

Sacral chordoma case series

Thirty-three patients with [sacral chordoma](#) (19 males, 14 females; median age 61 y, range 43-80) who were surgically treated at our institution between 1994 and 2015 were reviewed. In 24 patients, resection was performed above S2. No patients received pre-operative radiotherapy (RT). Three cases received RT (carbon ion therapy) as treatment for local recurrence. Wide (R0) surgical margins were achieved in 17 patients, marginal (R1) margins in 14 patients and intralesional (R2) margins in 2 patients.

Results: At a median follow-up of 53 months (range 0-198), 19 patients were continuously disease-free, 6 were disease-free after local recurrence (5) or metastases (1), 3 were alive with disease (2 local recurrence and 1 metastases), 4 were dead of disease (1 patient died intraoperatively) and 1 was dead of another cause. Local recurrence was observed in 9 cases (27%); all 9 were treated surgically and 3 received carbon ion therapy after surgical intralesional excision. Overall survival at 10 years was 86.6%. Local recurrence-free survival at 10 years was 51%. A statistical analysis confirmed the importance of negative surgical margins (R0) to achieve local control of the disease ($p = 0.0007$). High resections (above S2) were associated with lower survival and higher risk of local recurrence.

Surgical en bloc resection is the primary treatment for sacral chordoma. Carbon ion therapy is used when it is difficult to obtain wide surgical margins. Due to morbidity and the disabling sequelae of surgery, adrotherapy may be considered an alternative to high (above S2-S3) sacral chordoma resections ¹⁾.

A total of 41 patients underwent [en bloc resection](#) of sacral [chordoma](#) with preoperative MRI scans. Tumor characteristics included lobulated: (93%) and soft tissue tail (54%). The following areas had tumor invasion lobulated: sacroiliac (SI) joint (15%), ilium (5%), piriformis (61%), gluteus (46%), [subcutaneous](#) fat (32%), and lumbosacral venous plexus (22%). After multivariable analysis, only subcutaneous fat extension was an independent predictor of decreased OS (hazard ratio 5.30, 95% confidence interval 1.47-19.19, $P = .011$). Though not significant after multivariable analysis, the following factors were significant predictors of LR after univariate logrank testing: above the L5/S1 disc space ($P = .004$), SI joint invasion ($P = .036$), and piriformis extension ($P = .022$).

The presence of subcutaneous fat extension was an independent predictor of decreased OS. Other MRI findings with potential for future evaluation include size, presence of soft tissue tail, extension above L5/S1, and SI joint and piriformis invasion ²⁾.

A total of 99 patients were identified: 65 males and 34 females. Median age was 59 years (range 22-77 yrs), median tumor size was 9 cm (range 4-22). Nineteen patients received pre- or postoperative radiotherapy (RT). Wide (R0) surgical margins were achieved in 46 patients, marginal (R1) margins in 43 patients and intralesional (R2) margins in 10 patients. At a median follow up of 8.7 years (range 1-23.8 yrs) 30 patients died of disease, 31 patients developed local relapse, 16 patients developed distant metastasis, whereas 51 patients are alive without disease. OS and DFS at 5, 10, and 15 year were 92% and 63%, 45% and 62%, 36% and 21%, respectively, without any evidence of a plateau in the curves. CCI of LR and DM were 30% and 9% at 5 years, 46% and 18% at 10 years, 56% and 23% at 15 years. Size of the tumor and quality of surgical margins were the only significant predictors of long-term outcome. DFS for 15 years was, in fact, 49% for R0 and 7% for R1,

respectively.

In this series, long-term outcome of resected sacral chordoma was poor, with less than 25% patients were disease-free at 15 years. Interestingly, only half of the patients treated with R0 resection had no evidence of recurrence at 15 years. When surgical margins are expected to be positive other treatment modalities should be considered, especially when expected sequelae are substantial as in the case of more cephalad levels of resection³⁾.

1)

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