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Insights and implications from the study on meniscus reconstruction using tendon autograft

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Abstract

This letter addresses the recent study by Zhu *et al* on the predictive factors for coronal and sagittal graft extrusion length following medial meniscus reconstruction using tendon autografts. The study provides valuable insights into the importance of preoperative joint space width and tunnel positioning as predictors of graft extrusion. Specifically, it found strong correlations between preoperative joint space width and medial, posterior, and mean graft extrusion at both 1 week and 8 months post-operation. Additionally, tunnel edge distance at 1 week post-operation correlated with anterior and posterior graft extrusion. These findings offer critical guidance for improving surgical outcomes. However, the letter highlights the need for further research with larger sample sizes and comparative studies involving different graft types to strengthen these findings and broaden their applicability in clinical settings. The study's contributions to understanding meniscus reconstruction using tendon autografts are acknowledged, along with suggestions for future research directions

Key Words: Meniscus reconstruction; Tendon autograft; Graft extrusion; Joint space width; Tunnel positioning; Surgical outcomes

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Core Tip: Zhu *et al's* study on meniscus reconstruction using tendon autografts reveals crucial predictive factors for graft extrusion, notably preoperative joint space width and tunnel positioning. These findings have significant implications for patient selection and surgical technique refinement. The study's strengths lie in its longitudinal design and comprehensive approach, while its main limitation is the small sample size. Future research should focus on larger cohorts, comparative graft studies, and long-term clinical outcomes. This work represents a significant advancement in personalizing meniscus reconstruction procedures, potentially leading to improved patient outcomes in orthopedic surgery.

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TO THE EDITOR

A recent study by Zhu *et al*[1] in the *World Journal of Orthopedics* examined predictive factors for graft extrusion in medial meniscus reconstruction using tendon autografts. This retrospective study, conducted at Dalian University Affiliated Xinhua Hospital, analyzed data from 10 patients who underwent the procedure between July 2021 and February 2023. The researchers found correlations between preoperative joint space width and postoperative graft extrusion at 1 week and 8 months, as well as between tunnel edge distance and extrusion. They developed predictive models based on these findings. Despite its small sample size, this study is significant as it addresses a knowledge gap in orthopedic surgery, provides quantitative data for surgical planning, and has potential implications for improving patient outcomes in tendon autograft meniscus reconstruction.

Key findings and their significance

Zhu *et al's* study on medial meniscus reconstruction using tendon autografts revealed key predictive factors for graft extrusion, providing valuable insights that both align with and diverge from previous research in the field[1]. The study found that preoperative joint space width strongly correlated with graft extrusion at 1 week and 8 months post-operation, a finding that differs from some meniscus allograft studies[1]. This discrepancy may be attributed to the unique biomechanical properties of tendon autografts, which are softer than allografts and potentially more susceptible to factors like joint space width[2].

Consistent with earlier research on meniscus allograft transplantation, tunnel position, particularly anterior tunnel edge distance, significantly influenced graft extrusion[3]. This finding underscores the critical importance of precise surgical technique across different graft types. Preoperative factors such as Kellgren-Lawrence grade and hip-knee-ankle angle difference also showed correlations with extrusion, echoing findings from studies on natural meniscus extrusion [4]. These similarities suggest that certain factors remain crucial in meniscus positioning, regardless of whether the meniscus is natural or reconstructed.

The study introduced novel findings, including the correlation between the medial edge incline angle and graft extrusion, and the observation that general extrusion increases from 1 week to 8 months post-operation. These unique aspects highlight the dynamic nature of tendon autograft remodeling over time, a process that may not be as pronounced in allograft studies.

These findings have important implications for patient selection and surgical planning. The study suggests using preoperative joint space width as a screening tool and emphasizes the importance of precise tunnel placement. The persistence of correlations at 8 months highlights the long-term impact of these factors on graft positioning, underscoring the need for comprehensive preoperative assessment and personalized surgical plans based on individual patient characteristics.

While the small sample size ($n = 10$) necessitates further research, possibly through larger, multicenter studies, this study provides valuable insights for improving surgical outcomes in medial meniscus reconstruction with tendon autografts. The contrasting results with meniscus allograft studies suggest that tendon autografts may behave differently, warranting specific research in this area[5].

Strengths of the study

Zhu *et al's* study on meniscus reconstruction using tendon autografts fills a crucial knowledge gap by examining predictive factors for graft extrusion[1]. Its longitudinal design, measuring outcomes at 1 week and 8 months post-operation, provides insights into short-term and medium-term results. The comprehensive approach, analyzing multiple pre-operative factors and their correlations with graft extrusion, offers a nuanced understanding of the procedure's outcomes. These findings have practical implications for improving surgical outcomes, potentially enhancing patient selection and surgical techniques based on individual factors.

Limitations and areas for further research

The study's primary limitation is its small sample size of 10 patients, which, while significant for this specific procedure, limits statistical power and generalizability[1]. This small cohort makes it challenging to perform meaningful subgroup

analyses, capture rare complications, and may increase the risk of type II errors. These limitations underscore the urgent need for larger, multi-center studies to validate and expand the findings. Future research directions should include comparative studies with different graft types, investigations into correlations between predictive factors and clinical outcomes, long-term follow-up studies on graft durability and osteoarthritis progression, exploration of pre-operative interventions to improve surgical outcomes, and development of advanced imaging techniques or machine learning algorithms for more accurate prediction of graft extrusion. These research areas could significantly enhance surgical planning, patient selection, and long-term outcomes in meniscus reconstruction using tendon autografts, addressing the limitations of the current study and advancing the field of orthopedic surgery.

Conclusion

In conclusion, Zhu *et al*'s study significantly advances our understanding of meniscus reconstruction using tendon autografts by identifying key predictive factors for graft extrusion[1]. The findings on preoperative joint space width and tunnel positioning provide a foundation for more personalized surgical approaches. While larger studies are needed to validate these results, the research highlights the importance of comprehensive preoperative assessment and precise surgical technique. This could lead to improved patient selection, better surgical planning, and ultimately enhanced outcomes. The study's impact on clinical practice in orthopedic surgery could be substantial, contributing to the ongoing evolution of meniscus reconstruction techniques and improving patient care.

FOOTNOTES

Author contributions: Nguyen PD and Lam TK conceived the idea, drafted the manuscript, critically revised it, and approved the final version.

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REFERENCES

- 1 **Zhu TW**, Xiang XX, Li CH, Li RX, Zhang N. Predictive factors for coronal and sagittal graft extrusion length after using tendon autograft for medial meniscus reconstruction. *World J Orthop* 2024; **15**: 1036-1046 [DOI: [10.5312/wjo.v15.i11.1036](https://doi.org/10.5312/wjo.v15.i11.1036)]
- 2 **Lee SM**, Bin SI, Kim JM, Lee BS, Lee CR, Son DW, Park JG. Long-term Outcomes of Meniscal Allograft Transplantation With and Without Extrusion: Mean 12.3-Year Follow-up Study. *Am J Sports Med* 2019; **47**: 815-821 [PMID: [30763116](https://pubmed.ncbi.nlm.nih.gov/30763116/) DOI: [10.1177/0363546518825251](https://doi.org/10.1177/0363546518825251)]
- 3 **Li C**, Hu X, Meng Q, Zhang X, Zhu J, Dai L, Cheng J, Zhong M, Shi W, Ren B, Zhang J, Fu X, Duan X, Ao Y. The potential of using semitendinosus tendon as autograft in rabbit meniscus reconstruction. *Sci Rep* 2017; **7**: 7033 [PMID: [28765605](https://pubmed.ncbi.nlm.nih.gov/28765605/) DOI: [10.1038/s41598-017-07166-z](https://doi.org/10.1038/s41598-017-07166-z)]
- 4 **Lee DH**. Incidence and Extent of Graft Extrusion following Meniscus Allograft Transplantation. *Biomed Res Int* 2018; **2018**: 5251910 [PMID: [29770332](https://pubmed.ncbi.nlm.nih.gov/29770332/) DOI: [10.1155/2018/5251910](https://doi.org/10.1155/2018/5251910)]
- 5 **Lee DH**, Lee BS, Kim JM, Yang KS, Cha EJ, Park JH, Bin SI. Predictors of degenerative medial meniscus extrusion: radial component and knee osteoarthritis. *Knee Surg Sports Traumatol Arthrosc* 2011; **19**: 222-229 [PMID: [20890696](https://pubmed.ncbi.nlm.nih.gov/20890696/) DOI: [10.1007/s00167-010-1274-2](https://doi.org/10.1007/s00167-010-1274-2)]



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