Pelvic discontinuity after bone tumor resection increases the risk of prolapse and clinical disfunction of the pelvic floor.

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INTRODUCTION:

Pelvic resections represent some of the most challenging procedures in orthopedic oncology, often implying the sacrifice of large bone segments and eventually the sacrifice of the nearby soft tissues. Our study aims to evaluate how surgical resections on pelvic bone tumors impacts the performances of the pelvic floor, the digestive, the urinary,and the genital systems.

METHODS:

We evaluated all malignant or locally aggressive pelvic bone tumors treated with bone resection in our institution between 2017 and 2024. Exclusion criteria were sacral resections, benign lesions, and pre-operative or intra-operative major damage of the pelvic floor, urinary tract or digestive tract.

The reconstructive approaches were recorded. Pre- and post-operative MRI and CT scans were used to evaluate the grade of pelvic prolapse. The prolapse of the digestive tube was assessed with the M-, H-line and the anorectal angle. Hydronephrosis was also evaluated. Urinary and fecal incontinence, as sex performances, were evaluated with the Pelvic Floor Impact Questionnaire (PFIQ7).

RESULTS:

Thirty cases were included in our study. Nine cases were treated with custom made prostheses, 5 had ice-cone prostheses, 2 massive allografts and 1 composite allograft-prosthesis. The others had no bone reconstruction. Meshes were used to reconstruct the pelvic floor in 9 cases. Patients with discontinuity of the pelvic ring had a significantly higher grade of pelvic prolapse (M line 3.4cm vs 2.2cm; t-student p=0.021). The mean PFIQ7 score was 11.6. Patients with discontinuity of the pelvic ring had a significantly worse PFIQ7 score (16.7 vs 3.9; t-student p=0.001). Our data suggested a linear correlation between M line and the disability score PFIQ7 (Pearson correlation test p=0.039).

DISCUSSION AND CONCLUSION:

The resection of pelvic bone tumors represents one of the main challenges in orthopedic oncology. While planning surgical demolition and performing the following reconstruction, surgeons should also consider the impact of surgical treatment on pelvic floor and organs. Intra-operative reconstructions and post-operative rehabilitation are advisable.