Laparoscopic Advances Thorascopic Spinal Surgery

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NDOSCOPIC SURGICAL TECH-**NIQUES** have been applied to the spine with varying degrees of success. In the early 1990s, 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. Discectomies and anterior interbody fusions are performed through working portals. There was a steep learning curve. The overall success rate was less than that for the conventional mini-open procedure,

the complication rates were higher and this technique fell out of favor.

Although interest waned 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 thoracoscopic techniques seem to have earned their keep. Unlike most endoscopic procedures, which treat "soft tissues," spine surgery is unique in that "hard tissues" (bone and tough, degenerated annulus) are treated. 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 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

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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 13 years. The approach may be employed 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 high clinical outcomes.

Continued from Page 14

- + The National Institutes of Health should revise current U.S. Public Health Service regulations to require institutional conflict of interest policies.
- + Oversight bodies and other interested groups, such as government agencies and private health insurers, should provide incentives for institutions that adopt and implement conflict of interest policies.

Reactions to the report are mixed with some physicians praising its recommendations and others remarking that the guidelines do not go far enough. Although the majority of the recommendations are voluntary solutions, stronger legislative action to avoid potential problems will likely be created in the future. ■

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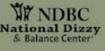
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