Thoracic spinal surgery and peripheral nerve surgery, including sympathectomy, are traditional and integral components of neurosurgical training and practice. Video-assisted thoracic surgery (VATS) of the spine is a minimally invasive technique performed by neurosurgeons for conditions traditionally treated by neurosurgery. These conditions include thoracic sympathectomy for hyperhydrosis, upper extremity complex regional pain syndromes, and thoracic spinal surgery for thoracic disc herniation, spinal tumor, spinal instability, and scoliotic deformity.

Neurosurgeons currently in training receive experience in VATS during residency and are examined for competency in the procedure and its indications by the American Board of Neurological Surgery. Neurosurgical residency programs provide opportunity for training in minimally invasive neurosurgical techniques, including VATS for sympathectomy and spinal disorders.