

#10 - Posters

Loosening Of The Iliosacral Screw Used In Pelvic Ring Injury

Trauma / Pelvic Trauma / Surgical Treatment

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Introduction

Iliosacral screw fixation has been popularly used for stabilization of the posterior ring in unstable pelvic fractures. However, loosening of the screw may be developed with redisplacement of fracture, and there is a paucity of published information regarding the incidence and affecting factors for iliosacral screw loosening.

Objectives

This study was undertaken to evaluate the incidence of iliosacral screw loosening used in pelvic ring injury and to identify predictive factors.

Methods

One hundred ten patients whose posterior pelvic ring was stabilized with iliosacral screw from September 2001 through December 2012 were enrolled in this study. There were 61 men and 49 women, with a mean age of 45.2 years. Mechanisms of injuries were traffic accident for 55 patients, a fall from a height for 38 patients, and a work-related crushing injury for 17 patients. According to the Young-Burgess classification, there were 9 cases of anteroposterior compression (APC), 64 cases of lateral compression (LC), and 37 cases of vertical shear (VS) injuries. In the posterior pelvic ring injuries, there were 95 sacral fractures (52 type I and 43 type II in the Denis classification) and 15 sacroiliac joint dislocations. For 82 patients, both anterior and posterior rings were stabilized, whereas the remaining 28 patients underwent only posterior ring fixation with iliosacral screw. Screws were fixed to the anterior 1/3 region of S1 body in 46 cases, and to the middle 1/3 region of S1 body in the remaining 64 cases. If loosening of the iliosacral screw influenced on the pelvic ring stability and revision surgery was required, it was considered as failure. Relationship between iliosacral screw loosening and age, fracture pattern, operative method, location of the screw within the S1 body, and the type of the sacral fracture were analyzed.

Results

All fractures healed at an average period of 15 weeks after surgery (range, 12-20). Nineteen of 110 patients (17.3%) were found to have loosening of the iliosacral screw at an average of 25.3 days (range, 10-70) after index operation. Of these, 13 patients (11.8%) had failure of the screws that required revision surgery (screw change; 4, posterior tension band plating; 9). The incidence of iliosacral screw loosening was significantly higher in those with VS injury (29.7%, $p=0.014$), in those with screw fixed to the middle 1/3 region of the S1 body (23.4%, $p=0.044$), and in those with VS injury combined with type II sacral fracture (43.5%, $p=0.019$). With the respect to the iliosacral screw failure, patients with VS injury also had higher incidence of failure (21.6%, $p=0.036$).

Conclusions

Although iliosacral screwing is a reasonable method for stabilization of posterior pelvic ring, caution should be taken to prevent screw loosening and failure in VS injury, and screw

fixation to the anterior 1/3 of the S1 body can decrease the incidence of loosening.
Furthermore, alternative method of fixation should be considered in VS injury, especially combined with type II sacral fracture.