

# Neurosurgery and trauma

Neurosurgery techniques and tools improve. **Interviewed by Chelan David**

**N**eurosurgery is a surgical specialty that deals with diseases and disorders of the brain, spinal cord and peripheral nervous system. Because of the highly complex nature of the nervous system and the sophisticated skills necessary to perform neurosurgical operations, neurosurgery is entrenched with extremely rigorous training programs. After completing medical school and a surgical internship, the physician enters a residency program to gain experience in all areas of neurosurgery including trauma, tumors, vascular lesions, spinal degenerative disease, functional neurosurgery and peripheral nerve disorders.

Following residency, Peyman Tabrizi, M.D., completed fellowship training in both cerebrovascular and skull-base neurosurgery. He now practices neurosurgery at Western Medical Center in Santa Ana.

*Smart Business* spoke with Tabrizi about neurosurgery, neurovascular emergencies, and advances in neuroscience.

## What types of conditions do neurosurgeons typically treat?

Neurosurgeons treat a wide range of cerebral and spinal pathologies that originate from both trauma and nontrauma settings. Trauma cases fall into two categories: blunt trauma (motor vehicle accidents, motorcycle accidents, and falls) or penetrating trauma (gunshot and stab wounds). Nontraumatic cases may involve tumors, vascular lesions (aneurysms), and hemorrhagic strokes.

## How does a neurosurgeon treat spinal cord trauma?

When a patient comes into the trauma center with a spinal injury, we immediately assess the integrity of the spinal anatomy, spinal cord and peripheral nerves. Upon identifying the injury, we surgically manipulate the spine if it is unstable. The primary objective is to protect the spinal cord. In many cases, this involves decompressing the spinal cord by removing any source of impingement, such as fractured bone fragments, realigning the spinal anatomy, and stabilizing the spine with instrumentation.



**Peyman Tabrizi, M.D.**  
Neurosurgeon  
Western Medical Center Santa Ana

## What is the procedure for someone who has suffered a skull fracture?

Our first response is to determine the cause of the skull fracture and evaluate the patient for neurological deficits that signal possible brain injury. Once it is determined that the patient requires surgery, he or she is then rushed to the operating room for an emergency craniotomy and decompression. Any formed blood clot is evacuated, intracranial bleeding is controlled, and skull fractures are repaired. In severe cases where the patient sustains enough brain tissue damage to cause swelling, the bone flap (the section of the skull removed to gain surgical access to the brain) is stored under sterile conditions. This is replaced when the patient has fully recovered.

## What kinds of advances in neurosurgery have occurred over the past few years?

Increasing our understanding of the nervous system and its function through neuroscientific research has helped improve the overall treatment of the nervous system. For example, there had been a wide consensus among scientists that repair of damaged nerves in the central nervous system

was impossible. However, current studies provide hope.

A number of excellent technological advances have taken place. One system incorporates powerful computer imaging capabilities that help us perform surgery with greater precision and reduce the time spent in the operating room. Through specific markers placed on a patient's scalp, we can transform captured images of the brain or spine into three-dimensional representation. This is used to accurately track the movement of surgical instruments, pinpoint precise locations of lesions, and maneuver around the narrow margins of tumors. This enhanced level of precision allows us to make smaller incisions, reduce tissue trauma, and diminish blood loss.

## How has the development of minimally invasive techniques aided neurosurgeons?

We are always looking for ways to reduce patient discomfort and speed the recovery process. Minimally Invasive Surgery (MIS) offers several advantages over traditional techniques. Because MIS techniques and instruments allow us to perform surgery through much smaller incisions, we can keep trauma to surrounding tissues and subsequent scarring to a minimum.

## How important is continual innovation in the field of neuroscience?

Innovation is a key factor in our mission to improve survival rates and to enhance the quality of life for all our patients. The field of neurosurgery is constantly combining knowledge gained from scientific research with technological advances to make new strides in evaluation, diagnosis and treatment. As neurosurgeons, it is our responsibility to keep current on the latest progress so that we can deliver the best care possible.

**PEYMAN TABRIZI, M.D.**, is a neurosurgeon at Western Medical Center Santa Ana. Reach him at [pcni-wnc@sbcglobal.net](mailto:pcni-wnc@sbcglobal.net) or (714) 834-0439.

**Insights Health Care** is brought to you by Integrated Healthcare Holdings Inc.