johnson, M.D., FACS, Neurological Surgeon at South Shore NeuroSpine Group, LLC
Patients are reaping the benefits of the practice’s minimally invasive services, which offer smaller, more accurate incisions and shorter recoveries.

But as the practice has advanced its technological capabilities, it has not lost its focus on meeting each of its patients’ needs. The neurosurgeons enjoy taking the time to talk to patients, answer all questions and make sure they are comfortable.

“I have a special interest in getting people back to their previous levels of function,” explains Dr. Johnson. He stresses that many of the procedures help patients feel better sooner, including those with sports-related or work-related injuries.

Both physicians spend the majority of their time at South Shore Hospital, but are also affiliated with Brigham and Women’s Hospital. They work very closely with their colleague Alan Murphy, M.D., who is a neurosurgeon with his own practice in Duxbury, to provide support for South Shore Hospital’s trauma program. And Drs. Johnson and Ortega-Barnett collaborate with physicians from other specialties.

“One thing that sets us apart is that we have a wonderful relationship with the other medical specialty teams. There’s a sense of community and open communication with other physicians, and that makes for better care and better outcomes for our patients,” says Dr. Ortega-Barnett. Dr. Johnson adds, “The surgical team at South Shore Hospital, which we refer to as ‘Team Neuro,’ is the best anywhere. We couldn’t do what we do so effectively without them.”

To better serve the practice’s growing number of patients, South Shore NeuroSpine Group, LLC continues to recruit additional surgeons. South Shore NeuroSpine Group will also be an integral participant in the Dana-Farber/Brigham and Women’s Cancer Center in clinical affiliation with South Shore Hospital.

“We look to reduce recovery time, reduce time spent in the hospital and to increase patient satisfaction,” explains Dr. Johnson. “It’s all about patient safety and meeting our community’s needs.”

Written with contributions from Pam Johnson, South Shore NeuroSpine Group.

For more information about the neurosurgical program at South Shore Hospital, please call (781) 340-4300.