

**FC-004****Oncological and functional outcome following surgical treatment for sacral chordoma: a long-term follow-up study of 115 consecutive patients**

T. Ji, W. Guo, R. Yang, X. Tang, Y. Yang

Musculoskeletal Tumor Center, Peking University, People's Hospital, Beijing, China

Background: Surgical treatment of sacral chordoma still remains the main technical challenge to orthopaedic surgeons. The purpose of the current study was to evaluate the long-term functional and oncological outcomes of 115 consecutive patients with sacral chordoma. Also a scoring system for detailed evaluation of lower limbs motor/sensory, bladder and bowel function of patients underwent sacral resection has been proposed.

Methods: One hundred and twenty-two patients with sacral chordoma received surgical treatment in our institution from Jul 2003 to Jul 2012. There were 78 males and 37 females. The mean age at the time of operation was 54.0 years old (range 18 to 82 years). There were 68 patients received primary resection at our institution and 47 patients, who received primary tumor resection elsewhere, were referred to us due to local recurrence. The extent of sacrum involvement was S1-S5 in 22 patients, S2-S5 in 48 patients, and S3-S5 in 39 patients. Tumor with lumbar vertebra involved was found in 6 patients. The developed scoring system consisted three domains, including motor function and sensation of lower limbs, urination and uroesthesia, and defecation and rectal sensation. There are three items under each domain with score from 0 to 3 representing from most severe function defect to normal function. The overall function was given as a percentage.

Results: Follow-up information was collected in 115 patients. The mean follow-up was 51 months (range, 20-126 months). The distal metastasis occurred in 17 cases (14.8%), including lung in 10, liver in 3 and bone in 9 patients. Eighteen (15.7%) patients died of disease at the last follow-up. The local recurrence rate was 37.4% (43/115) of the entire group. There were 19 (29.7%) local recurrence in patients who received primary surgery, and 24 (51.5%) in recurrent cases. The local recurrence for tumor with S3 and below involved was 20.5% and marginal or wide resection was achieved in 36 out of 39 patients. There were 48 patients with tumor involving up to S2 vertebra. The marginal or wide resection was achieved in 25 cases with local recurrence rate of 56.3%. As for tumor with S1 involved, marginal resection was achieved in 13 patients and local recurrence was observed in 11 (50.0%) patients. The overall sacral nerve function was 12.2% of normal in bilateral S1 (17 cases) preservation, 24.9% in bilateral S2 (in 37 cases) preservation, 72.2% in bilateral S3 (40 cases) preservation. Urine leakage was observed in 44.6% patients and 45.5% of the patients experienced loss of feelings of stimulus to urinate. Difficulty in defecation occurred in 39.8% patients. There were 75% patients had incontinence of feces.

Conclusions: Wide or marginal surgical margin is associated with significant improvement in disease-free survival. Surgical resection with adequate margin still remains the main treatment option.