

Functional Outcome Following Total Sacrectomies without Spino-pelvic Reconstruction

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Introduction

Following total sacrectomy, many types of spino-pelvic reconstruction have been described in literatures with good functional outcomes. However, complications associated with reconstruction are not uncommon and usually require other surgeries.

Purpose

Without spino-pelvic reconstruction, we would like to report our experience in term of complication, walking ability, continence control, patient satisfaction and oncologic outcome of patients underwent total sacrectomy.

Methods

We retrospectively reviewed 16 patients with primary bone tumor at sacrum who underwent total sacrectomy without spino-pelvic reconstruction during 2007-2014. The average age of the patient was 60 years (range, 14-83 years). There were 8 chordomas, 2 low-grade chondrosarcomas, 1 low-grade malignant peripheral nerve sheath tumors, 2 osteosarcoma, 1 high grade liposarcoma, 1 Ewing sarcoma and 1 giant cell tumor. The level of resection was L5-S1 disc in 14 patients and L4-L5 disc in 2 patients. The average follow-up time for surviving patients was 41 months (range, 12-66 months). We classified patients into 3 types based on the resection. Seven patients were type I where the osteotomy was medial to sacroiliac joint, seven patients were type II where the osteotomy went into the sacroiliac joint and two patients were type III where the osteotomy was lateral to the sacroiliac joint. VDO documentation of patients walking was obtained at the follow-up period in 8 patients.

Results

Eleven patients were alive without evidence of disease at last follow-up. One chondrosarcoma patient had a recurrent tumor at 14 months postoperative and required additional surgical resection. Three of four high grade sarcomas patients had recurrences and metastases and died of disease at 5, 12 and 22 months postoperative, respectively; the last patient with high grade osteosarcoma had lung metastasis and was alive with disease at 12 months.

The overall MSTS scores averaged 17 (range, 5-27). Thirteen patients were able to walk; 4 without walking aid, 3 with cane and sometimes without walking aid, 3 with cane and 3 with walker. The

median time for patients to start walking was 4 months (range, 3-12 months). One patient was able to only sit and stand for a short period. The last two patients were bed bound due to their disease progression. Six patients became independence community ambulators and were able to walk for at least 1 hour with minimal pain. Six of 7 patients in type I resection were able to walk; 4 without walking aid, and had an average MSTS score of 21 (13-27). Radiographic findings in these patients revealed spinal column sank down and fusion between transverse processes and iliums or the remaining lateral sacrum around the sacroiliac joints. Two patients with type III resection were only able to sit. At last follow-up, 12 patients were incontinent and 4 were incontinent under stress. Immediate complications included wound dehiscence in 13, rectal tear in 1, ureter tear in 1 and sciatic nerve injury in 2 patients.

Conclusion

Without spino-pelvic reconstruction, most patients with total sacrectomy were able to walk. Good outcome could be expected in type I and II resection when the transverse process fused with both sides of iliums. Type III resection needs spino-pelvic stabilization. With an acceptable MSTS score and no reconstruction-related complication, this method should be consider as an option following type I and II resection of total sacrectomy.