

Case Report

High-Resolution Ultrasonography in PesAnserinus Bursitis: Case Report and Literature Review

Dr. Aman Gupta^{1*}, Dr. Abhinesh Saraf², Dr. Chandrajeet Yadav³

¹Prof. & Head, Department of Radiodiagnosis, Sri Aurobindo Medical College and P. G. Institute, Indore-Ujjain Highway, Tehsil-Sanwer, Dist.-Indore, M.P., India

²Resident, Sri Aurobindo Medical College and P.G.Institute, Indore-Ujjain Highway, Tehsil-Sanwer, Dist.-Indore, M.P., India

³Assist. Prof., Sri Aurobindo Medical College and P.G.Institute, Indore-Ujjain Highway, Tehsil-Sanwer, Dist.-Indore, M.P., India

*Corresponding author

Dr. Aman Gupta

Email: aman_sono@yahoo.co.in

Abstract: Knee pain is a common complaint in clinical practice, and pesanserinus bursitis has been frequently diagnosed based only on clinical features that may cause equivocal interpretations. Patients complain of characteristic spontaneous medial knee pain with tenderness in the infer medial aspect of the joint. Studies with different imaging modalities have been undertaken during the last years to identify whether these patients suffer from bursitis. High-resolution ultrasonographic (HRUS) scanning is accurate in the diagnosis of condition and differentiating other soft tissue lesions in and around the knee. It is relatively easy to perform, less expensive and acceptable to patients.

Keywords: High-resolution ultrasonography, Pesanserinus, Bursa, Bursitis.

INTRODUCTION

Pesanserinus bursitis is an inflammatory condition of the medial knee. Especially common in certain patient populations, it often coexists with other knee disorders [1]. Diagnosis of pes anserine bursitis should be considered when there is spontaneous pain inferomedial to the knee joint. Conventional radiographic techniques are generally not useful in the diagnosis of condition, while arthrography and arthrotomography are invasive techniques with potential morbidity. Computed tomography scanning and magnetic resonance imaging, while being specific, sensitive and non-invasive, are expensive and time consuming. High-resolution ultrasonographic (HRUS) scanning is accurate in the diagnosis of condition and differentiating other soft tissue lesions in and around the knee. It is relatively easy to perform, less expensive and acceptable to patients. We report a case of swelling at inferio-medial aspect of knee diagnosed as pes anserinus bursitis diagnosed on HRUS.

CASE REPORT

A 52yr old female presented with swelling in anteromedial aspect of proximal leg (Fig. 1) in orthopedic department of our institution. She gave history of pain while arising from sitting position and climbing stairs. On examination swelling was hard, non-mobile with slight tenderness. A clinical diagnosis of osteoarthritis with bony exostosis was made. Patient was referred for radiograph knee A.P and Lateral. Her radiograph revealed soft tissue swelling on medial aspect of proximal tibia with early changes of degenerative arthritis (Fig. 2). She was then referred for

ultrasonography of knee. On HRUS knee there was loculated collection with ill-defined margins, internal echoes and septations on anteromedial aspect of knee between medial collateral ligament and anserine tendons measuring approximately 32x8mm. Her medial meniscus was normal in position with homogenous echo pattern (Fig. 3,4). There was mild free fluid in medial recess and decreased in thickness of trochlear cartilage on medial aspect. There was no free fluid in pre, supra or infra-patellar bursa. On basis of HRUS findings diagnosis of early osteoarthritis with pes anserinus bursitis was made.

DISCUSSION

Pes anserinus ("goose's foot" in Latin) is the anatomic term used to identify the insertion of the conjoined medial knee tendons into the anteromedial proximal tibia; the name derives from the conjoined tendon's webbed, footlike structure (Fig. 5, 6). From anterior to posterior, the pes anserinus comprises the tendons of the sartorius, gracilis, and semitendinosus muscles. It lies superficial to the distal tibial insertion of the superficial medial collateral ligament (MCL) of the knee. Pes anserinus (anserine) bursa is located on proximomedial aspect of tibia between superficial medial (tibial) collateral ligament and hamstring tendons (i.e., sartorius, gracilis, and semitendinosus) [2]. This bursa serves as potential space where motion occurs between these hamstring tendons and underlying superficial tibial collateral ligament. For various reasons such as injury or contusion, the synovial cells in the lining of the bursa may secrete more fluid, and the bursa may become inflamed and painful.



Fig. 1: 52yrs old female with swelling on anteromedial aspect of proximal leg



Fig. 2: Radiograph Knee-A.P.and Lateral view showing soft tissue swelling medial aspect of proximal tibia(arrow) with normal underlying bone.

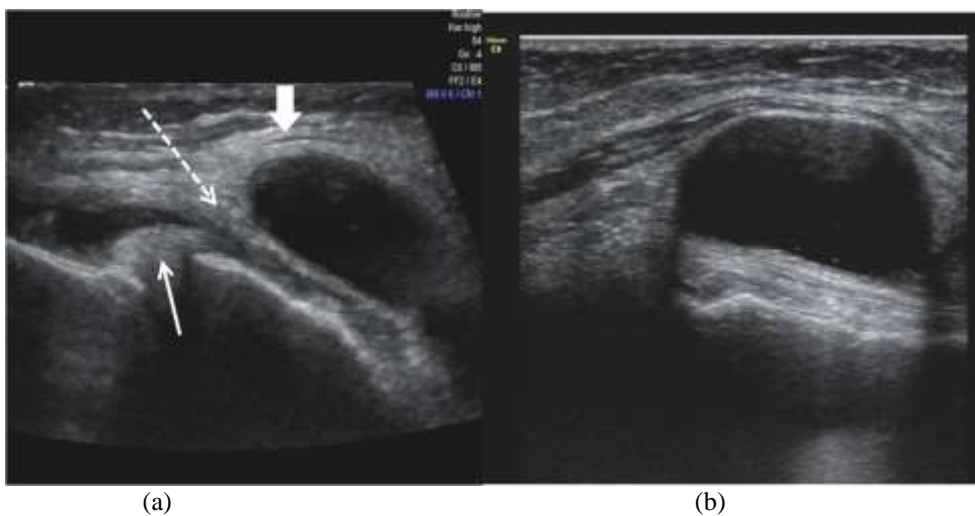


Fig.3(a & b): Longitudinal HRUS images anteromedial aspect of proximal tibia showing loculated collection in pesanserinus bursa, between medial collateral ligament(dashed arrow) and anserine tendons(arrowhead).Note normal medial meniscus(arrow).

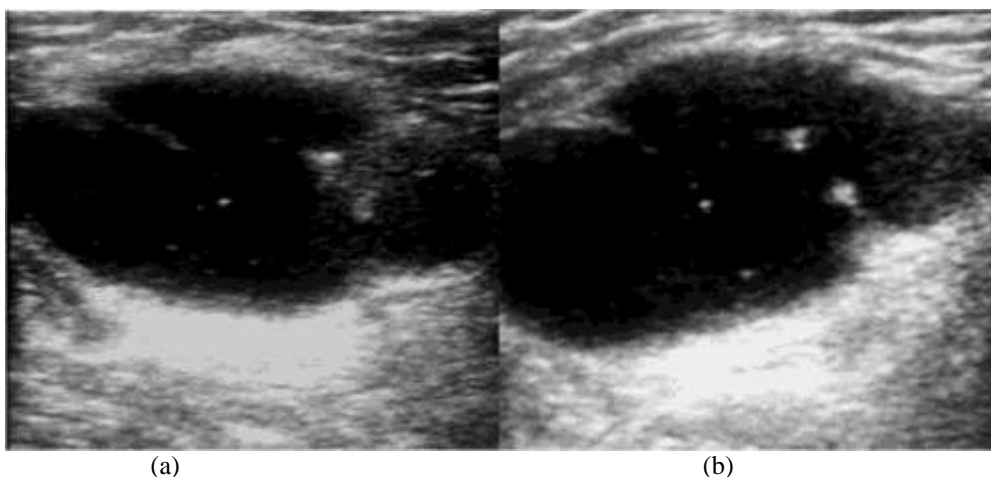


Fig.4(a & b):Longitudinal,magnified HRUS images of per anserinus bursitis demonstrating irregular margins with internal echoes and septations.

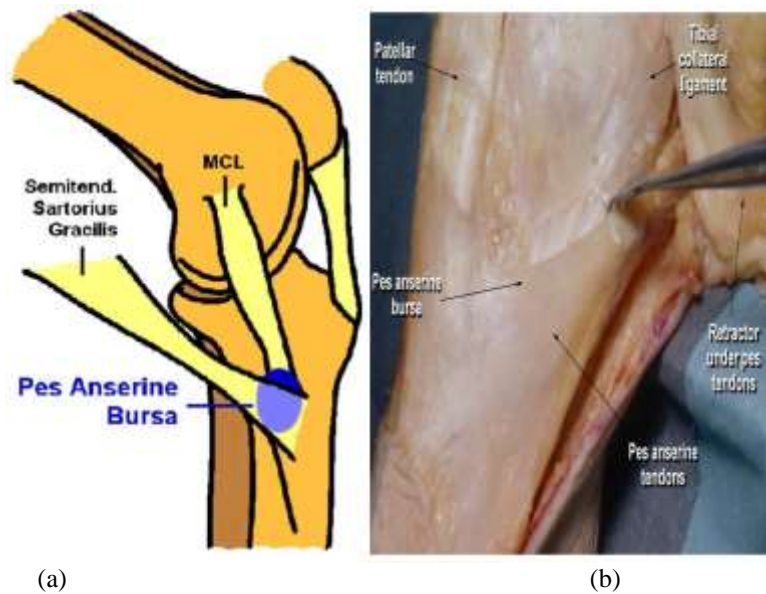


Fig.5(a & b):Schematic and Anatomical representation of pes anserine bursa between distal insertion of medial collateral ligament and pes anserine tendons.

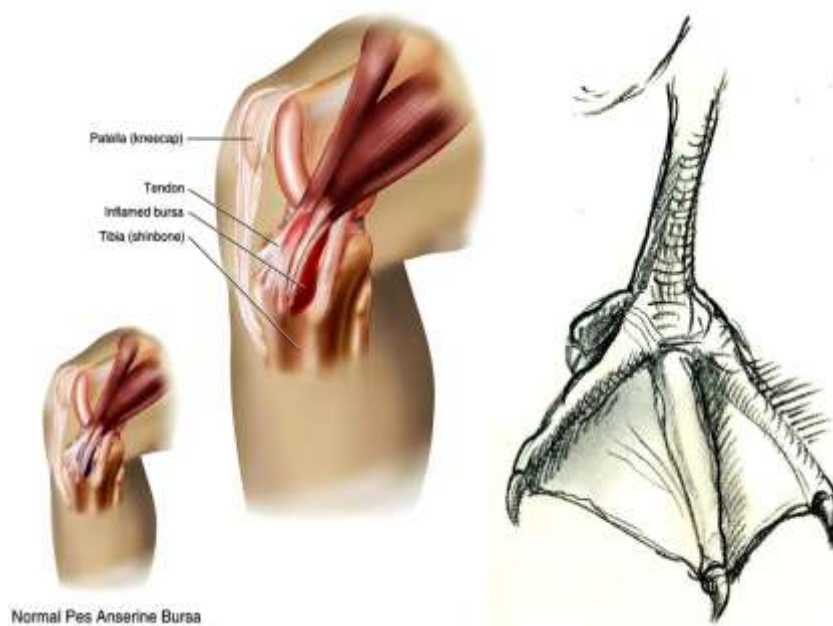


Fig.6: Diagrammatic representation of Pes anserinus (“goose’s foot” in Latin);the name derives from the conjoined tendon’s webbed, foot like structure.

The incidence of Pes anserinus bursitis (also referred to as anserine or pes anserine bursitis) appears to be higher among obese, middle-aged women. Among older individuals with arthritis, a slight preponderance of females over males is also noted. The prevalence of anserine bursitis in women may result from the broader female pelvis and the greater angulation of women’s legs at the knees, which place additional stresses on these structures [3, 4]. No racial predilection for pes anserine bursitis is reported in the literature. Pes anserine bursitis can result from acute trauma to the

medial knee, athletic overuse, or chronic mechanical and degenerative processes. This condition should not be overlooked when the diagnosis of osteoarthritis of the knee is made, because the 2 are commonly associated [5, 6]. As many as 75% of patients with degenerative knee joint disease may have symptoms of pes anserine bursitis. Obesity, valgus knee deformity [4], pes planus may predispose patients to pes anserine bursitis. Pes anserinus bursitis is also been reported associated with type 2 diabetes [7]. Pes anserine bursitis also has been reported in swimmers; accordingly, the

condition occasionally is called breaststroker's knee, although this term usually refers to medial collateral ligament (MCL) strains. Coexisting MCL pathology may be present among athletes or other individuals with pes anserine bursitis. Our patient was a housewife, normal built, non-diabetic with clinical and radiological features of osteoarthritis.

Typical findings in patients with pes anserine bursitis may include pain and tenderness over the inner knee, this may occur with arising from a seated position, at night, or with ascending (or, possibly, descending) stairs. Local swelling may be present [8], as in our case. The hallmark physical finding in pes anserine bursitis is pain over the proximal medial tibia at the insertion of the conjoined tendons of the pes anserinus, approximately 5-7 cm below the anteromedial joint margin of the knee [9].

On HRUS pes anserine bursitis appears as an oblong multiloculated fluid collection seen on the anteromedial aspect of the knee between medial collateral ligament and anserine tendons, as in our case. Several ultrasonographic parameters are used to evaluate periarticular cystic masses, such as echogenicity, margins, morphology, composition, size, vascularity, and other specific patterns. Uson *et al.* [10] undertook an ultrasonographic analysis of 37 female patients with suspected anserine bursitis or tendinitis, they analyzed: the thickness of the insertion of the pes anserinus; intratendinous morphological characteristics; the presence of fluid collection greater than 2 mm in the bursa; and changes in the subcutaneous fat of the medial aspect of the knee.

Differentiation from other cystic peri-articular masses such as physiological increase of the bursa and recesses, pathological cysts (meniscal and ganglion cysts), as well as benign and malignant soft tissue masses that simulate cystscan reliably be made on HRUS. These lesions can result in symptom overlap or suggest internal knee derangement [3].

Semimembranosus bursitis, also called semimembranosus-tibial collateral ligament bursitis, is located within the superficial and deep layers of the medial collateral ligament, and involves the anterosuperior margin of the semimembranosus tendon. It can easily be differentiated from pes anserine bursitis by its typical location.

Baker's cyst, also known as popliteal cyst or gastrocnemius-semimembranosus recess, extends between the medial head of the gastrocnemius and semimembranosus muscles. On HRUS Baker cyst typically appears as an anechoic mass with posterior enhancement and sharply defined margins, especially in the posterior wall. Its peculiar anatomical position helps to differentiate it from other periarticular cystic lesions of the knee [11].

Meniscal cyst, also known as cyst of the semilunar fibrocartilage, originates from parameniscal soft tissue and results from extrusion of fluid from a meniscal fissure/laceration. HRUS is highly sensitive and will show the cystic nature of the lesion. It may also demonstrate the associated meniscal tear [12].

The intra-articular synovial cyst (ganglion) can originate in the articular capsule, a ligament, a synovial tendon sheath, or bursa. The vast majority are anechoic to hypo-echoic on ultrasound and well defined. Many may demonstrate presence of locules as well as acoustic enhancement [13].

Varix is a focal dilatation of the venous system that commonly presents as an echo-free or heterogeneous hypoechogenicity, with well-defined margins, ovoid contour, cystic inner content, moderate size, moderate vascularity or thrombus on colour Doppler, and turbulent flow pattern. The sacular cystic structure should connect to the vessel during tracing [11].

Malignant tumors that are detected more commonly adjacent to the knee include fibrous histiocytoma, liposarcoma, and synovial sarcoma. They might contain areas of necrosis or myxoid degeneration and, therefore, possibly simulate a cyst. Those tumors typically have heterogeneous soft tissue components with increased flow on Doppler. The margins of those tumors can be irregular and indicate the presence of infiltration of adjacent tissues.

CONCLUSION

Pes anserinus bursitis appears to be higher among obese, middle-aged women and in older individuals with arthritis. The hallmark physical finding in pes anserine bursitis is pain over the proximal medial tibia at the insertion of the conjoined tendons of the pes anserinus. HRUS is an accurate imaging technique for the detection of pes anserinus bursitis and for differentiating them from other cystic and solid masses at the knee joint, thereby avoiding unnecessary surgical intervention. High resolution ultrasonography enables differential diagnosis of bursitis from ganglion, meniscal cyst, hemangioma, lipoma, Baker cyst, epidermoid cyst, tenosynovitis, hematoma, abscess, and pseudoaneurysm.

REFERENCES

1. Pes Anserinus bursitis. Available from <http://kneespecialistsurgeon.com/article.asp?article=25>
2. Reed J; Medscape: Pes Anserine Bursitis. Mike George Fitness System, 2012; Available from <https://mikegeorgeinc.zendesk.com/entries/25517428-Medscape-Pes-Anserine-Bursitis>

3. Helfenstein M Jr, Kuromoto J; Anserine syndrome. *Rev Bras Reumatol.*, 2010; 50(3): 313-327.
4. Alvarez-Nemegyei J, Canoso JJ; Evidence-Based Soft Tissue Rheumatology IV: Anserine Bursitis. *J Clin Rheumatol.*, 2004; 10(4): 205-206.
5. Kang I, Han SW; Anserine bursitis in patients with osteoarthritis of the knee. *South Med J.*, 2000; 93(2): 207-209.
6. Brookler MI, Mongan ES; Anserine bursitis, a treatable cause of knee pain in patients with degenerative arthritis. *California Medicine*, 1973; 119(1): 8-10.
7. Cohen SE, Mahul O, Meir R, Rubinow A; Anserine bursitis and non-insulin dependent diabetes mellitus. *J Rheumatol.*, 1997; 24(11): 2162-2165.
8. Biundo JJ; Regional rheumatic pain syndromes. In Schumacher HR editor; *Primer on the rheumatic diseases 11th edition*, Atlanta (GI): Arthritis Foundation, 1997: 144.
9. Handy JR; Anserine bursitis: A brief review. *South Med J.*, 1997; 90(4): 376-377.
10. Uson J, Aguado P, Bernad M, Mayordomo L, Naredo E, Balsa A et al.; Pes anserinus tendino-bursitis: what are we talking about? *Scand J Rheumatol.*, 2000; 29(3): 184-186.
11. Chiou HJ, Chou YH, Wang HK; High-resolution Ultrasonography in Superficial Soft Tissue Tumors. *J Med Ultrasound*, 2007; 15(3): 152-174.
12. Rutten MJ, Collins JM, van Kampen A, Jager GJ; Meniscal Cysts: Detection with High-Resolution Sonography. *Am J Roentgenol.*, 1998; 171: 491-494.
13. Teefey SA, Dahiya N, Middleton WD, Gelberman RH, Boyer MI; Ganglia of the hand and wrist: a sonographic analysis. *Am J Roentgenol.*, 2008; 191(3):716-720.