

Chordoma of the sacrum: “En bloc” high partial sacrectomy

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Peter Paul Varga MD and Aron Lazary MD, PhD

Keywords

Chordoma · Sacrum · Partial sacrectomy · En bloc · Tumor resection

Introduction

Chordoma is a rare primary bone tumor accounting for 1–4% of all primary malignant bone lesions mainly localized in the clivus and the sacrococcygeal region. Originating from the remains of the embryonal notochord, it is a relatively slow-growing, low-grade malignancy. The sacral manifestations occur in approximately 50–60% of the cases and typically appear around the fifth decade. Due to the relatively tolerable symptoms, sacral chordomas are usually diagnosed in advanced stages when surgical treatment is technically challenging. As a treatment option, there is currently no long-term experience with widely accepted chemo- or radiotherapeutic modalities. According to general clinical experience resection surgery is recommended, optimally the “en bloc” resection of the tumor can decrease the risk for local recurrences and the possibility of metastatic process in a latter stage of the disease [1]. Here we describe the “en bloc” resection of a sacral chordoma performing the resection technique called high partial sacrectomy.

Case description

The 57-year old male patient had had severe low back pain radiating to the buttocks for several months. Neurological examination showed normal motor and sphincter function but a mild paresthesia in the perianal region. Radiologic examinations revealed a tumorous mass affecting the S2 and S3 sacral segments, the main mass on the right side with dorsal extraosseal extension with muscle involvement. Histological diagnosis of chordoma was obtained after an open biopsy procedure. High partial sacrectomy was planned for the “en bloc” removal of the tumor.

Surgical procedure

The patient was positioned on the standard Cloward surgical saddle. The skin incision performed in the median sagittal plane, and the lumbosacral fascia and erector muscles divided sharply on the left side. In the right side the line of the dissection of the fascia followed the oncological margin according to the preoperative planning. The LV and SI neural arches were removed. Then the dural sac below the S1 nerve roots was sharply dissected together with the rest of the sacral nerve complex. Strong watertight closure of the dural sac was performed. Bilaterally the posterior iliac crest was cut down by oscillating saw at the level of the dorsal edge of the SI joint. Then inside the iliac bone we conducted a resection by chisel between the iliac notch and the borderline between SI and SII. Then the gluteal muscles as well as the perisacral ligamentous complex were sharply dissected, the sacrococcygeal junction was sharply disconnected. Going up bluntly between the ventral aspect of the tumor and the rectum, we identified the edges of the piriformis muscles, following the muscle laterally to the femoral attachment, where the

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muscles were detached sharply. Elevating the specimen, we cut the nerve roots coming out from the tumorous mass caudally and laterally. After careful blunt dissection of the rectal soft tissue connections, the specimen became free and could be removed easily. Then the free spongy bony surfaces were covered by bone wax, and the large defect of the body wall at the site of the tumor resection was covered by Dacron mesh. The mesh anchored by sutures to the bony landmarks (e.g., tuber ossis ischii, iliac bone). Jackson–Pratt suction drains were positioned on the mesh and over the drains the gluteal muscles, the sacral and gluteal fascia were closed. The wound closure followed the standard fashion.

The specimens (particularly the oncological margins) were then controlled carefully. No violation of the tumor was observed.

Postoperative procedure

The mobilization of the patient began on the first postoperative day in a lying position: lower leg massage and active exercises were introduced. We removed the suction drains after 3–4 days, and let the patient stand up on the fifth postoperative day. There were special considerations regarding the bowel and bladder function. The result of the histopathology was chordoma, the surgical margins were negative.

Discussion and conclusion

“En bloc” high partial sacrectomy with safe oncological margins is recommended if the chordoma involves the sacral levels below the SI [2]. If there is bony connection between the remains of the sacrum and the iliac crests after the resection, we do not prefer lumbopelvic stabilization.

Due to the fact, that the proper resection involves the sacral nerves, the surgeon should prepare the patient before the surgery for the expected postsurgical neurological deficits regarding the control of the sphincters and some lower extremity muscle activities. Special considerations should be addressed to the postoperative psychological support, particularly in patients younger than 50 years [3].

After high partial “en bloc” sacrectomy the complication rate of the wound healing is quite high (24% in our institution). Necrotisation of the muscle or skin flaps, deep wound infection could result in a need for second or third surgery for the debridement and sometimes the surgical wound heals in a secondary manner during weeks of local treatment. Such patients can be mobilized slowly and carefully. The recovery time highly depends on the level of neurological deficit and the patient cooperation [4]. The follow up should last for as long as possible, in our experience the routine length of time is 5 years.

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