

■ A Technical Report on Video-Assisted Thoracoscopy in Thoracic Spinal Surgery

Preliminary Description

John J. Regan, MD,* Michael J. Mack, MD,† and George D. Picetti III, MD*‡

Study Design. This report is a preliminary description of the efficacy of video-assisted thoracoscopic surgery in thoracic spinal procedures that otherwise require open thoracotomy.

Objective. This report sought to describe the efficacy of video-assisted thoracoscopic surgery in thoracic spinal procedures that otherwise require open thoracotomy.

Summary of Background Data. In a landmark study that compared video-assisted thoracoscopic surgery for peripheral lung lesions with thoracotomy, video-assisted thoracoscopic surgery reduced postoperative pain, improved early shoulder girdle function, and shortened hospital stay.

Methods. Video-assisted thoracoscopic surgery was performed in 12 thoracic spinal patients (herniated nucleus pulposus, infection, tumor, or spinal deformity) and is described in detail in this report.

Results. Video-assisted thoracoscopic surgery in thoracic spinal surgery resulted in little postoperative pain, short intensive care unit and hospital stays, and little or no morbidity. In the short follow-up period, there was no post-thoracotomy pain syndrome nor neurologic sequelae in these patients. Operative time decreased dramatically as experience was gained with the procedure.

Conclusion. Given consistently improving surgical skills, a number of thoracic spinal procedures using video-assisted thoracoscopic surgery, including thoracic discectomy, internal rib thoracoplasty, anterior osteotomy, corpectomy, and fusion, can be performed safely with no additional surgical time or risk to the patient. [Key words: scoliosis, thoracic herniated disc, thoracic spine, thoracoplasty, thoracoscopy, video-assisted thoracoscopic surgery] *Spine* 1995;20:831-837

Although thoracoscopy has been used as a diagnostic procedure for over 80 years, only in the past 3 years have complex therapeutic procedures been performed by video-assisted thoracoscopic surgery (VATS) techniques.¹⁷ In a recent presentation at the Society of Tho-

racic Surgeons, Landreneau et al reported reduced postoperative pain, improved early shoulder girdle function, and a shortened hospital stay in 106 patients undergoing VATS for peripheral lung lesions compared with patients undergoing thoracotomy.¹⁵

There are many disease processes of the thoracic spine for which an anterior approach is optimal. Traditionally, these approaches have required a posterolateral thoracotomy to access the vertebral bodies or intervertebral disc spaces.^{3,4,7-10,13,14,16,18-20,22} The use of a lateral thoracotomy to expose the thoracic spine carries with it the same known incisional morbidity of any intrathoracic procedure. This morbidity includes not only respiratory difficulties after surgery and immediate postoperative incisional pain, but a significant incidence of chronic pain after thoracotomy.¹² Given the enhanced illumination and greater magnification of surgical techniques that employ video, the role of thoracoscopy has expanded significantly beyond diagnosis of pleural disease.

We recently used video thoracoscopic surgery techniques to treat multiple diseases of the thoracic spine, including disc herniation,^{13,16,19} disc space abscess,^{1,6,11} and tumor and spinal deformities.^{7,14} This is the first descriptive report of the VATS procedure in spinal surgery. We report on postoperative pain and morbidity, operative time, hospital stay, and postoperative complications.

■ Methods

Between March 1991 and January 1993, 12 patients agreed to undergo VATS for thoracic spinal conditions (Table 1). These 12 signed a consent form and understood that thoracotomy would be performed if VATS was unsuccessful. The patients in this VATS group all were operated on by the same team, consisting of a thoracic surgeon with extensive experience in thoracoscopy and an orthopedic spinal surgeon. All procedures were performed under general endotracheal anesthesia with a double lumen tube to collapse the ipsilateral lung and with hemodynamic monitoring employing an arterial line.

Each patient was placed in a lateral position. The patient was prepared and draped, as is standard for a full thoracotomy, and ventilation was stopped to the ipsilateral lung. A

From the *Texas Back Institute Research Foundation, Plano, Texas, †Humana Medical City Dallas Hospital (HMCD), Dallas, Texas, and ‡Presbyterian Healthcare System, Plano.
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