Surgical Treatment and Outcomes of Primary Spinal Sarcomas: A Systematic Review

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Introduction

• Primary spinal sarcomas are rare, highly malignant diseases associated with high recurrence rates and low survival.1,2
• Surgical resection remains the gold standard for treatment, with adjunct therapies directed towards prolonging survival and reducing recurrence.3
• The difference between surgical techniques on overall survival and changes in quality of life have not been reported in a comprehensive manner.
• The three most prevalent spinal sarcomas, osteosarcoma (OS), chondrosarcoma (CS) and Ewing sarcoma (ES), were focused on in this review.

Purpose

To analyze the current literature in order to characterize differences in morbidity and mortality associated with specific surgical techniques.

Methods

• Studies and case reports of primary spinal osteosarcoma (OS), chondrosarcoma (CS), and Ewing sarcoma (ES) that reported surgical intervention and quality of life outcome were included.

Results

• One hundred and twenty-three patients were identified who met entry criteria. They presented with a median modified Rankin Score (mRS) of 2.50 and a mean follow-up mRS of 1.0.
• A statistically significant improvement in mRS scores (Z=−2.39;p=0.02) was observed in all patients regardless of intervention (mean follow-up: 46 months).

• 64% experienced an improvement in their mRS, 6% experienced no change, and 30% (n=21) experienced a worsening mRS.
• Patients with a pre-operative Tomita score of 6 or 7 carried 9 times the risk of suffering worsening of their mRS at the longest follow-up (p=0.02).

Limitations

• Limitations to this research include: heterogeneity of included publications, retrospective study design, restriction of location to the spinal region, combination of sarcoma types, heterogeneity of disease subtypes, and risk for reporting bias.
• Time points at which quality of life data were reported varied from study to study. As a consequence, we were unable to normalize these data points to a time in a linear fashion.

Conclusion

• Quality of life markedly improves in the post-operative period.
• En bloc resection of spinal sarcoma tumors with clear margins was significantly associated with improved outcomes and prolonged disease-free survival.
• There is increased incidence of post-operative decline in quality of life among patients presenting with a Tomita score of 6 or 7.

References


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