

Diagnostic Imaging of Chronic Prepatellar Bursitis (Housemaid's Knee): An Elderly Patient Case Report

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Abstract

Prepatellar bursitis, often referred to as “Housemaid’s Knee,” is an inflammation of the prepatellar bursa, usually caused by repeated trauma or extended periods of kneeling. Diagnosing chronic cases can be particularly challenging, especially in older individuals and when advanced imaging techniques are not advisable. This case report details a 70-year-old man who experienced swelling in the right front of his knee, difficulty walking, and pain when kneeling for six months. A musculoskeletal (MSK) ultrasound showed a clearly defined cystic mass measuring 4.8×2.1 cm located in front of the patella, with internal lobulations and cloudy fluid, indicative of chronic prepatellar bursal effusion. There was no evidence of internal blood flow or solid masses. Additional observations included irregularities and calcifications at the insertion of the suprapatellar tendon, suggesting chronic degenerative changes. The bursal sac was surgically removed, and histopathological analysis confirmed chronic prepatellar bursitis. The patient gradually showed improvement in symptoms and functional recovery after the surgery.

Our case highlights the value of MSK ultrasound in diagnosing chronic prepatellar bursitis, particularly when other imaging methods are not feasible. Surgical intervention remains an effective treatment for chronic, stubborn cases. Accurate diagnosis depends on a thorough assessment that combines clinical symptoms, ultrasound findings, and histopathological evidence. (International Journal of Biomedicine. 2025;15(3):601-604.)

Keywords: housemaid’s knee • inflammation • MSK ultrasound • prepatellar bursitis

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Introduction

Housemaid’s knee is the name given to inflammation of the prepatellar bursa, hence, prepatellar bursitis. Housemaid’s knee is a condition of prepatellar bursitis, which is caused by inflammation of the bursa (a fluid-filled sac) that is in front of the patella.¹ It commonly occurs in people who spend long periods of time kneeling, and the bursa between the skin and the kneecap (the prepatellar bursa) is most commonly affected.^{2,3}

Musculoskeletal (MSK) ultrasound demonstrates the tendons, ligaments, bursa, and muscles, thereby enhancing its diagnostic accuracy. Its advantages include the ability to apply compression, perform dynamic assessments, and easily compare with the contralateral side.⁴ The normal appearance of the prepatellar bursa is visualized as a fluid-filled anechoic structure lined by a hyperechoic wall.⁵ In this article, I will present a case study on Housemaid’s knee, using MSK ultrasound for diagnosis. The case will explore the patient’s symptoms, clinical evaluation, and the role of MSK ultrasound in assessing the knee joint, synovial thickening, and other pathological changes, and treatment.

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Case Presentation

A 70-year-old male presented to the Tiba Hospital (Omdurman, Sudan) with complaints of swelling over the right knee for six months, with a gradual increase in the size of the swelling and difficulty in walking for six months. The patient had no history of trauma. The swelling was mildly compressible and associated with minimal pain or tenderness; however, he noted increased tenderness during kneeling, particularly during prayer.

Clinical examination of the right knee revealed globular swelling in the anterior region. The swelling had a variegated consistency, described as firm, hard, and cystic in different locations, and was nonmobile. Due to persistent swelling, the unusual consistency of the swelling, and the patient's reported symptoms, the physician ordered an ultrasound of the right knee.

Ultrasound revealed a well-defined cystic lesion measuring 4.8×2.1 cm in the anterior knee, exhibiting internal lobulations and a turbid collection, consistent with a chronic prepatellar bursal effusion. No internal vascularity or solid component was observed. Quadriceps muscle and tendons were normal. Suprapatellar tendon insertion showed irregularity with calcifications, suggestive of chronic degenerative changes. The synovium, patella, patellar tendon, anterior cruciate ligament (ACL), and medial collateral ligament (MCL) were all normal. The medial and lateral menisci were normal, without adjacent osteophytes. Baker's cysts were absent in the posterior knee region, and the popliteal artery and vein were normal. The ultrasound impression was prepatellar bursitis (Housemaid's knee) and suprapatellar calcific tendinopathy.

Further imaging with CT or MRI was considered but was contraindicated due to the patient's renal impairment, which precluded the use of contrast media. Given the persistent symptoms and ultrasound findings, a decision was made to proceed with surgical intervention.

Surgical exploration and excision of the bursal sac were then performed. Histopathological examination of the excised tissue confirmed a diagnosis of chronic prepatellar bursitis. Postoperatively, the patient experienced a gradual improvement in symptoms and a reduction in knee swelling. Follow-up evaluations revealed satisfactory wound healing and improved knee function.

Discussion

Prepatellar bursitis, commonly referred to as "Housemaid's knee," is a prevalent inflammatory condition affecting the bursa anterior to the kneecap.⁸ This condition is primarily attributed to trauma, infection, or chronic irritation and is particularly common among cleaners, plumbers, floor layers, wrestlers, and other professionals who frequently engage in kneeling activities.

In this case, a 70-year-old patient presented with swelling of the right knee, difficulty walking, and mild tenderness localized to the anterior knee, which is consistent with the classical manifestations of prepatellar bursitis.

The diagnosis was confirmed based on clinical examination with MSK ultrasound imaging. Ultrasound is regarded as the first-line imaging modality for assessing superficial bursae because it enables dynamic assessment, image-guided aspiration, accessibility, and cost-effectiveness. In the current case, high-resolution ultrasonography scan identified a well-defined, anechoic cystic lesion measuring 4.8×2.1 cm in the front of the knee, featuring internal lobulations and a cloudy collection, which is indicative of a chronic prepatellar bursal effusion (Figure 1).



Figure 1. Long-axis ultrasound of the anterior knee joint presented a well-defined cystic lesion measuring 4.8×2.1 cm in the anterior knee, exhibiting internal lobulations and a turbid collection.

There was no evidence of internal vascularity or solid components (Figure 2). Quadriceps muscles and tendons were normal. Insertion of the suprapatellar tendon showed irregularities with calcifications, suggesting chronic degenerative changes. The synovium, patella, patellar tendon, anterior cruciate ligament (ACL), and medial collateral ligament (MCL) were normal. The medial and lateral menisci were normal, and no adjacent osteophytes were present. The posterior knee area showed no signs of Baker's cyst, and the popliteal artery and vein were normal. Ultrasound findings were consistent with prepatellar bursitis and suprapatellar calcific tendinopathy.

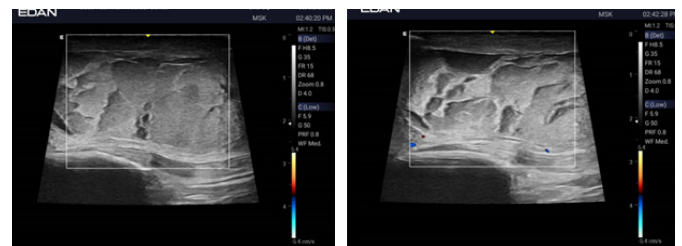


Figure 2. Long-axis Doppler ultrasound of the anterior knee joint presented a well-defined cystic lesion, exhibiting internal lobulations and a turbid collection. No internal vascularity or solid components were identified.

These findings are consistent with a study conducted by Ivanoski and Vasilevska, which pointed out that a significant ultrasound sign of bursitis is the swelling of the bursa, characterized by an increased volume of fluid, which may sometimes appear anechoic. In other cases, increased echogenicity is apparent due to debris, blood in acute trauma,

or puss if an infection appears. Other signs include thickening of the hyperechoic synovial wall, which can be uniform or irregular. The latter sign is more often observed in cases of chronic bursitis.²

To the best of our knowledge, while other imaging modalities, particularly plain radiography, play a significant role in ruling out bony involvement or foreign bodies, they are not sensitive to soft tissue changes (Figure 3).¹⁰ However, MRI offers superior soft tissue resolution (Figures 4 and 5) and may be particularly useful in chronic or complicated cases, such as when deep-seated infection or mass-forming lesions.¹¹



Figure 3. Superficial infrapatellar bursitis. An 80-year-old female presented with an anterior knee swelling. AP (A) and lateral knee x-ray (B) images show swelling in front of the patella with constant pain, especially in the sitting position.⁶

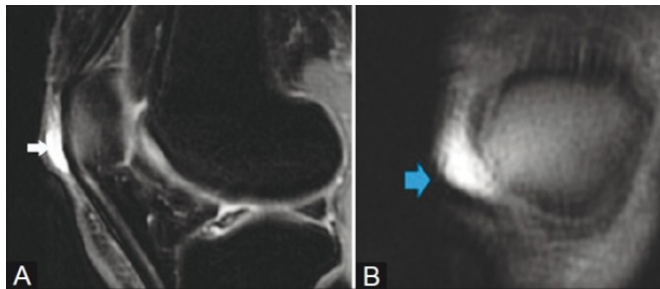


Figure 4. Prepatellar bursitis. A 44-year-old female presented with anterior knee pain. Axial (A) and coronal (B) T2W fat-saturated images showing a distended prepatellar bursa (arrows).²

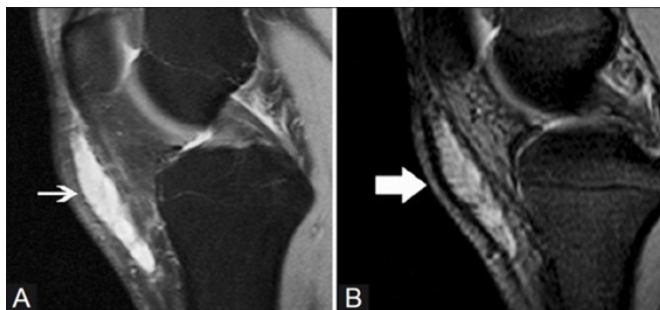


Figure 5. Superficial infrapatellar bursitis. A 42-year-old female presented with an anterior knee swelling. Sagittal proton-density fat-saturated (A) and sagittal gradient-echo T2W (B) images show a distended superficial infrapatellar bursa (arrows).²

In typical cases, such as ours, the use of MRI is not necessary, as ultrasound effectively serves both diagnostic and interventional purposes because ultrasound can be used for dynamic assessment, allowing real-time evaluation of movement-related pain and swelling, and is cost-effective and easily accessible, especially compared to MRI.¹²

On the other side, bursitis can clinically be misdiagnosed as joint-, tendon-, or muscle-related pain. Pathological processes often result from inflammation secondary to excessive local friction, infection, arthritis, or direct trauma. In this regard, knowledge of the normal anatomy, pathology, and imaging characteristics of the bursae is essential. Differentiation of bursitis from other causes of joint, tendon, and muscle pain allows for adequate treatment.⁵

Conclusion

This case underscores the necessity of including prepatellar bursitis in the differential diagnosis of anterior knee swelling, particularly in older patients with non-traumatic causes. Ultrasound remains an invaluable diagnostic tool, especially when other imaging modalities are restricted owing to patient comorbidities.

Surgical treatment, confirmed by histopathological evidence, proved effective in managing chronic, stubborn cases. A thorough understanding of clinical, imaging, and pathological characteristics is vital for prompt diagnosis and suitable management.

Acknowledgments

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Ethical Considerations

Written informed consent was obtained from all participants.

Competing Interests

The authors declare that they have no competing interests.

References

1. Sato M, Watari T. Housemaid's Knee (Prepatellar Septic Bursitis). *Cureus*. 2020 Sep 11;12(9):e10398. doi: 10.7759/cureus.10398. PMID: 33062518; PMCID: PMC7549991.
2. McAfee JH, Smith DL. Olecranon and prepatellar bursitis. Diagnosis and treatment. *West J Med*. 1988 Nov;149(5):607-10. PMID: 3074561; PMCID: PMC1026560.
3. Mercadante JR, Marappa-Ganeshan R. Anatomy, Skin Bursa. 2022 Oct 8. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. PMID: 32119325.

4. Friedman L, Finlay K, Jurriaans E. Ultrasound of the knee. *Skeletal Radiol*. 2001 Jul;30(7):361-77. doi: 10.1007/s002560100380. PMID: 11499776.
 5. Hirji Z, Hunjun JS, Choudur HN. Imaging of the bursae. *J Clin Imaging Sci*. 2011;1:22. doi: 10.4103/2156-7514.80374. Epub 2011 May 2. PMID: 21966619; PMCID: PMC3177464.
 6. D'Imporzano M, Peretti G, Zeni S. *Orthopedics and Rheumatology Archives. Special Volume*. Springer Verlag, 2003.
 7. Chatra PS. Bursae around the knee joints. *Indian J Radiol Imaging*. 2012 Jan;22(1):27-30. doi: 10.4103/0971-3026.95400. PMID: 22623812; PMCID: PMC3354353.
 8. Aaron DL, Patel A, Kayiaros S, Calfee R. Four common types of bursitis: diagnosis and management. *J Am Acad Orthop Surg*. 2011 Jun;19(6):359-67. doi: 10.5435/00124635-201106000-00006. PMID: 21628647.
 9. Ivanoski S, Nikodinovska VV. Sonographic assessment of the anatomy and common pathologies of clinically important bursae. *J Ultrason*. 2019 Nov;19(78):212-221. doi: 10.15557/JoU.2019.0032. Epub 2019 Sep 30. PMID: 31807327; PMCID: PMC6856779.
 10. Maguire A, Lawrence C, Nicolai P, Rosenbloom C. Massive Bilateral Haemorrhagic Prepatellar Bursitis: A Case Report. *Cureus*. 2024 Nov 24;16(11):e74351. doi: 10.7759/cureus.74351. PMID: 39720372; PMCID: PMC11668264.
 11. Bellon EM, Sacco DC, Steiger DA, Coleman PE. Magnetic resonance imaging in "housemaid's knee" (prepatellar bursitis). *Magn Reson Imaging*. 1987;5(3):175-7. doi: 10.1016/0730-725x(87)90018-x. PMID: 3626787.
 12. Demirturk Kocasarac H, Angelopoulos C. Ultrasound in Dentistry: Toward a Future of Radiation-Free Imaging. *Dent Clin North Am*. 2018 Jul;62(3):481-489. doi: 10.1016/j.cden.2018.03.007. PMID: 29903563.
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