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Prevention of migration of lliosacral screws after osteosynthesis of unstable pelvic injuries

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Statement of the Problem: The condition of satisfactory healing of partly (type B) and completely (type C) unstable pelvic fractures is an adequate reduction and stable fixation of the anterior and both posterior pelvic segments. The mini-invasive method of osteosynthesis is currently generally preferred but particularly suitable in some type of patients (higher age, polytrauma). We were interested in the stability of the posterior pelvic segment treated with lliosacral screws introduced by the standard method (two parallel screws) and the new technique (convergent screw threads locked together).

Methodology: Between 2009 and 2012, two lliosacral screws were used for osteosynthesis of one or both posterior pelvic segments in 96 patients (39 women, 57 men) aged 14-79 (mean 44 years). In the X-ray documentation there was retrospectively measured the migration of these screws in 6 weeks, 3 months, 6 months and a year after surgery. Exclusive criteria were: reosteosynthesis for failure of previous fixation, solution of pelvic false joint and incomplete X-ray documentation. The results obtained were evaluated by the chi-square test at the 5% significance level.

Findings: The study included 41 patients (20 females, 21 males) aged 17-79 (mean 44 years), 18 of whom (8 females, 10 males) were treated by the classical method and 23 patients (12 women, 11 men) by the new technique. Migration accompanied by clinical complaints (5 mm or more) within 6 weeks of surgery was found in 8 patients from 18 treated classically and in three patients from 23 after fixation with new technique, this difference was statistically significant ($p = 0,0392$).

Conclusion: The new technique of lliosacral fixation means less risk of screw migration and therefore extends possibilities of minimally invasive treatment of unstable pelvic fractures as well as treatment of groups of patients in higher risk (e.g. higher age and polytrauma).

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