CINCINNATI – A new approach to a rare spinal cord disorder developed by neurosurgeons at the Mayfield Clinic and the University of Cincinnati Neuroscience Institute has been used successfully in treating the complex condition.

Charles Kuntz, IV, M.D., is senior author of the lead article in the April edition of the *Journal of Neurosurgery: Spine*, which describes the surgical procedure – a posterior vertebral column subtraction osteotomy -- in two case studies involving tethered cord syndrome. The lead author is Patrick Hsieh, M.D., of Northwestern University and Johns Hopkins University.

Tethered cord syndrome is a rare disorder in which tissue attachments impinge on the movement of the spinal cord within the spinal column, causing abnormal stretching of the cord. Patients who suffer from tethered cord syndrome can experience multiple difficulties, including pain, abnormal gait, impaired bladder and bowel function, sensory loss, and loss of mobility.

A spinal osteotomy is a surgical procedure involving the careful and controlled breaking or cutting of one or more vertebrae.

Using a cadaveric tethered spinal cord model, UC neurosurgical resident Andrew Grande, M.D., and Dr. Kuntz originally demonstrated that shortening the vertebral column by 15 to 25 mm with a thoracolumbar (chest-level) osteotomy resulted in reduced tension in the spinal cord and nerve roots.

In the current article, Drs. Kuntz and Grande and their co-authors discuss the use of this technique in the treatment of two patients with multiple recurrences of tethered cord syndrome. The patients had undergone multiple previous operations. One of the patients, a young man, was successfully treated at the Mayfield Clinic. The case was among the first of its kind in the world.

Although the treatment is new to the United States, spinal shortening for tethered cord syndrome was first reported in a Japanese publication in 1995.
The U.S. authors state that posterior vertebral column subtraction osteotomy provides a safe alternative to the traditional detethering procedure, which can carry significant neurological risk. The authors add, however, that the procedure is “technically demanding” and should be performed with caution.

The UC Neuroscience Institute, a regional center of excellence, is dedicated to patient care, research, education, and the development of new treatments for stroke, brain and spinal tumors, epilepsy, traumatic brain and spinal injury, Alzheimer’s disease, Parkinson’s disease, multiple sclerosis, disorders of the senses (swallowing, voice, hearing, pain, taste and smell), and psychiatric conditions (bipolar disorder, schizophrenia and depression).

The Mayfield Clinic is recognized as one of the nation's leading physician organizations for clinical care, education, and research of the spine and brain. Supported by 20 neurosurgeons, three neurointensivists, an interventional radiologist, and a pain specialist, the Clinic treats 20,000 patients from 35 states and 13 countries in a typical year. Mayfield's physicians have pioneered surgical procedures and instrumentation that have revolutionized the medical art of neurosurgery for brain tumors and neurovascular diseases and disorders.