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Minimal Invasive Surgical Treatment of Fragility Fractures of the Pelvis

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Abstract
The incidence of fragility fractures of the pelvis is increasing quickly. The characteristics of these fractures are different from pelvic ring disruptions in adults. Fragility fractures of the pelvis are the consequence of a low-energy trauma which occurs in a patient with an important decrease of bone mineral density. Due to a consistent pattern of alteration of bone mass distribution in the sacrum, other fracture morphologies occur than in younger adults. The leading symptom is immobilizing pain in the lower back, in the buttocks, in the inguinal region and/or at the pubic symphysis. Conventional radiographs and CT will show the presence and localization of the fractures in the anterior and posterior pelvic ring. A new, comprehensive classification system distinguishes four categories of instability. This first criterion is most important, because it also gives hints for the preferred type of treatment. The second criterion, leading to the subtypes in the four categories, is the localization of the instability in the posterior pelvic ring. This criterion points the way towards the type of the surgical procedure to be used. When a surgical treatment is chosen, the procedure should be as minimal invasive as possible. Different techniques for percutaneous or less invasive fixation of the posterior pelvic ring have been developed. Their advantages and limitations are presented: sacroplasty, iliosacral screw osteosynthesis, cement augmentation, transiliac internal fixation, trans-sacral osteosynthesis, lumbopelvic fixation. Fractures of the anterior pelvic ring also need special attention. Retrograde transpubic screw fixation is recommended for pubic rami fractures. Fractures of the pubic body and instabilities of the pubic symphysis need bridging plate osteosynthesis. We do not recommend anterior pelvic external fixation in elderly because of the risk of pin track infection and pin loosening.
Key words: fragility pelvic fracture, classification, treatment, minimal invasive surgery, anterior pelvic ring, posterior pelvic ring