

Combined Ultrasound-Guided Pes Anserine Hydro Dissection and Intra-Articular Knee Injection for Multi-Source Knee Pain: A Case Report

Marium Javed¹, Dominic C. Harmon^{1,2*} 

¹Department of Anaesthesia and Pain Medicine, University Hospital Limerick, Limerick, Ireland

²Medical School, University of Limerick, Limerick, Ireland

Email: *harmondominic@gmail.com

How to cite this paper: Javed, M. and Harmon, D.C. (2026) Combined Ultrasound-Guided Pes Anserine Hydro Dissection and Intra-Articular Knee Injection for Multi-Source Knee Pain: A Case Report. *Pain Studies and Treatment*, **14**, 146-151. <https://doi.org/10.4236/pst.2026.144014>

Received: September 21, 2026

Accepted: October 19, 2026

Published: October 22, 2026

Copyright © 2026 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Background: Joint including knee pain is a heterogeneous disorder in which pain does not necessarily correspond to a single structural abnormality. Peri-articular disorders may coexist with intra-articular degeneration and can contribute to persistent joint pain. Pes anserine bursitis is associated with knee osteoarthritis and may be clinically difficult to distinguish from adjacent tendinopathy or other causes of inferomedial knee pain. **Case Presentation:** We present the case of a 42-year-old woman presenting to the pain clinic with chronic right knee pain with MRI proven tricompartmental osteo-arthritis, anserine bursitis and cartilaginous degeneration. The patient was experiencing substantial impairment in activity levels. **Intervention:** During a single treatment episode, ultrasound-guided pes anserine hydrodissection with 10 mL of 5% dextrose was followed by a separate intra-articular knee injection containing 9 mL of 0.25% bupivacaine, 40 mg triamcinolone and 20 mg sodium hyaluronate. The interventions were directed at the clinically concordant periarticular and intra-articular abnormalities. This combination offered both the expected benefits of steroid and hyaluronate, combined with additional targeted therapy of tendinous inflammatory change. **Outcome:** Following this intervention the patient exhibited substantial improvement in both reported pain scores and activity levels at initial two week and subsequent two-month follow-up. No complications were reported. **Conclusion:** Knee pain is a heterogeneous disorder in which pain does not correspond to a single structural abnormality. Combined treatment was followed by improvement in patient-reported pain and activity over two months. Because both interventions were delivered together, this case cannot determine the independent effect of

5% dextrose hydrodissection or establish an additive or synergistic benefit. Comparative studies with standardized functional outcomes are needed. Substantial, sustained improvement was achieved following interventions, with no complications, and further investigation into the potential synergy between these combined techniques in joint pain merits investigation.

Keywords

Knee Pain, Pes Anserine Bursitis, Hydrodissection, Ultrasound-Guided Injection, Dextrose 5%

1. Introduction

Joint including knee pain is a heterogeneous disorder in which pain does not necessarily correspond to a single structural abnormality. Periarticular disorders may coexist with intra-articular degeneration and can contribute to persistent joint pain. Pes anserine bursitis is associated with knee osteoarthritis and may be clinically difficult to distinguish from adjacent tendinopathy or other causes of inferomedial knee pain [1].

Total knee arthroplasty can substantially improve pain and health-related quality of life, but the decision is more complex in younger patients because longer lifetime exposure increases the possibility of revision surgery [2]. Non-operative management therefore remains important for symptom control, preservation of function and, in selected patients, deferral of surgery.

Ultrasound guidance improves the accuracy of pes anserine bursa injection compared with landmark-guided injection [3]. Separately, intra-articular corticosteroid and hyaluronic acid are established injection strategies for symptomatic knee osteoarthritis, although guideline recommendations for hyaluronic acid vary and benefits are generally symptomatic rather than disease-modifying [4] [5]. Dextrose 5% has been studied principally as an injectate for peripheral nerve, tendon and muscle hydro dissection [6] [7].

We report a patient with MRI-demonstrated tricompartmental osteoarthritis and pes anserine bursitis who underwent combined ultrasound-guided pes anserine hydrodissection and intra-articular injection during a single treatment episode.

2. Case Presentation

A 42-year-old woman was referred to the pain clinic with a 14-month history of right knee pain and a baseline numerical pain rating of 6/10. The pain was aggravated by walking, stair climbing and rising from a seated position, substantially restricting her physical activity and daily functioning. She was taking regular analgesics and was reluctant to consider knee arthroplasty because of her age and concerns about requiring revision procedures during her lifetime.

Examination demonstrated restricted range of motion, swelling, crepitus and joint-line tenderness. Focal tenderness was also present over the anteromedial proximal tibia, approximately 4 - 5 cm below the medial joint line, where local palpation and resisted knee flexion reproduced her usual pain. Meniscal provocative tests did not reproduce this focal pain, valgus stress testing revealed no medial collateral ligament tenderness or instability, and there was no sensory disturbance in the saphenous nerve distribution.

MRI demonstrated tricompartmental osteoarthritis, cartilage degeneration and pes anserine bursitis. The activity-related pain and joint examination findings were clinically concordant with intra-articular osteoarthritis, while the separately localised inferomedial tenderness and pain on resisted knee flexion corresponded to the pes anserine pathology. Together, the clinical and imaging findings supported both conditions as likely contributors to her symptoms, although their individual contributions could not be definitively established.

3. Therapeutic Intervention

The procedure was performed in theatre under ultrasound guidance with the patient positioned supine. Strict aseptic technique was observed, and the skin was prepared with 2% chlorhexidine solution. The pes anserine region and surrounding anatomical structures were identified under direct ultrasound visualization (high frequency linear transducer).

Under ultrasound guidance, the pes anserine tendons were identified over the anteromedial proximal tibia, local anaesthesia was achieved by infiltrating 3 mL of 1% lignocaine using a 24-gauge needle. Under real-time ultrasound guidance, the needle tip was positioned within the pes anserine bursa, deep to the tendons and superficial to the underlying medial collateral ligament and proximal tibial surface. A 20-gauge needle was then advanced, and Hydro dissection was performed using 10 mL of 5% dextrose, with the aim of separating the tissue planes. Appropriate separation of the tissue layers and spread of the injectate were visualised in real time under ultrasound guidance (**Figure 1**).

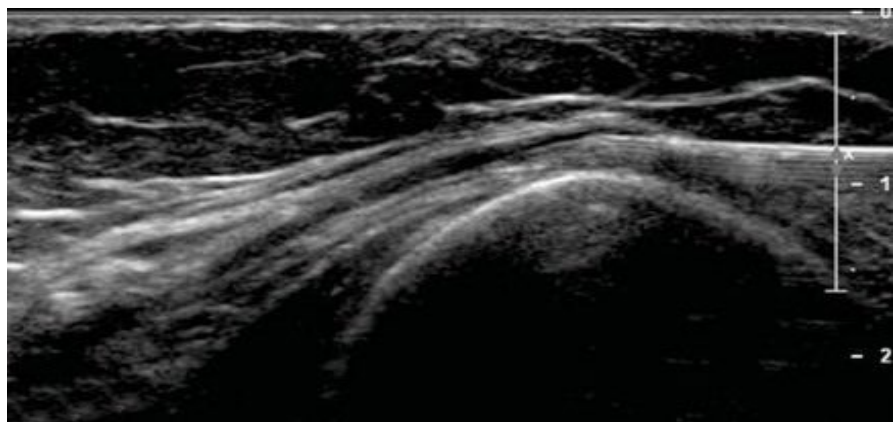


Figure 1. Anserine bursa ultrasound guided hydro dissection with 5% dextrose. Needle indicated by arrows.

A separate ultrasound-guided intra-articular knee injection was subsequently performed using a 20-gauge needle. The intra-articular injectate consisted of 9 mL of 0.25% bupivacaine, 40 mg triamcinolone, and 20 mg sodium hyaluronate (Hylan). Ultrasound guidance was used throughout to confirm appropriate needle positioning and delivery of the injectate (**Figure 2**).

The patient tolerated the procedure well, with no immediate complications observed. The patient was monitored following the procedure and subsequently discharged in a stable condition.



Figure 2. Ultrasound guided knee joint injection. Needle indicated by arrows.

4. Follow-Up and Outcomes

At the two-week review, the patient reported substantial improvement in pain (NPS 2/10) and activity. At two months, the improvement was sustained (NPS 2/10), with improved capacity for activities of daily living and caregiving which was not present before. She reported satisfaction with the functional change. No immediate or delayed complications were documented (**Table 1**).

Table 1. Timeline.

Time	Clinical event	Outcome/decision
Before pain-clinic review	Chronic right medial knee pain with impaired activity and caregiving	Referred for specialist pain assessment
Pain-clinic assessment	MRI: tricompartmental osteoarthritis, pes anserine bursitis and cartilage degeneration	Patient preferred a non-operative strategy
Procedure day	Ultrasound-guided pes anserine hydro dissection plus intra-articular knee injection	No immediate complication documented
2 weeks	Clinical follow-up	Improved daily activity and; numerical pain scores (2/10)
2 months	Clinical follow-up	Sustained improvement in movement and physical activity; numerical scores (2/10), no complication reported

5. Discussion

This case illustrates a pragmatic, anatomy-informed approach to chronic knee pain in a relatively young patient with coexisting intra-articular degeneration and pes anserine bursitis. The principal observation is that a combined ultrasound-guided intervention was feasible and was followed by patient-reported improvement in pain and daily function for two months without a reported complication.

Ultrasound guidance is particularly relevant for periarticular targets. In a randomized study, ultrasound-guided pes anserine bursa injection was more accurate and produced better clinical outcomes than blind injection [8]. Published studies have assessed corticosteroid, prolotherapy and other injectates for pes anserine bursitis, but the evidence remains limited and heterogeneous [9]. The present case used 5% dextrose to separate the pes anserine bursal or adjacent tissue plane.

The rationale for 5% dextrose in hydrodissection includes mechanical separation of tissue planes. Systematic reviews suggest benefits in peripheral entrapment neuropathies, myofascial and tendinous pain, with few serious adverse events reported [6] [7].

The intra-articular component combined bupivacaine, triamcinolone and sodium hyaluronate. Meta-analytic evidence suggests that combined corticosteroid and hyaluronic acid may reduce pain more than hyaluronic acid alone at some follow-up intervals [4] [5].

The case generates a clinically relevant hypothesis: in carefully selected patients with concordant intra-articular and periarticular pathology, explicitly identifying and treating more than one pain generator may improve outcomes.

6. Conclusion

Combined ultrasound-guided pes anserine hydrodissection with 5% dextrose and intra-articular knee injection was followed by improvement in patient-reported pain scores and activity in a 42-year-old woman with tricompartmental osteoarthritis and pes anserine bursitis. The case supports the feasibility of addressing coexisting joint pain generators in one treatment episode with different approaches including a hydrodissection intervention.

Availability of Data and Material/Data Transparency

This case report is an honest, accurate, and transparent account of the case being reported. No important aspects of the report have been omitted. Any queries should be directed via email to the corresponding author. Requests for reprints should also be addressed to the corresponding author.

Ethics Approval

This study is fully compliant with the ethical guidelines of the Research Ethics and Clinical Trials Committee of the University of Limerick Hospitals Group.

Consent to Participate

The patient described consented to participation and publication of the report as described.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Mohseni, M., Mabrouk, A. and Li, D. (2024) Pes Anserine Bursitis. StatPearls Publishing.
- [2] Tampere, T., Arnout, N. and Victor, J. (2025) Total Knee Arthroplasty: The Need for Better Patient Selection. *Knee Surgery, Sports Traumatology, Arthroscopy*, **33**, 784-788. <https://doi.org/10.1002/ksa.12514>
- [3] Lee, J.H., Lee, J.U. and Yoo, S.W. (2018) Accuracy and Efficacy of Ultrasound-Guided Pes Anserinus Bursa Injection. *Journal of Clinical Ultrasound*, **47**, 77-82. <https://doi.org/10.1002/jcu.22661>
- [4] Phillips, M., Bhandari, M., Grant, J., Bedi, A., Trojian, T., Johnson, A., *et al.* (2021) A Systematic Review of Current Clinical Practice Guidelines on Intra-Articular Hyaluronic Acid, Corticosteroid, and Platelet-Rich Plasma Injection for Knee Osteoarthritis: An International Perspective. *Orthopaedic Journal of Sports Medicine*, **9**, Article 2325967121103027. <https://doi.org/10.1177/23259671211030272>
- [5] Smith, C., Patel, R., Vannabouathong, C., Sales, B., Rabinovich, A., McCormack, R., *et al.* (2019) Combined Intra-Articular Injection of Corticosteroid and Hyaluronic Acid Reduces Pain Compared to Hyaluronic Acid Alone in the Treatment of Knee Osteoarthritis. *Knee Surgery, Sports Traumatology, Arthroscopy*, **27**, 1974-1983. <https://doi.org/10.1007/s00167-018-5071-7>
- [6] Buntragulpoontawe, M., Chang, K.V., Vitoonpong, T., Pornjaksawan, S., Kitisak, K., Saokaew, S., *et al.* (2021) The Effectiveness and Safety of Commonly Used Injectates for Ultrasound-Guided Hydrodissection Treatment of Peripheral Nerve Entrapment Syndromes: A Systematic Review. *Frontiers in Pharmacology*, **11**, Article 621150. <https://doi.org/10.3389/fphar.2020.621150>
- [7] Lam, K.H.S., Hung, C.Y., Chiang, Y.P., Onishi, K., Su, D.C.J., Clark, T.B. and Reeves, K.D. (2020) Ultrasound-Guided Nerve Hydrodissection for Pain Management: Rationale, Methods, Current Literature, and Theoretical Mechanisms. *Journal of Pain Research*, **13**, 1957-1968. <https://doi.org/10.2147/jpr.s247208>
- [8] Gagnier, J.J., Kienle, G., Altman, D.G., Moher, D., Sox, H. and Riley, D. (2014) The CARE Guidelines: Consensus-Based Clinical Case Report Guideline Development. *Journal of Clinical Epidemiology*, **67**, 46-51. <https://doi.org/10.1016/j.jclinepi.2013.08.003>
- [9] Babaei-Ghazani, A., Eftekharsadat, B., Soleymanzadeh, H. and ZoghAli, M. (2023) Ultrasound-Guided Pes Anserine Bursitis Injection Choices: Prolotherapy or Oxygen-Ozone or Corticosteroid: A Randomized Multicenter Clinical Trial. *American Journal of Physical Medicine & Rehabilitation*, **103**, 310-317. <https://doi.org/10.1097/phm.0000000000002343>