

What is the effect of pelvic ring disruption on function and oncological outcome following P1 resection of primary sarcomas?

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**Abstract**

**Introduction:** Primary sarcomas of the pelvis whose surgical treatment involves disruption of the pelvis ring present a challenge in terms of reconstruction and postoperative function.

**Aims:** To evaluate the effect of pelvic ring disruption on the functional and oncological outcomes following P1 resection of primary bone sarcoma of the pelvis.

**Methods:** Retrospective study comprising 68 patients diagnosed with a primary bone or soft tissue sarcoma involving the ilium diagnosed between 1976 and 2014. Functional outcome was assessed using TESS score. For individual variables, analysis was performed using ANOVA with differences in proportions assessed using Fisher's exact test.

**Results:** Tumours comprised 35 chondrosarcomas (51.5%), 14 osteosarcomas, 14 Ewing's sarcomas (20.6%) and one case each of leiomyosarcoma of bone, malignant fibrous histiosytoma, primitive neuroectodermal tumour, synovial sarcoma and solitary fibrous tumour (1.5%). In 36 patients (52.9%) the pelvic ring was disrupted. 7 patients (10.3%) were left flail and 29 (42.6%) were reconstructed either with a nonvascularized fibula (24) or extracorporeal irradiated autograft (5). In 32 patients (47.1%) the pelvic ring was left intact. Local recurrence (LR) occurred in 30 patients (44.1%) which was significantly higher in those who did not have disruption of the pelvic ring ( $p=0.049$ ). TESS scores were not affected by disruption of the pelvic ring ( $p=0.824$ ).

**Conclusion:** Attempts to preserve the pelvic ring in P1 resection results in high rates of LR. As function does not appear to be affected by disruption of the pelvic ring, we recommended that resections not comprising surgical margins must be considered.