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Research Article

The 50 Most Influential Publications on Morton's Neuroma: A Bibliometric Study

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Abstract

Objectives: This study aims to evaluate the 50 most-cited publications on Morton's neuroma using bibliometric methods.

Methods: A bibliometric analysis was conducted using the Web of Science database. All studies published up to February 2025 and indexed under the keyword "Morton's neuroma" were identified. The top 50 most-cited original articles and reviews were analyzed based on the total number of citations, year of publication, citation density (total number of citations/year), country of publication, journal of publication, field of science.

Results: The included studies were published between 1987 and 2019 and amassed a total of 3,259 citations. The most-cited article was authored by Gilbert Y. Wong in 2009, with 273 citations and the highest citation density. Of the 50 studies, 26 were in the field of orthopedics, 17 in radiology-related disciplines, and 4 in surgery. Ultrasonography was utilized in 38% of the publications.

Conclusion: Morton's neuroma is a condition of substantial clinical importance in orthopedics, while attracting considerable attention from various other scientific disciplines. USG plays a prominent role in both the diagnosis and treatment, frequently featured in high-impact studies. This bibliometric analysis provides a comprehensive overview of the most influential literature on Morton's neuroma, highlighting research trends.

Keywords: Bibliometric analysis, morton's neuroma, interdigital neuroma

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Morton's neuroma was first described by Morton in 1876.[1] The exact cause is not yet fully understood, but perineural fibrosis is seen in its pathology.[2] This is one of the main causes of forefoot pain. Patients complain of burning, tingling, and numbness between their toes.[3] Patients often report that shortly after starting to walk, they feel that the toes of their shoes are being squeezed, causing them to feel the need to take off their shoes.

The diagnosis of Morton's neuroma is primarily based on clinical evaluation; however, imaging methods such as ultrasound (USG) or magnetic resonance imaging (MRI) may be used to confirm the diagnosis.[4] There are several treatment approaches available for Morton's neuroma. Conservative options, such as metatarsal pads, footwear modifications, and injection therapies, are commonly used.[5,6] In cases where conservative management fails to provide adequate relief, the consideration of surgical intervention may be considered.[7]

A bibliometric analysis is a valuable research method that uses statistical and quantitative techniques to examine literature. Bibliometric analysis is especially useful for identifying influential studies in a given field.[8] In recent years, it

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has been used effectively in orthopedics as well as in many other fields of science.[9,10] However, there is no comprehensive bibliometric analysis study on Morton's neuroma in the existing literature. This study aims to evaluate the 50 most-cited articles on the topic using bibliometric methods.

Methods

In this study, the Web of Science (WoS) database was used to conduct a bibliometric analysis of the most influential publications in the literature on Morton's neuroma. The search included studies published up to February 2025. The keyword Morton's neuroma" was used, and the results were filtered accordingly.

This study was conducted using publications written in English; non-English articles were excluded. The 50 most cited original articles and reviews ranked according to the total number of citations were included in the study. Case reports were excluded from the study.

The publications included in the study were evaluated based on their total number of citations, year of publication, citation density (the ratio of total citations to years since publication), country of publication, field of science, and journal of publication.

Results

Studies published between 1975 and 2025 were searched using the keyword "Morton's neuroma". The studies were ranked according to the number of citations, and the top 50 most-cited studies were included in the analysis. The studies included in this analysis were published between 1987 and 2019. Of the articles, 39 were original research articles, while 11 were reviews. The total number of citations of the included studies was 3259. The average number of citations per study was 65.18 and the most cited study received 273 citations, while the least cited study received 30 citations. The distribution of articles and citations by year is presented in Figure 1.

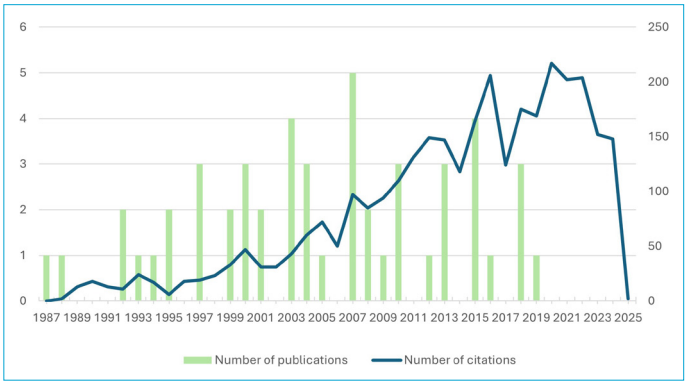

Figure 1. The distribution of articles and citations by year.

Of the 50 studies, the most cited was "Therapeutic Potential of Vanilloid Receptor TRPV1 Agonists and Antagonists as Analgesics:" Recent Advances and Setbacks." authored by Gilbert Y. Wong and published in 2009. With a citation density of 16.06, this study also had the highest citation density among the analyzed publications.[11] In the citation-based ranking, the second most cited study was "Imaging of Peripheral Nerve Sheath Tumors with Pathologic Correlation: Pictorial Review" by Pilavaki M. et al., with 205 citations. This was followed by the study "Immunohistochemical Detection of Epithelial Membrane Antigen in Normal Perineurial Cells and Perineurioma" by Ariza A. et al., which received 166 citations.

Of the publications analyzed, 26 were conducted in the field of Orthopedics, while 17 were in the areas of Radiology, Nuclear Medicine, Medical Imaging. Additionally, 4 studies were categorized under the field of Surgery. In 19 of the studies (38%), ultrasonography (USG) was utilized either for diagnostic or therapeutic purposes.

The United States had the highest number of publications, with 18 studies (36%), followed by England and Italy, each contributing 7 publications (14%). The Royal National Orthopaedic Hospital NHS Trust, University College London, and the University of London were among the top contributing institutions, each producing three publications.The journals with the highest number of publications (n>2) are presented in Table 1.

Discussion

Bibliometric studies are becoming increasingly prevalent in the fields of medicine and health sciences.[12] Researchers focusing on specific topics particularly benefit from bibliometric studies to identify high-quality publications and select appropriate journals. Therefore, conducting bibliometric analyses in orthopedics and traumatology, as in other medical fields, is essential. Bibliometric studies have been conducted on various topics within orthopedics.[13,14] However, this study is the first to focus specifically on Morton's neuroma using bibliometric analysis.

Table 1. Journals with the Highest Number of Publications (n>2)

Journal Title	Number of Publications
Foot & Ankle International	12
American Journal of Roentgenology	4
European Radiology	3
Seminars in Musculoskeletal Radiology	3
Skeletal Radiology	3

Morton's neuroma is a common forefoot pathology that holds particular clinical importance for orthopedic surgeons. The fact that more than half of the top 50 most-cited articles (n=26, 52%) originate from the field of orthopedics further supports this point. Nonetheless, Morton's neuroma remains a subject of interest across various academic disciplines. A particularly salient example is the most cited article, "Therapeutic potential of vanilloid receptor TRPV1 agonists and antagonists as analgesics: Recent advances and setbacks," published in 2009, which investigates treatment strategies at the molecular level. [11] This study not only demonstrates the interdisciplinary relevance of the topic but also has the highest citation density among the analyzed publications, underscoring its emphasizing its lasting impact and ongoing scientific significance.[15]

The evaluation of the countries contributing to the most highly cited studies on Morton's neuroma reveals that the United States ranks first, accounting for 36% of the publications. England and Italy follow, each contributing 14%, indicating that the topic continues to garner significant attention among European researchers as well. The analysis of citation trends over the years reveals a noticeable increase in the number of citations up until 2020, followed by a slight decline thereafter. This trend may suggest a slight decrease in researchers' interest in Morton's neuroma in recent years.

Liu YH et al. reported an increasing trend of highly influential articles being published in specialty journals focused on specific research areas, rather than in general medical journals.[16] Several bibliometric studies focusing on foot and ankle disorders have identified Foot & Ankle International (F&I) as the leading journal in terms of the number of publications related to the topic.[13,17] In our study, an assessment of the included publications revealed that 24% were published in Foot & Ankle International. In this regard, our findings are consistent with the existing literature and support the view expressed by Liu YH et al.

Radiological imaging plays a critical role in both the diagnosis and treatment of Morton's neuroma. For this reason, a substantial number of studies on this condition have been published in radiology-focused journals. The findings of the present study revealed that 34% of the included publications appeared in journals dedicated to the field of radiology. USG stands out as a reliable and effective imaging modality for the accurate evaluation of Morton's neuroma. [18] It enables clinicians to perform dynamic assessments and enhances the precision of injection-based therapies by providing real-time visualization of the target tissue.[3] Our bibliometric analysis further indicated that USG was employed for either diagnostic or therapeutic purposes in 38% of the analyzed studies. Based on these results, USG remains a valuable imaging modality frequently utilized in high-impact research concerning Morton's neuroma.

This study has several limitations. First, the bibliometric analysis was conducted exclusively using the Web of Science database, thereby excluding other prominent databases such as Scopus, PubMed, and Google Scholar. The inclusion of these additional databases in future studies may provide a more comprehensive overview of the literature and potentially yield different findings. Secondly, the analysis was limited to the top 50 most cited publications, which provides a general overview of the literature but may not fully represent the entire body of research. Finally, the search strategy was restricted to the keyword "Morton's neuroma," potentially excluding high-impact articles indexed under different keywords.

In conclusion, this study evaluated the 50 most-cited publications on Morton's neuroma. The findings highlight that Morton's neuroma is a clinically significant condition within orthopedics, while also attracting considerable attention from various other scientific disciplines. USG emerges as a critical imaging modality in the diagnosis and treatment of Morton's neuroma and is frequently employed in high-impact research within this field.

Disclosures

Ethics Committee Approval: The study is an open data bibliometric study, does not contain human or animal material, and does not require ethics committee approval.

Conflict of Interest: The authors declare no conflicts of interest.

Referee Evaluation Process: Externally peer-reviewed.

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