OUTCOMES AFTER TOTAL EN BLOC SPONDYLECTOMY AT A MEAN FOLLOW-UP OF 11 YEARS

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Background:

Total en bloc spondylectomy (TES) of spinal tumours results in huge vertebral defect. Despite reconstruction and fusion, there is potential concern for long-term mechanical stability.

Objective:

This study aims to look at the mid- to long-term outcome of TES in terms of revision, local recurrence, and instrumentation failure.

Materials and methods:

Twenty-three patients underwent TES for either primary spinal tumours or solitary metastasis and reconstruction with instrumented posterior spinal fusion and anterior fusion with titanium mesh cage in our institution from November 2001 to April 2022. The mean follow-up was 11.5+/-4.9 years.

Results:

Twelve patients required revision surgery, eight of them had instrumentation failure with rod fracture. The mean time to instrumentation failure was 91.3 +/- 47.4 months. Instrumentation failure with rod fracture was associated with longer operation time (p=0.031), more blood loss (p=0.022) and longer length of resected tumour (p=0.035). No significant association was identified between the instrumentation failure and the parameters, including sex, pathology, pre-operative neurology, location of tumour, level of vertebra resected, type of bone graft used, surgical approach, tumour margin, radiotherapy, chemotherapy, current disease status, distant metastasis, local recurrence, cage subsidence, oblique cage placement, bony fusion, and number of rods used. According to Kaplan Meier analysis, the overall revision-free survivals were 67.0% and 48.8% at post-operative 5- and 10-year, respectively. The 5- and 10-year instrumentation failure-free survivals were 85.2% and 65.7%, respectively. Local recurrence occurred in three patients (13.0%) and the mean time to local recurrence in these patients was 3.4 years.

Conclusion:

Although local recurrence after TES is uncommon, instrumentation failure is not an uncommon late complication requiring revision following TES. Longer lengths of resection and longer complicated operations are at risk of future instrumentation failure. Radiological evidence of bony union does not guarantee long-term success of the construct.