

Surgical and Oncological Outcomes for Total En Bloc Spondylectomy of Lumbar Spine Primary Malignant Tumors.

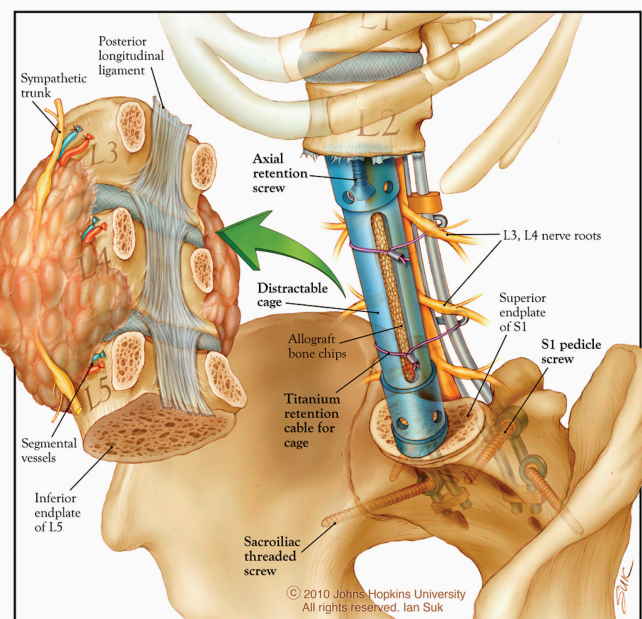
Daniel M. Sciubba BS, MD; C. Rory Goodwin MD PhD; Rafael De la Garza-Ramos BA; Risheng Xu AB AM MD PhD; Nancy A Abu-Bonsrah BS; Ziya L. Gokaslan MD; Jean-Paul Wolinsky MD

 Johns Hopkins University School of Medicine, Department of Neurosurgery

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe surgical outcomes after total en bloc spondylectomy (TES) for primary aggressive/malignant tumors of the lumbar spine.

Anatomic Diagram of Anterior Approach



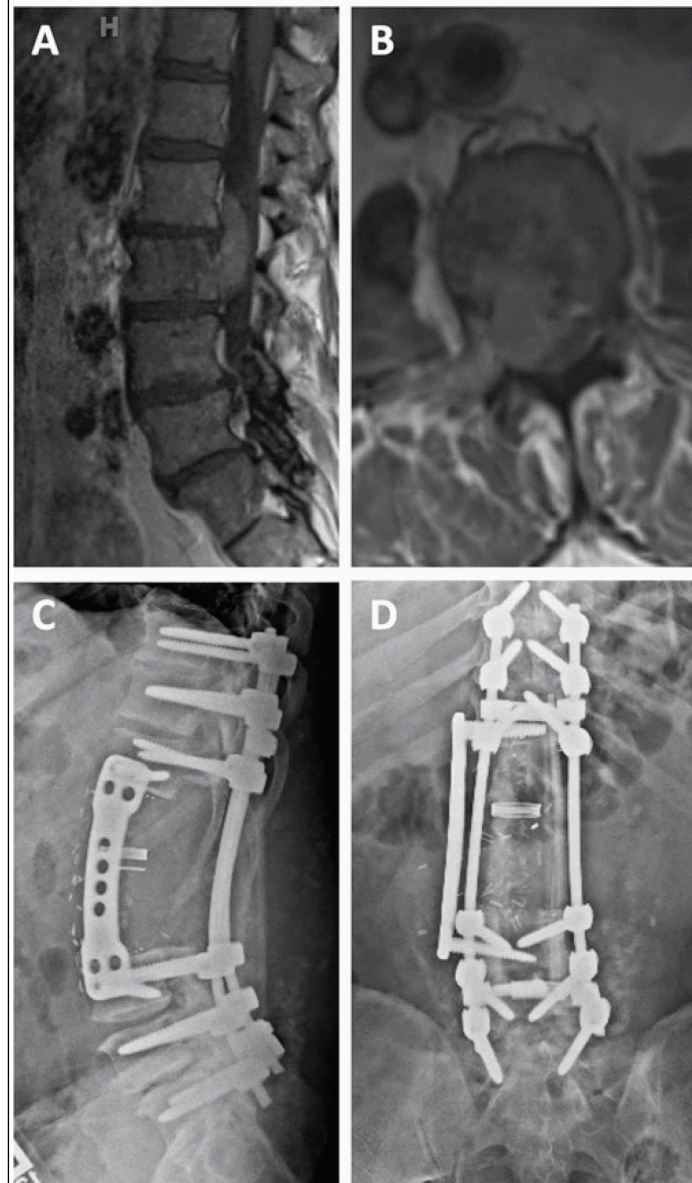
Introduction

Total en bloc spondylectomy (TES) is an aggressive surgical technique that may be employed in the treatment of spinal neoplasms. We sought to report our experience with TES in the lumbar spine, and examine complication rates and reoperation rates for patients with primary malignant/aggressive spinal tumors.

Methods

A retrospective review of 23 neurosurgical patients operated on between 2004 and 2014 was performed. Outcomes included perioperative complication rates and reoperation rates for instrumentation failure/pseudoarthrosis. The relationship between patient/operative parameters and complication development/instrumentation failure was investigated.

Case Illustration



70 year old male with L3 chordoma

Results

There were 15 men (65.2%) and eight women (24.8%), with a median age at surgery of 47 years. The most common tumor was chordoma in 11 patients (47.8%), followed by sarcoma in four (17.4%), and giant cell tumor in three (13.0%). All patients but one underwent a two-staged operation; median total estimated blood loss was 3200 mL, and median total operative time was 18.5 hours. At least 15 patients developed one perioperative complication (65.2%), with the most common being wound infection and ileus, each with an incidence of 26.1% (n=6). There was one case of intraoperative iliac vein injury (4.4%). Instrumentation failure occurred in 9 patients (39.1%) at a median time of 23 months after index spondylectomy. Following logistic regression, there were no factors associated with complication development. On the other hand, postoperative radiation was significantly associated with instrumentation failure (OR 7.49; 95% CI, 1.02 – 54.9). Median follow-up time for all patients was 50 months (IQR, 24 – 75).

Conclusions

Although studies have demonstrated favorable outcomes after en bloc resection of spinal tumors, TES in the lumbar spine remains a challenging procedure. Future investigation into complication avoidance and reconstruction techniques is encouraged.

References

1. Kato S, Murakami H, Demura S, Yoshioka K, Kawahara N, Tomita K, Tsuchiya H (2014) Patient-reported outcome and quality of life after total en bloc spondylectomy for a primary spinal tumour. *Bone Joint J* 96-B:1693-1698. doi: 10.1302/0301-620X.96B12.33832
2. Luzzati AD, Shah S, Gagliano F, Perrucchini G, Scotto G, Alloisio M (2015) Multilevel en bloc spondylectomy for tumors of the thoracic and lumbar spine is challenging but rewarding. *Clin Orthop Relat Res* 473:858-867. doi: 10.1007/s11999-014-3578-x
3. Kato S, Murakami H, Demura S, Yoshioka K, Kawahara N, Tomita K, Tsuchiya H (2014) More than 10-year follow-up after total en bloc spondylectomy for spinal tumors. *Ann Surg Oncol* 21:1330-1336. doi: 10.1245/s10434-013-3333-7
4. Amendola L, Cappuccio M, De Iure F, Bandiera S, Gasbarrini A, Boriani S (2014) En bloc resections for primary spinal tumors in 20 years of experience: effectiveness and safety. *Spine J* 14:2608-2617. doi: 10.1016/j.spinee.2014.02.030
5. Tomita K, Kawahara N, Baba H, Tsuchiya H, Fujita T, Toribatake Y (1997) Total en bloc spondylectomy. A new surgical technique for primary malignant vertebral tumors. *Spine (Phila Pa 1976)* 22:324-333
6. Liljenqvist U, Lerner T, Halm H, Buerger H, Gosheger G, Winkelmann W (2008) En bloc spondylectomy in malignant tumors of the spine. *Eur Spine J* 17:600-609. doi: