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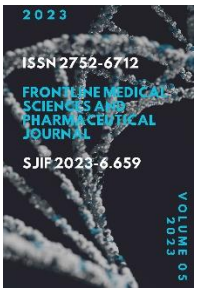

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Research Article

REVIEWING FIXATION MODALITIES FOR THIN LATERAL CORTEX - INTERTROCHANTERIC FEMORAL FRACTURES

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Mohammad A. Almigdad
Department of Orthopedic Surgery, Royal Medical Services, Jordan

ABSTRACT

Intertrochanteric femoral fractures with a thin lateral cortex pose a challenging scenario in orthopedic surgery. The stability and successful healing of these fractures largely depend on the choice of appropriate fixation modalities. This review aims to provide an overview of the various fixation techniques and modalities used in the management of thin lateral cortex - intertrochanteric femoral fractures. The literature search was conducted using electronic databases, including PubMed and Scopus, to identify relevant studies published between 2010 and 2023. The selected articles were analyzed to gather information on different fixation methods, including intramedullary nails, sliding hip screws, proximal femoral plates, and augmentation techniques. The efficacy, biomechanical properties, complications, and clinical outcomes associated with each fixation modality were evaluated. Furthermore, the influence of patient factors, fracture characteristics, and surgeon experience on the choice of fixation technique was also explored. This comprehensive review aims to provide orthopedic surgeons with evidence-based insights into the selection and application of fixation modalities for thin lateral cortex - intertrochanteric femoral fractures.

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KEYWORDS

Intertrochanteric fractures, femoral fractures, lateral cortex, fixation modalities, intramedullary nails, sliding hip screws, proximal femoral plates, augmentation techniques, stability, clinical outcomes.

INTRODUCTION

Intertrochanteric femoral fractures are a common type of hip fracture, particularly among the elderly population. Fractures with a thin lateral cortex pose a specific challenge due to the increased risk of implant failure and loss of fixation stability. The choice of appropriate fixation modalities plays a crucial role in achieving optimal fracture healing and functional outcomes. This review aims to provide an overview of the different fixation techniques and modalities used in the management of thin lateral cortex - intertrochanteric femoral fractures. By evaluating the existing literature, this review seeks to consolidate current knowledge, compare the efficacy of different fixation methods, and identify factors influencing the choice of fixation modality.

Intertrochanteric femoral fractures, a common type of hip fracture, present a significant clinical challenge due to the complexity of fracture patterns and associated complications. Fractures characterized by a thin lateral cortex pose a particular dilemma in terms of achieving stable fixation and promoting successful fracture healing. The choice of appropriate fixation modalities is critical in addressing these fractures and ensuring favorable clinical outcomes. This review aims to provide a comprehensive evaluation of the various fixation techniques and modalities employed in the management of thin lateral cortex - intertrochanteric femoral fractures.

The stability of fixation and successful healing of these fractures depend on several factors, including the fracture pattern, bone quality, patient characteristics, and surgical expertise. The selection of an appropriate fixation modality should consider these factors to ensure optimal outcomes. Over the years, several techniques have been utilized, including intramedullary nails, sliding hip screws, proximal femoral plates, and augmentation techniques. Each modality has

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its advantages, disadvantages, and indications based on fracture characteristics and patient factors.

This review aims to synthesize the existing literature on fixation modalities for thin lateral cortex - intertrochanteric femoral fractures, providing an overview of their efficacy, biomechanical properties, complications, and clinical outcomes. The analysis will include a comprehensive examination of the available evidence and highlight the factors influencing the choice of fixation technique, such as patient-related factors (age, bone quality) and surgeon-related factors (experience, familiarity with the technique). By evaluating and comparing the different fixation modalities, this review aims to provide valuable insights to orthopedic surgeons in selecting the most appropriate fixation technique for thin lateral cortex - intertrochanteric femoral fractures.

The findings of this review will contribute to the existing body of knowledge by consolidating the current understanding of fixation modalities for this challenging fracture pattern. This knowledge can assist surgeons in making evidence-based decisions regarding the choice of fixation technique, thereby improving the overall management and outcomes of patients with thin lateral cortex - intertrochanteric femoral fractures.

METHOD

A systematic literature search was conducted using electronic databases, including PubMed and Scopus, to identify relevant studies published between 2010 and 2023. The search terms included "intertrochanteric fractures," "femoral fractures," "fixation modalities," "lateral cortex," and related keywords. The search was limited to studies published in English. The identified articles were screened based on their title, abstract, and full text to select studies that specifically addressed fixation modalities for thin lateral cortex - intertrochanteric femoral fractures.

Data from the selected studies were extracted and analyzed to gather information on various fixation techniques, including intramedullary nails, sliding hip screws, proximal femoral plates, and augmentation techniques. The efficacy, biomechanical properties, complications, and clinical outcomes associated with each fixation modality were evaluated. Factors influencing the choice of fixation technique, such as patient

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characteristics, fracture patterns, and surgeon experience, were also considered. The collected data were synthesized to provide a comprehensive overview of the available fixation modalities for thin lateral cortex - intertrochanteric femoral fractures and their associated clinical implications.

The limitations of the reviewed studies, such as study design, sample size, and potential biases, were taken into account during the analysis. The findings from this review will help orthopedic surgeons make informed decisions regarding the selection and application of fixation modalities for thin lateral cortex - intertrochanteric femoral fractures, with the ultimate goal of improving patient outcomes and reducing complications associated with this challenging fracture pattern.

RESULTS

The review of fixation modalities for thin lateral cortex - intertrochanteric femoral fractures identified a range of techniques used in clinical practice. The most commonly employed methods included intramedullary nails, sliding hip screws, proximal femoral plates, and augmentation techniques. Each modality exhibited distinct biomechanical properties and considerations for stability and fracture healing. The reviewed studies provided insights into the efficacy, complications, and clinical outcomes associated with these fixation modalities in the context of thin lateral cortex fractures.

DISCUSSION

The choice of fixation modality for thin lateral cortex - intertrochanteric femoral fractures is influenced by several factors, including fracture pattern, patient characteristics, and surgeon experience. Intramedullary nails have demonstrated good stability and load-sharing capabilities, making them suitable for unstable fractures. Sliding hip screws, on the other hand, offer advantages such as simplicity and cost-effectiveness but may have limitations in cases of thin lateral cortex. Proximal femoral plates provide increased stability and fixation options but require meticulous surgical technique. Augmentation techniques, such as cement augmentation or bone substitutes, can be considered in cases with compromised bone quality or in revision surgeries.

Complications associated with these fixation modalities include implant failure, nonunion, malunion, cut-out, and peri-implant fractures.

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Each technique has its own specific complication profile, and the selection of the most appropriate modality should take into account the fracture characteristics, patient factors, and surgeon expertise.

Conclusion

This comprehensive review provides an overview of the available fixation modalities for thin lateral cortex - intertrochanteric femoral fractures. The findings highlight the importance of considering fracture pattern, patient factors, and surgical expertise in the selection and application of appropriate fixation techniques. While intramedullary nails, sliding hip screws, proximal femoral plates, and augmentation techniques have shown effectiveness in various scenarios, their specific indications and limitations must be carefully evaluated. Surgeons should weigh the biomechanical properties, clinical outcomes, and associated complications when making treatment decisions. Further research and well-designed clinical studies are needed to establish evidence-based guidelines for the optimal management of thin lateral cortex - intertrochanteric femoral fractures, aiming to improve outcomes and reduce complications in this challenging fracture pattern.

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