INPLASY

POSTEROMEDIAL APPROACH IN ANKLE FRACTURES, ARE WE TALKING ABOUT THE SAME THING?

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 April 2025 and was last updated on 6 April 2025.

INTRODUCTION

Review question / Objective To determine if there is consensus on the definition of the posteromedial approach to the ankle and its modifications.

Rationale The posteromedial approach was described by Weber et al. in 2004 described its use in conjunction with a posterolateral approach for the treatment of 9 patients with posterior malleolus fractures of the posterior pilon variant type. They used the posteromedial approach to reduce the medial border of the posteromedial fragment, and although they specified that the approach was made over the posterior tibial tendon, it is not made clear which deep plane was used. Subsequently, many authors have used this concept with arbitrary definitions in the depth used, There is currently no article detailing and ordering the various published descriptions for this approach.

The objective of this systematic review was to determine if there is consensus on the definition of the "posteromedial approach", the "modified posteromedial approach" and the "medial posteromedial approach" in the treatment of posterior malleolar fractures. In addition, the outcomes obtained with the various posteromedial approaches described will be evaluated secondarily.

Condition being studied The management of posterior malleolus fractures has evolved over time from a minor injury in the context of an ankle fracture to an injury where anatomical reduction and stable fixation are critical to restoring syndesmotic stability.
The classic indications for fixation that considered the size and displacement of the fragment have been consigned to the past and nowadays importance is given to the presence of an articular step-off greater than 1- 2 mm, subsidence of the tibial articular surface, presence of intercalary fragments and syndesmotic instability.

Posterior ankle approaches have been described for direct reduction of these fractures, with a consensus on the description of the posterolateral approach but multiple different descriptions for the posteromedial approach.

METHODS

Search strategy The systematic review will be conducted in accordance with the Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) statement and following the recommendations of the Cochrane Collaboration Handbook.
The search included keywords from two main concepts: Ankle Fracture ("Ankle" or "ankle fracture" or "Posterior malleolar fractures" or "trimalleolar fractures" or "posterior malleolus") AND Posterior Approach ("posterior approach", "Posteromedial Approach", "Modified Posteromedial Approach", "Medial Posteromedial Approach"). The Boolean operators "OR" and "AND" were used to link the keywords of each concept and to link the concepts themselves, respectively.
Study selection. Two reviewers will independently examine the titles and abstracts. Full-text articles of potentially eligible studies will be analyzed. Any disagreement will be resolved by a third reviewer.
Data collection process. Two reviewers will independently perform data extraction. A third reviewer will compare the extracted information, resolving disagreements, and the information will be synthesized into a table. The following data will be extracted: type of study, year of publication, population (sample size, age, sex and diagnosis), definition of the posteromedial approach and outcomes (in case of clinical studies).

Participant or population Clinical and nonclinical studies that had a clear definition of the posteromedial approach, modified posteromedial approach, or medial posteromedial approach to the ankle were included.

Intervention Definitions, anatomical descriptions, and surgical techniques of the posteromedial approach. Posteromedial approach to ankle fracture.

Comparator Other definitions or surgical approaches.

Study designs to be included Anatomical studies, Surgical technique articles, Case series and case reports that describe or define the ankle posteromedial approach, randomized clinical trial, controlled clinical trial, case control studies, expert opinion articles and clinical guidelines.

Eligibility criteria Studies regarding the posteromedial approach to the ankle in the context of posterior malleolus fractures will be included. Eligible studies must define or describe the ankle posteromedial surgical approach to posterior malleolar fractures, including a description of the deep dissection used. The review will consider a variety of study designs, including anatomical studies (cadaveric or imaging-based), surgical technique articles, case series and case reports (only if they provide a detailed description of the approach), retrospective and prospective cohort studies, and comparative studies (only if the posteromedial approach is clearly defined). Expert opinion articles will also be included if they contain formal or consistent definitions. In addition, clinical guidelines or surgical textbooks will be considered as part of the gray literature if they include relevant and clearly stated definitions. Only full-text articles published in English or Spanish will be included. No restrictions on publication year will be applied.

Information sources To identify potentially relevant articles, searches will be conducted in three databases from the beginning until april 2025. The databases to be used will be Medline (via Pubmed), Web of Science and Scopus.

Main outcome(s) Changes in the definition of the posteromedial approach, modified posteromedial approach, and medial posteromedial approach to the ankle.

Quality assessment / Risk of bias analysis The methodological quality of the included studies will be assessed using tools appropriate to each study design. For anatomical studies and surgical technique articles, a custom checklist will be developed focusing on the clarity of anatomical descriptions, surgical detail, and clinical relevance. Case reports and case series will be evaluated using the CARE guidelines or the tool by Murad et al. Clinical guidelines, if included, will be evaluated with the AGREE II tool. Each study will be independently assessed by two reviewers, and any disagreements will be resolved through discussion or consultation with a third reviewer.

Strategy of data synthesis Descriptive analyses will be conducted for studies that present insufficient data for overall grouping, and a descriptive synthesis will be performed following the guidelines of the Cochrane Collaboration.

Subgroup analysis Subgroups will be considered as differences in the methods used to define the posteromedial approach and its modifications.

Sensitivity analysis Sensitivity analysis will be performed using case-by-case exclusion analysis.

Country(ies) involved Chile, Spain.

Keywords Posteromedial approach; Modified posteromedial approach; Posteromedial medial approach; Posterior malleolus fracture; Trimalleolar fracture.

Contributions of each author

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