

Intramedullary nailing with and without cerclage in subtrochanteric fractures: An Updated Systematic Review and Meta-Analysis

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INTRODUCTION: Intramedullary nailing (IMN) is the gold standard for femoral subtrochanteric fractures (FSF) treatment due to their biomechanical advantages and minimally invasive nature. However, achieving proper reduction remains challenging in unstable patterns, leading to poor outcomes. Cerclage wiring, used alongside IMN, has shown potential in improving fracture stability and alignment, yet concerns regarding soft tissue damage persist. This study aims to evaluate the impact of cerclage wiring on clinical and radiological outcomes in FSF treatment

METHODS:

A comprehensive literature search was conducted for studies published up to 2025 using PubMed, Scopus, Google Scholar, and Web of Science databases, focusing on randomized controlled trials and observational studies comparing intramedullary nailing with and without cerclage wiring in subtrochanteric fractures fixation. Eleven eligible studies, encompassing 658 patients, were included. The risk of bias was assessed using the Newcastle–Ottawa scale and meta-analytical techniques were employed to calculate pooled effect sizes and statistical significance.

RESULTS: Eleven retrospective studies were included revealing that cerclage wiring significantly increased operative time; $p > 0.001$, blood loss; $p = 0.031$, and better functional outcomes as union time significantly decreased; $p = 0.026$, significantly better Harris Hip Score; $p = 0.012$, while improving reduction quality. No significant differences were observed in non-union, infection, or mortality rates. Quality assessment using the Newcastle–Ottawa Scale indicated high quality studies.

DISCUSSION AND CONCLUSION: Cerclage wiring in conjunction with intramedullary nailing (IMN) for subtrochanteric fractures provides considerable advantages in our study in terms of the quality of fracture reduction, healing duration, and functional rehabilitation, especially in more complicated cases, even though it may lead to longer surgical times and greater blood loss.

