

M.D. NEWS – DECEMBER: Surgery – Laparoscopic Advances
“Thorascopic Spinal Surgery”
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Endoscopic surgical techniques have been applied to the spine with varying degrees of success. In the early 1990's laparoscopic techniques were used for spinal fusion of the lumbosacral disc. Using retroperitoneal balloons for exposure, endoscopic techniques were also used in the lumbar spine to access the lumbar discs above L5-S1. Through working portals, discectomies and anterior interbody fusions performed. There was a steep learning curve. The overall success rate was less than that for the conventional mini-open procedure and the complication rates were higher and this technique fell out of favor. Although waning interest for posterior lumbar endoscopic decompression/discectomies, there has been continued interest in endoscopic treatment of the thoracic spine. Thorascopic techniques have evolved and although there is also a learning curve (as in any other endoscopic technique), the thorascopic techniques seem to have earned their keep. Unique to spine surgery is working on “hard tissues” (bone and tough, degenerated annulus). Instrumentation of the spine or removal of the disc uses a greater degree of force than that required for soft tissue procedures encountered in other surgical fields. Although visualization is superb with thorascopic techniques, dexterity is decreased because of long lever arms of working outside the chest. Miscalculations of any forceful maneuvers may be hazardous. Current thorascopic techniques are typically spinal fusion for degenerative or deformity conditions in which the disc is excised and then bone graft is inserted along with bone graft extenders/substitutes. Instrumentation such as for scoliosis or multilevel fusions can be performed, but they require additional working portals. An advantage, even with use of multiple portals, is that recovery is still substantially less than doing a conventional thoracotomy. Early instrumentation systems through thorascopic spinal surgery were of minimalist approach and were not robust enough resulting in screw breakage, rod breakage or screw pullout. Instrumentation has been refined so that current thorascopic fusion techniques and instrumentation have now yielded success rates comparable to open techniques.

Our current thorascopic spinal surgery techniques have been developed over the last 17 years. The approach may be approached either through the right or left side. Preoperatively, patients typically have epidural catheter placement for highly effective postoperative analgesia. Our results have found that with one and two-level thorascopic interbody fusions, one can avoid instrumentation and use bracing alone for postoperative immobilization. The key to success is having cortical purchase of the implants or grafts to avoid subsidence and to evaluate patients for osteopenia or osteoporosis preoperatively as this requires treatment to insure success. Our current techniques now have a fusion rate of over 95%, post-thoracotomy syndrome has been virtually eliminated, and patients have enjoyed superior clinical outcomes.