Original Article

Pes Anserinus Syndrome, Exploring Factors that Might Increase its Occurrence: Cross-Sectional Descriptive Study

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ABSTRACT

Objective: To explore and determined conditions that might be associated with increasing incidence of Pes anserine syndrome.

Study Design: Cross sectional descriptive study

Place and Duration of Study: This study was conducted at the Orthopedic Surgeons, Department of Surgery, Iraqia Medical School, Iraq from 1st August 2023 to 31st October 2025.

Methods: 108 patients diagnosed with Pes anserine syndrome based on clinical and ultrasonigraphic findings, the patients having a carful detailed history and examination in addition and age range 22-71 years were enrolled. Osteoarthritis grade has been graded centered upon the radiographic classification of the Kellgren-Lawrence classification knee.

Results: There were 25 (23.2%) males and 83 (76.8%) females with average age was 45.0±13.4 years for males, of them 16 (64%) were more than 40 years old, and 54±9.6 years for females, 69(86%) being more than 40 years old. 62 (58%) had history of primary osteoarthritis, 67% of them (42 patients) with the Kellgren-Lawrence classification of III or more. 41 (38%) patients were diabetics.73 (68%) patients had body mass index of more than 25. (26%) patients had a positive immunoglobulin M level in their blood, only 7of them with concomitant osteoarthritis. 13% patients had history of surgery of less than 3 month. 9% patients had recent history (<1 month) of corticosteroids knee intra-articular injections, 8 patients for knee osteoarthritis and one for a recent knee trauma.

Conclusion: Because the contributing factors for Pes anserine syndrome has yet to be clarified and in order to ensure adequate treatment.

Key Words: Pes anserinus syndrome, Effect, Factors, Occurrence

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INTRODUCTION

Pes anserine syndrome (PAS) is a common soft tissue pain syndrome of the knee and induces pain in knee and subsequently affects the patient's quality of life with OA.[1,2] The conjoined tendons of the gracilis, sartorius and semitendinosus constitute the pes anserine tendon which attaches to the anteromedial proximal tibia 5 cm distal from the medial tibial joint line.

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Pes bursa anserine is located deep to the pes anserinus tendon and medial collateral ligament.[3] These muscles are predominantly primary flexors of the knee with secondary internal rotation of the tibia, providing a varus and rotational conservation for the knee.[4] The anserine bursa is one of 13 bursae situated around the knee, located just beneath the pes anserinus.

Pathological processes which affect the PA, especially pes anserine bursitis (PAB), are frequent causes of medially-located knee ache. PAB consists of inflammation of bursa around the PA tendons and the medial collateral ligament.[5] The name "tendinopathy" now embraces entire conditions where there are chronic clinical conditions that are associated to the presence of pain, swelling and functional limitation, affecting tendons along with adjacent structures.[6,7] In particular age, sex-gender and body mass are important un-amendable factors while inappropriate too much loading disuse, drugs and smoking have been considered highly modifiable factors.[80] Even if the term "tendinitis" is usually linked to the concept of tendinopathy, in recent years it has been demonstrated

that inflammation plays a key role only during the early phases of the illness, whereas degenerating and apoptotic phenomena were prevalent several times due to chronic overuse condition correlates with work and/or sports.[7,9]

The adjacent nature of the tendon and bursa also causes separation of PAT from PAB to be challenging on physical exam. A clear differentiation between PAB and PA tendinopathy (PAT) is difficult and the proposed treatment of the studies in present literature is similar for both entities. Furthermore, the pain-related structures in PA area are still not clearly identified: here are some doubts on when say that the PA is an effectively chronic degenerative or inflammatory bursitis and/or tendinopathy.[10] Therefore, it may be more appropriate simply to refer to this entity as “pes anserinus syndrome” rather than PAB or PAT.

There is a history of repetitive mechanical stress or trauma to the Pes anserinus bursa in most cases. If the hamstrings are tight, they help create added tension on the bursa which causes direct mechanical and frictional irritation. Physical trauma or infection may be a triggering factor for the inflammation.[11] The disease entity is also often linked with other knee pathologies, including Osgood-Schlatter's disease, suprapatellar plical irritation and medial compartment or patellofemoral arthritis that can lead to hamstring spasm.[12] Obesity and valgus deformity of the knee (which particularly affects middle-aged women) add to the risk.[13]

Flat feet (pes planus) also place patients at risk for developing bilateral pes anserine bursitis secondary to abnormal lower extremity alignment causing an increase in medial dictating pressure on the knee. Local trauma, bony exostosis and tendon tightness are also contributing factors.[14] Bio-psycho-social elements lead to pes anserine bursitis development.[15] Mechanical problems of the knee, obesity and athletic activities with high degree of lateral move as basketball and racquet sports are major causes.[16]

The disease also frequently occurs in persons with early-stage medial knee osteoarthritis and in a large proportion of persons with diabetes mellitus. Pes anserine bursitis was observed in 34 of these patients. A marked gender gap was also apparent with 91% of cases being females and 9% males. In contrast, bursitis did not develop in any of the control patients without diabetes.

Meniscal lesions are more frequently found in OA, could possibly contribute to pain generation of the advantageous medial sensitive area of the knee[17] and should be ruled out by good differential diagnosis from other pathologies that can mimic PAS. One of the underestimated possible causes of PAS is viral infection especially after COVID pandemic as many researches had identified musculoskeletal sequelae associated with this disease which prompt the need to be considered for PAS causation.[18]

METHODS

This cross sectional descriptive was conducted at Orthopedic Surgeons, Department of Surgery, Iraqia Medical School, Iraq from 1st August 2023 to 31st October 2025 vide letter No. 1332 dated 6-3-2023 and 108 patients diagnosed with PAS based on clinical and ultrasonigraphic findings were enrolled. Although clinical examination is simple, the use of ultrasonography as a supplemental diagnostic measure has previously been advocated.[19] Patients with neuromuscular diseases, malignancy, stroke and rheumatoid disease were excluded.

After having informed consent, all affected were having a carful detailed history and examination in addition all were sent for blood test of CBC (complete & differential blood count) plus ESR, CRP and IgM assessment for a recent viral infection. Osteoarthritis grade has been graded centered upon the radiographic taxonomy of the Kellgren-Lawrence classification knee.[20] The findings were noted down along with the demographic data (gender and age) and body mass index of the case persons in the list of gathering data. The data was entered and analyzed through SPSS-20.

RESULTS

There were 25 (23.2%) males and 83 (76.8%) females with average age was 45±13.4 years for male, of them 16 (64%) were more than 40 years old, and 54±9.6 years for female, of them 69(86%) being more than 40 years old (Table 1).

Sixty (57.4%) patients had history of primary OA, 67% of them (42 patients) with The Kellgren-Lawrence classification of III or more (Table 2).

Forty one (37.9%) patients were diabetics, 73 (67.6%) patients had BMI of more than 25.

Table No. 1: Demographic information of the patients (n=108)

Variable	No.	%
Gender		
Male	25	23.2
Female	83	76.8
Age (years)		
22-40	39	36.1
41-72	69	63.9

Table No. 2: History of primary osteoarthritis

Variable	No.	%
Osteoarthritis	60	57.4
\Kellgren-Lawrence classification of III or more	42	67.0

Twenty eight (25.9%) patients had a positive IgM level in their blood, only 7of them with concomitant OA.

Fourteen (12.9%) patients had history of surgery of less than 3 month, 12 patients underwent total knee replacement, one ACL reconstruction with gracillis tendon grafting and one for corrective mal-united proximal-tibial fracture.

Nine (8.4%) patients had recent history (<1 month) of corticosteroids knee intra-articular injections, 8 patients for knee OA and one for a recent knee trauma. One patient was teenager (15 years old) involved in runner sport activity.

DISCUSSION

Despite being common however, this entity is commonly overlooked. The exact incidence is unknown. In a study, 600 patients attending an outpatient clinic, the diagnosis of "soft tissue rheumatism" was given to 108; with 43 had anserine bursitis.[21] Average mean age of the total study population was 51.9± 11.37. The average age is in the range of previously reported by Helfenstein & Kuromoto[22] was 55.6, and Uysal et al[23] was 58.9±9 hence being in a middle age could be considered the most ummodifiable risk factor for having PAS.

Nevertheless, it is more frequent that anserine bursitis/tendinitis syndrome occurs in obese women with osteoarthritis of the knee.[24] This discrepancy could be explained by being a consequence of the fact that females have slightly wider pelvis and the knee is angled more, causing greater pressure on the area of attachment of pes anserinus and this finding also been observed in our study.

Regarding OA, a recent study included 245 patients with osteoarthritis attending the clinic complaining from knee pain. On the basis of clinical features and sonographic scan, 175 cases (71.4%) suffered from true diagnosis of pes anserine bursitis. Bursitis was bilateral in 72 cases (41.1%). Right bursitis was observed in 28 patients (16%) and left bursitis in 75 patients (42.8%)[25], another study of Kang et al[26] was 46.8%, which our findings of 68% of patients in the study had history of OA is agreed with and it is relatively more common with increasing OA grade.

Metabolic comorbidities including diabetes mellitus, in some cross-sectional studies type-II DM has been found to be linked with PAS when contrasted with a non-diabetic persons.[27] The observed relation of PAS to BMI in our findings was been also documented as there was a significant relationship with high BMI and the rate of anserine bursitis.[25]

The fact that PAS could be due to viral event is neither been well established nor well estimated with lack of studies focusing on this issue especially after the evolution of COVID and post COVID era, so it may be acceptable for us as physicians to pay a little attention to that issue if we were evaluating any inflammatory musculoskeletal condition.[18] The findings of Increased IgM level in 26 patients with PAS call attention about role of viral infection as a causative factor. In a literature review, pro-inflammatory cytokines that induce by viruses may cause tendon pain and impair physiological responses of tenocytes, influencing matrix remodeling and degenerative progress in tendinopathy.[28] Although seven of them already have OA which may contributes to the presence of PAS which may be biased on estimating it rather it is not a rule to find an elevated IgM in patients having PAS with OA, so it is reasonable to consider it in the check process.

The findings of 17% of patients with PAS had history of recent steroid knee intra-articular injection, most of them within first 1-2 weeks after injection, was very interesting and we think that it was not been mentioned before, and although almost all of them having KOA which could be the main factor in PAS occurrence but it looks like that an aggravating factors may contributes to this. After a long period of restricted motion duo to the knee pain, with rapid knee pain relief, patients regain motion, so an abrupt physical activity may cause unusual mechanical load on pes anserinus tendon; because of limited or cautious motion before injection, a biomechanical knee factors, like hidden knee instability would be apparent after rapid pain relief as the patients start motion leading to PAS occurrence.[29] These findings may indicate that such individuals should get the proper rehabilitation in order to prevent this kind of occurrence.

History of surgical intervention around the knee has been found in 13% of patients with PAS, most of them were underwent TKA which has been reported and the incidence was found to be 5.6%[30], a need for appropriate rehabilitation regime can yield favorable outcomes. Although rare, PAS has been reported in pediatrics as a cause of knee pain but with no actual data about incidence or prevalence.[31]

CONCLUSION

Because the contributing factors for PAS, and in order to ensure adequate treatment on the understanding front, it is important to further assessment of underlying factors like age, sex, presence of osteoarthritis and body mass index with paying more attention to the role of viral event, effect of rapid of pain relief of knee osteoarthritis and surgeries in & around the knee as a causative factors of Pes anserine syndrome for better and adequate therapy and prevention of recurrence.

Author's Contribution:

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REFERENCES

1. Saggini R, Di Stefano A, Dodaj I, Scarcello L, Bellomo RG. Pes anserine bursitis in symptomatic osteoarthritis patients: A mesotherapy treatment study. J Alterna Complement Med 2015;21(8):480-84.
2. Kang I, Han SW. Anserine bursitis in patients with osteoarthritis of the knee. South Med J 2000; 93(2): 207-9.
3. Watt I. Arthrosis - -a single or many diseases? Radiologe 2000;40(12):1134-40.
4. Nemegyei A, Jose MD, Canoso JJ. Evidence-Based Soft Tissue Rheumatology IV: Anserine bursitis. J Clin Rheumatol 2004; 10:205-6.
5. Allen MF, Allen DE. Pes Anserinus bursitis: a case report. Cureus 2022;14(11):e31354.
6. Loiacono C, Palermi S, Massa B, et al. Tendinopathy: pathophysiology, therapeutic options, and role of nutraceutics. a narrative literature review. Medicina (Mex) 2019;55(8):447.
7. Tarantino D, Mottola R, Resta G, et al. Achilles tendinopathy pathogenesis and management: a narrative review. Int J Environ Res Public Health 2023;20(17):6681.
8. Pellegrino R, Di Iorio A, Filoni S, et al. Radial or focal extracorporeal shock wave therapy in lateral elbow tendinopathy: a real-life retrospective study. Int J Environmen Res Public Health 2023; 20(5):4371.
9. Demeco A, de Sire A, Marotta N, et al. Effectiveness of rehabilitation through kinematic analysis of upper limb functioning in wheelchair basketball athletes: a pilot study. Appl Sci 2022; 12(6):2929.
10. Gnanadesigan N, Smith RL. Knee pain: osteoarthritis or anserine bursitis? J Am Med Directors Assoc 2003;4(3):164-6.
11. Huang TW, Wang CJ, Huang SC. Polyethylene-induced pes anserinus bursitis mimicking an infected total knee arthroplasty: a case report and review of the literature. J Arthroplasty 2003;18(3):383-6.
12. Tiwari V, Sampath Kumar V, Poudel RR, et al. Pes Anserinus bursitis due to tibial spurs in children. Cureus 2017;9(7):e1427.
13. Mohseni M, Mabrouk A, Li D. Pes Anserine Bursitis 2024. Treasure Island (FL): StatPearls Publishing; 2026, 48.
14. Colak C, Ilaslan H, Sundaram M. Bony changes of the tibia secondary to pes anserine bursitis mimicking neoplasm. Skeletal Radiol 2019;48(11):1795-1801.
15. Huang TW, Wang CJ, Huang SC. Polyethylene-induced pes anserinus bursitis mimicking an infected total knee arthroplasty: a case report and review of the literature. J Arthroplasty 2003; 18(3): 383-6.
16. Behnisch-Gärtner CM, Berger N. Chronische Chronic knee pain in children and adolescents: review of anatomical and overload-related knee pain. Orthopade 2014;43(8):758-63.
17. Valley VT, Shermer CD. Use of musculoskeletal ultrasonography in the diagnosis of pes anserine tendinitis: a case report. J Emerg Med 2001;20(1):43-5.
18. Plaut S. Long COVID-19 and viral fibromyalgia-ness: suggesting a mechanistic role for fascial myofibroblasts (Nineveh, the shadow is in the fascia). Front Med 2023; 10:952278.
19. Toktas H, Dundar U, Adar S, et al. Ultrasonographic assessment of pes anserinus tendon and pes anserinus tendinitis bursitis syndrome in patients with knee osteoarthritis. Modern Rheumatol 2015;25(1):128-33.
20. Thomas J. Schnitzer A. Osteoarthritis. In Goldman, Ausell, Cecil text book of medicine. 22nd ed. Saunders 2004:170-711.
21. Huie G. Diagnosing bursitis in the knee. JAAPA 2002;15(6):14-6.
22. Helfenstein Jr M, Kuromoto J. Anserine syndrome. Revis Brasil Reumatol 2010;50(3):s313-27
23. Uysal F, Akbal A, Gökmen F, Adam G, Reşorlu M. Prevalence of pes anserine bursitis in symptomatic osteoarthritis patients: an ultrasonographic prospective study. Clin Rheumatol 2015;34(3):529-33
24. Nemegyei A, Jose MD, Canoso JJ. Evidence-based soft tissue rheumatology IV: anserine bursitis. J Clin Rheumatol 2004; 10:205-6.
25. Mohammadi-Kebar Y, Azami A, Rezaei-Bana S. Frequency of pes anserine bursitis in patients with knee osteoarthritis. Int J Res Med Sci 2023;11: 3987-92.
26. Kang I, Han SW. Anserine bursitis in patients with osteoarthritis of the knee. South Med J 2000; 93(2): 207-9.

27. Unlu Z, Ozmen B, Tarhan S, et al. Ultrasonographic evaluation of pes anserinustendino-bursitis in patients with type 2 diabetes mellitus. J Rheumatol 2003;30(2): 352-4.
28. Millar NL, Akbar M, Campbell AL, Reilly JH, Kerr SC, McLean M, et al. IL-17A mediates inflammatory and tissue remodelling events in early human tendinopathy. Sci Rep 2016;6:27149.
29. Barclay C, Springgay G, van Beek EJ, Rolf CG. Medial collateral ligament bursitis in a 12-year-old girl. Arthroscopy 2005;21(6):759.
30. Algarni AD. Pes anserinus pain syndrome following total knee arthroplasty for degenerative varus: incidence and predictors. Int Orthop (SICOT) 2020; 44: 1083-9.
31. Coleman N. Common pediatric knee injuries: Best practices in evaluation and management. 1st Ed. Philadelphia: Springer 2021; 63-8.