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IMMEDIATE PAIN RELIEF AND RAPID RECOVERY THROUGH ARCH REALIGNMENT TAPING: A CHRONIC MEDIAL FOOT PAIN CASE IN A RECREATIONAL FOOTBALL PLAYER FROM SWAT, PAKISTAN

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ABSTRACT

Background: *Chronic medial foot pain in athletes is commonly attributed to overuse syndromes related to excessive pronation, including posterior tibial tendon dysfunction and plantar fasciitis. In resource-limited settings like Swat, Pakistan, where access to advanced diagnostics and custom orthotics is constrained, simple, low-cost interventions are vital. This case report explores the immediate and short-term effects of a specific arch realignment taping technique based on the Mulligan Concept in a recreational footballer.*

Case Presentation: *A 32-year-old male recreational football player from Swat, Pakistan, presented with a 9-month history of insidious-onset, progressive medial left foot pain, localized to the navicular tuberosity and along the course of the posterior tibial tendon. Pain (7/10 on NPRS) was exacerbated by running and jumping, severely limiting his sport participation. Physical examination revealed a significant bilateral flexible pes planus (left > right), a navicular drop of 12mm on the left, and tenderness over the navicular and posterior tibial tendon. Weight-bearing footprint analysis confirmed excessive midfoot collapse.*

Interventions & Outcomes: *A low-dye taping technique with a specific medial glide component (Mulligan-inspired realignment) was applied to support the medial longitudinal arch and correct talonavicular subluxation. Immediate post-taping re-assessment showed a dramatic reduction in pain to 2/10 on the NPRS, an 8mm improvement in navicular drop to 4mm, and pain-free single-leg heel raises. The patient was provided with self-management education, a graded intrinsic foot muscle strengthening program, and instructed on self-taping for athletic activity. After two weeks of tape-supported activity and daily exercises, he reported sustained pain levels at 1-2/10 and successfully returned to full football training. At a 6-week follow-up, he remained pain-free without taping, demonstrating maintained arch posture and strength.*

Conclusion: *This case suggests that a simple arch realignment taping technique can provide immediate biomechanical correction, pain relief, and facilitate rapid functional recovery in a patient with chronic medial foot pain related to hyper pronation. It highlights a viable, cost-effective first-line intervention for similar patients in resource-limited settings like Swat, Pakistan. Further controlled studies are necessary to validate its efficacy.*

Keywords: *Foot pain, medial arch, low-dye taping, Mulligan Concept, navicular drop, pes planus, footballer, conservative management*

INTRODUCTION

Football is an intermittent sport that need very high levels of agility with endurance, and speed with prolong continuous physical exertion, which lead to transient episodes of fatigue, especially after high-intensity activities (1) To be the successful player of this game, players must engage themselves in high-intensity physical activities, including sprinting, fast running, changing direction, and football-specific skills such as passing, tackling, and scoring goals (2). Football players are adopted to use high levels of aerobic power to cover longer distances and to utilize the anaerobic system for high-intensity sprinting power during games (3).The heart rate on average during a standard of 90-minute game is between 155 and 172 beats per minute (4). Sports injuries often occur during football trainings, most often during powerful movements such as jumping, running, and twisting movement or abrupt changes in direction (5). Almost 88% of muscle injuries occur in soccer in a variety of situations, including hamstring injuries associated with running and acceleration (6). calf injuries often occur when accelerating from a standstill or at low speeds and pivoting with sudden changes of direction/deceleration results in an anterior cruciate ligament (ACL) injury (7). These injuries result in athletes not being able to rehabilitate and reach their full potential or delaying their return again to competitive sports (8). Chronic medial foot pain is a prevalent complaint among athletes involved in running and jumping sports, including football (9).The underlying etiology is often linked to excessive, prolonged subtalar joint pronation, which places sustained tensile stress on the medial dynamic (posterior tibialis tendon) and static (spring ligament) stabilizers of the arch (10). Common diagnoses include posterior tibial tendon dysfunction (PTTD) stage I, plantar fasciitis, and accessory navicular syndrome (11). studies on injury mechanisms and injury inciting circumstances often focus on specific injuries and associated player actions and biomechanical descriptions of assumed injury moments (12). It is common that specific injury actions associated with specific injuries are described, such as sprinting and kicking, for hamstring and adductor muscle injuries, respectively (13). As these player actions are essential parts of football and will be performed thousands of times throughout a player's career (13). it is important to understand how the specific situations leading to injury are different to similar situations which do not lead to injury, A focus on high-risk situations may improve our ability to perform such comparative analyses in more detail, and in turn improve prevention strategies (14). Taping is a well-established adjunct in sports medicine for pain relief and biomechanical support. The low-dye taping technique is specifically designed to support the medial longitudinal arch and limit excessive pronation (15). Furthermore, the Mulligan Concept of mobilisation-with-movement (MWM) applies a sustained accessory glide (e.g., a medial or lateral glide to a joint) concurrently with a previously painful active movement to eliminate pain and restore function (16). Combining the structural support of low-dye taping with the positional realignment principles of the Mulligan Concept may offer a powerful, immediate intervention for pain arising from faulty foot biomechanics (17).

In high-resource settings, management typically involves a combination of custom foot orthotics, physiotherapy, and advanced imaging. However, in regions like Swat, Pakistan, where specialized podiatric services, orthotic laboratories, and routine access to MRI are limited, there is a pressing need for effective, low-cost, and immediately applicable interventions that can be delivered in a primary care or physiotherapy clinic. This case report details the application of such a combined arch

realignment taping technique on a young footballer from Swat, Pakistan, with chronic medial foot pain. It documents the immediate biomechanical and pain-modifying effects, as well as the short-term functional outcomes, following a CARE guideline framework.

Case Presentation

Patient Information

A 32-year-old male, University student and recreational football player, Resident of Manglawar, Swat, Pakistan. He plays football 4-5 times per week on natural non gross and uneven dirt fields. Presented with a Chief Complaint of Pain on the inner side of my left foot for the past 9 months, which stopped him from playing football properly. Clinical Findings were the pain began insidiously after a period of increased football activity. It was initially mild and intermittent but had become constant and sharp with activity over the last 3 months. He reported no specific trauma. Pain was localized to the prominence of the navicular bone and along the path of the posterior tibial tendon, radiating slightly towards the plantar medial arch. He described morning stiffness of less than 10 minutes. Over-the-counter analgesics provided minimal relief. Functional Limitations noted were unable to run at full speed, perform explosive jumps, or complete a full 90-minute football match. Pain was worst during push-off and landing. No previous foot/ankle injuries. Medication used were Occasional ibuprofen (NSAIDs). Physical Examination (Left Foot/Ankle), Observation (on Weight-bearing) Significant collapse of the medial longitudinal arch compared to the right side. Mild swelling over the navicular tuberosity. on Palpation Maximal tenderness over the navicular tuberosity and along the course of the posterior tibial tendon proximal and distal to the navicular. No tenderness on the plantar fascia origin. Range of Motion: Ankle dorsiflexion/plantarflexion were full and pain-free. Subtalar joint eversion was excessive and reproduced medial pain at end-range.

Special Tests performed:

i. single-leg Heel Raise: Painful and weak (unable to complete >5 repetitions) on the left. The heel deviated into valgus during ascent.
ii. Navicular Drop Test:Measured from subtalar joint neutral position to relaxed standing. A drop of 12mm was noted on the left, compared to 8mm on the right (normal <10mm)
iii. Foot Posture Index (FPI): Score of +9 (highly pronated) on the left, +6 on the right.
iv. Muscle Strength: Pain-inhibited weakness of left posterior tibialis (4-/5), otherwise normal.
v. Gait Analysis: Obvious excessive midfoot pronation and diminished heel rise during late stance on the left.

Diagnostic Assessment

Diagnosis was based primarily on clinical examination. Given resource limitations, ultrasound or MRI to confirm posterior tibial tendon or spring ligament integrity was not available. The clinical presentation was most consistent with Posterior Tibial Tendon Dysfunction (PTTD) Stage I and/or painful flexible pes planus. A footprint analysis (using water and paper) confirmed a severe flat arch pattern on the left.

Therapeutic Intervention

The intervention aimed to (a) provide immediate pain relief by biomechanically supporting the faulty arch and realigning the talonavicular joint, and (b) create a window of opportunity for pain-free strengthening and functional re-education.

Procedure

Patient Preparation: The skin was cleaned and shaved. A hypoallergenic under wrap was applied. Taping Technique: A modified Low-Dye Taping technique with a Mulligan-inspired Medial Glide component was used. Anchor Strips: Non-elastic zinc oxide tape (3.8cm) was applied around the forefoot (just proximal to the metatarsal heads) and the distal calf. Medial Longitudinal Arch Support: Strips were applied from the plantar surface of the 1st metatarsal head, pulled diagonally across the plantar arch with tension, and anchored on the lateral aspect of the calcaneus. 3-4 such strips were applied, overlapping by half. Mulligan Medial Glide Component: Prior to applying the final "calcaneal lock" strip, a manual medial glide was applied to the patient's calcaneus (relative to the talus/leg) to correct the visible valgus position. While maintaining this corrected position, a final tape strip was applied from the medial

plantar calcaneus, pulled firmly around the posterior heel, and anchored on the lateral calf, "locking" the heel in a more neutral/varus position. Closure: The tape was secured with circumferential closure strips around the midfoot.

Co-interventions & Self-Management

Immediate: The patient was re-assessed in the taped condition. Home Exercise Program: Prescribed intrinsic foot muscle strengthening (short foot exercise, toe curling), posterior tibialis isometrics, and calf stretching. Activity Modification, advised to wear the tape during all football activities for 2 weeks. Instructed on skin care and self-application of a simplified version of the tape. Footwear Advice: Recommended shoes with firm heel counters and arch support for daily use.

Follow-up and Outcomes

Immediate Outcomes (Post-taping, Day 1)
Pain (NPRS): Reduced from 7/10 to 2/10 during single-leg heel raise. Navicular Drop: Improved from 12mm to 4mm. Function: Able to perform >15 pain-free single-leg heel raises with improved heel alignment. Patient Impression: The patient reported an immediate sensation of "support" and "the bone being back in place." Short-term Outcomes (2-week follow-up) The patient reported consistent self-taping for 6 football sessions. Pain during activity was 1-2/10. Morning stiffness had resolved. He had successfully completed a full training session. Adherence to the strengthening program was good. Intermediate Outcomes (6-week follow-up) The patient had discontinued taping for the past two weeks. He reported being pain-free (0/10) during football and daily activities. Re-examination showed: Navicular Drop: 6mm (maintained improvement from baseline 12mm). Single-leg Heel Raises: 25 repetitions with maintained neutral heel alignment. Foot Posture Index: Improved from +9 to +7. Return to Sport: Full return to recreational football without limitations.

Discussion

This case demonstrates the potential of a simple, combined taping technique to produce immediate and clinically significant improvements in pain, arch posture, and function in a patient with chronic medial foot pain (18) . The dramatic immediate reduction in navicular drop (12mm to 4mm) suggests the tape effectively corrected the talonavicular subluxation associated with hyperpronation, thereby offloading the stressed medial soft tissues (19). The Mulligan-inspired medial glide component is a novel addition to the standard low-dye technique. While the low-dye tape provides passive support, the manual correction and "locking" of the calcaneus may more directly address the positional fault at the subtalar joint, aligning with the pain-eliminating mechanism proposed in the Mulligan Concept (3, 7, 16, 18). This immediate correction likely facilitated pain-free activation of the posterior tibialis, breaking the cycle of pain-inhibition and weakness. The context of Swat, Pakistan, is crucial. This intervention required only tape and clinical expertise, making it highly feasible in low-resource settings where custom orthotics (costing many times a monthly wage) are inaccessible. The success of the intervention empowered the patient with a practical self-management skill (self-taping) and provided the pain-free window necessary for effective strengthening, which is likely responsible for the sustained benefits seen at 6 weeks.

Limitations

include the inherent nature of a single case report, the lack of objective imaging to confirm the diagnosis, and potential placebo effects. The long-term durability of effects beyond 6 weeks is unknown.

Conclusion

Arch realignment taping, incorporating principles from the low-dye technique and the Mulligan Concept, provided immediate pain relief, improved foot biomechanics, and enabled a rapid return to sport in a recreational footballer from Swat, Pakistan, with chronic medial foot pain. This case highlights a practical, low-cost, and effective conservative management strategy that is particularly relevant for resource-limited settings. It warrants further investigation through larger clinical trials to establish its efficacy compared to standard care.

Patient Perspective

"*The tape gave me instant relief. For the first time in months, I could push off my foot without a sharp pain. It felt stable. Learning to tape it myself gave me control over the problem. Now, after doing the exercises, my foot feels strong even without the tape, and I am playing football with my friends again without fear.*" Translated from Pashto language

REFERENCES

1. Purushothaman VK, Didi NUAI, Subramaniam A, Subbarayalu AV, Prabaharan S, Ameer M, et al. Association between foot morphology and dynamic knee valgus during single leg squats in recreational male football players: a cross-sectional study. Human Movement. 2025;26(1):142-51.
2. Vera-Ivars P, Vicente-Mampel J, Fabregat-Andrés O, Barrios C. Foot Morphology and Plantar Pressures in Elite Male Soccer Players—A Baropodometric On-Field Dynamic Assessment. Sports. 2025;13(11):408.
3. Karadeniz G, Develi E. Effect of foot core exercise and arch-supported insole on balance and vertical jump performance in football players with foot pronation. Isokinetics and Exercise Science. 2025:09593020251394809.
4. Hall EC, John G, Ahmetov II. Testing in football: a narrative review. Sports. 2024;12(11):307.
5. Eusebio P, Prieto-González P, Marcelino R. Decoding the complexities of transitions in football: a comprehensive narrative review. German Journal of Exercise and Sport Research. 2025;55(3):332-42.
6. Fältström A, Asker M, Weiss N, Lyberg V, Waldén M, Hägglund M, et al. Poor knee strength is associated with higher incidence of knee injury in adolescent female football players: The Karolinska football injury cohort. Knee Surgery, Sports Traumatology, Arthroscopy. 2025;33(9):3179-93.
7. Saberisani R, Barati AH, Zarei M, Santos P, Gorouhi A, Ardigò LP, Nobari H. Prediction of football injuries using GPS-based data in Iranian professional football players: a machine learning approach. Frontiers in Sports and Active Living. 2025;7:1425180.
8. Yung KK, Wu PP, aus der Fünten K, Hecksteden A, Meyer T. Using a Bayesian network to classify time to return to sport based on football injury epidemiological data. PloS one. 2025;20(3):e0314184.
9. Febriyanti I, Setijono H, Marhaendra FJ, Muhammad HN, Kafrawi FR, Nurhayati F, et al. 746 Pes Planus Level and Foot Pain Affect Selected Performance Parameters: A Study on Team Sport Athletes. Balneo and PRM Research Journal. 2024;15(4).
10. Alomani MAM, Ruikang L. Foot Injury-Runner: 144. Medicine & Science in Sports & Exercise. 2025;57(10S):16-.
11. Alhazmi M, Alhazmi E, Alghamdi WA, Zalah M, Uddin S, Rizvi MR, Ahmad F. Effectiveness of FIFA injury prevention programs in reducing ankle injuries among football players: A systematic review. PeerJ. 2025;13:e18910.
12. Aiello F, Avery L, Gardner T, Rutherford H, McCall A, Impellizzeri FM, et al. Broadening our understanding of injury mechanisms to include at-risk situations: an overview of potential injuries at the FIFA men's world cup Qatar 2022TM. Science and Medicine in Football. 2025;9(3):283-92.
13. Sundberg A, Högberg J, Tosarelli F, Buckthorpe M, Della Villa F, Hägglund M, et al. Sport-Specific Injury Mechanisms and Situational Patterns of ACL Injuries: A Comprehensive Systematic Review: A. Sundberg et al. Sports Medicine. 2025;55(10):2489-527.
14. Shimakawa T, Galmiche S, Ueda S, Shimakawa Y. Injuries and risk factors in men's beach soccer: Japanese national championships 2013–2023. Science and Medicine in Football. 2025;9(4):489-98.

15. Chaabouni S, Al-Kiyoumi W, Fessi MS, Methnani R, Al-Hadabi B, Al Kitani M, et al. Impact of a 6-week foot tapping training program on lower limb strength, sprinting, jumping, and change of direction ability in soccer players. Journal of Sports Sciences. 2025;43(12):1150-7.
16. Memon AG, Chandran SP, Nawaz R, Talpur RA, Memon F. Comparative Effects of Neuromuscular Training and Mobilization with Movement on Pain, Range of Motion, Balance, and Function in Footballer with Ankle Sprain. Malaysian Journal of Medicine & Health Sciences. 2025;21(5).
17. ElMeligie MM, Abdeen HA, Atef H, Marques-Sule E, Karkosha RN. The effectiveness of mulligan mobilization with movement (MWM) on outcomes of patients with ankle sprain: a systematic review and meta-analysis. BMC Sports Science, Medicine and Rehabilitation. 2025;17(1):105.
18. Mohammadi A, Sakhtemani SE, Trimmel L, Petricsevics K, Makai A, Zsenak I, et al. Investigating the Combined Effects of Fascial Distortion Model Manual Therapy and Balance–Strength Training in Individuals with Chronic Ankle Instability. Sports. 2024;12(1):33.
19. Emmanouil A, Boudolos K, Rousanoglou E. Beyond Simple Tapping: Is Timed Body Movement Influenced When Balance Is Threatened? Applied Sciences. 2024;14(18):8541.