

COMPUTER-ASSISTED SURGICAL RESECTION OF RECURRENT SACRAL TUMORS.
PRESENTATION OF TWO CASES AS INITIAL EXPERIENCE.

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BACKGROUND: Recurrent bone sarcomas of the pelvis are a challenge for both the surgeon and the patient. Besides an inherent complex anatomy, bony and soft tissue planes may be distorted due to previous surgery. If a wide resection is considered for management of the recurrence, thorough preoperative planning and careful surgical execution are mandatory. In this regard, three-dimensional imaging of the actual scenario and computer- assisted surgery may become useful tools. The authors present two cases of recurrent tumors of the sacrum, which were resected with the aid of navigation.

PATIENTS AND METHODS: We retrospectively revised the cases of two patients with recurrent sarcomas of the sacrum. One is a 37 year-old male that presented with a local recurrence of a grade 2 chondrosarcoma of the sacrum eleven months after the index operation. Imaging studies showed a tumor located eccentrically at the right portion of the sacral body, just distal to the S2 foramina. The second patient is a 42 year-old female with a recurrent low-grade central osteosarcoma of the sacrum, eight months after the first resection. She had a satellite soft tissue mass located in the right paraspinal muscles at the level of L3. For both patients, preoperative planning was done by fusion of computer tomography and magnetic resonance images, utilizing software from MediCAS Surgical Precision. Surgical resection was performed in a prone position by navigation, using the Stryker Navigation System 2 (Stryker, Kalamazoo, Michigan). For both cases, we reviewed the surgical margins, complications and neurological status.

RESULTS: Duration of surgery was 3 hours for the male patient, and five hours for the female. None presented neurological impairment. The male patient complained of transient difficulties with erection, which was managed with Sildenafil during three months until spontaneous recovery. The female patient developed wound dehiscence in the lumbar area, requiring surgical debridement and secondary closure. Neither patient developed infection. Surgical margins were revised with the pathologist, demonstrating clearance from the tumor in both cases. Follow up has been 12 months for the male patient, and 10 months for the second patient. No signs of recurrence are evident.

CONCLUSIONS: Recurrent bone sarcomas of the pelvis are a surgical challenge. Technical difficulties for resection become significant. Local anatomy is distorted, due to scarring and previous osteotomies performed during the index procedure. In these cases, the aid of imaging

analysis and computer-assisted surgery may increase the capability to achieve wide margins and minimize morbidity. In the two cases presented here, we think that navigation allowed a more expeditious surgical resection, achieving adequate margins and little postoperative morbidity.