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Sacral chordoma: a clinical review of 157 cases with 30-year experience in a single institute

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Abstract

BACKGROUND: Chordoma is a low-grade primary bone tumor, originating from notochordal remnants. The majority of these tumors occur in sacrococcygeal region. Sacral chordoma traditionally carries high recurrent rate. En bloc resection with negative margin has been proven to be effective in terms of local tumor control and patients' long-term outcome.

PURPOSE: A retrospective 30 year study of a large series of patients with sacral chordoma to investigate significant prognostic predictors.

PATIENTS AND METHODS: A consecutive series of 157 patients with sacral chordomas from 1978 to 2012 were retrospectively evaluated on surgical and oncologic outcomes. About 50% of patients received multidisciplinary treatment, which were based on surgery and adjuvant photon/proton radiotherapy. Overall survival (OS) and event-free survival (EFS) rates were calculated with Kaplan-Meier survival analysis while multivariable factor tests were based on Cox's regression models.

RESULTS: The average follow-up period in this study was 92.3 months, ranging from 0 to 382 months. Tumors recurred locally in 65 patients with average recurrence-free interval of 45.6 months. 27 patients developed distal relapse with average metastasis-free interval of 28.7 months. Complications were common, accounting for 83 patients in this study. To date 34 patients died of tumor. Meanwhile, 37 patients died of other causes. OS and EFS rates were 87.0% and 82.1% at 5 years, 77.2% and 58.2% at 10 years respectively. The factors related to survival were local recurrence (P=0.004) and distal metastases (P=0.002). Patients with primary tumor onset had better control of tumor progression (p=0.000). Radiation with accumulated dose >70Gy was associated with decreased local recurrence (P=0.01).

CONCLUSION: Primary curative surgery is most important for sacral chordoma patients. Radiotherapy with higher dose helps to improve further local control, especially for the patients with contaminative margins. Patients are advised to have regular follow-up throughout the rest of their life.

KEYWORDS: Chordoma; Sacrum; Recurrence; Metastasis; Surgery; Radiotherapy; Survival.