

Synovial Cyst Of The Foot Containing Rice Bodies - A Case Report

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Abstract

Synovial cysts are benign, fluid filled lesions arising from joint capsules, bursae or tendon sheaths. They are most commonly reported around the wrist and knee, but involvement of the foot is rare. The rice bodies are small proteinaceous bodies mostly contains fibrin and collagen that forms within joint spaces due to chronic inflammation. The presence of rice bodies within the synovial cyst is an exceptional finding. This case report reviews a 42 year old female with synovial cyst of the foot containing rice bodies

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I. Introduction:

Rice bodies were first described in association with tuberculous arthritis and later reported with rheumatoid arthritis and other chronic synovitis. They are thought to form either by synovial micro-infarction with fibrin deposition or by metaplastic change of synovium leading to free intra-articular or peri-articular nodules. Although shoulder and knee are the common sites, rice bodies have been identified in tendon sheaths, bursae, and rare periarticular cysts including those in the pelvic region and ankle/foot. Awareness of this entity is important because imaging and clinical presentation can mimic ganglion, synovial chondromatosis, or other nonspecific chronic inflammatory conditions. MRI is the preferred imaging modality to define the lesion and its relationship to joint/tendon sheaths

II. Case Presentation:

A 42 year old female, presented with complaints of swelling in the right foot for 4 months. Patient was apparently asymptomatic 4 months back after which she developed right foot swelling which was insidious in onset and gradually progressive in nature to attained current size. Associated with pain which was intermittent in nature and pricking type. Aggravated on standing and walking, relieved on taking rest. No history of trauma, fever, discharge from the swelling. No history of swelling elsewhere in the body. No known co-morbidities with no significant past history. Consumes mixed diet, no loss of appetite, nil significant family history. On examination, patient was conscious, oriented and vitals were stable. On examination, a swelling of size 4x4cm over the medial aspect of right foot 2cm from the medial malleolus. Skin over the swelling appears normal. No warmth and non-tender. Cystic in consistency. Fluctuation present. Inversion of right ankle restricted. Peripheral sensation intact and peripheral pulses felt.



Figure (1) shows swelling over medial aspect of right foot.

Routine blood investigations were normal. Xray right foot taken. USG right foot showed a thick walled encapsulated heterogeneously hypoechoic solid cystic lesion in the medial aspect of right foot.



Fig. (2) Xray right foot and Fig. (3) Ultrasound imaging of right foot shows cystic swelling lined by soft tissue. Fig. (4) MRI right foot coronal T1-WI (on left) and T2-WI (on right) shows synovial cyst with multiple loose bodies.

MRI right foot showed 4.3x2.4x3.3cm well defined thick-walled cystic lesion with T2 hypointense numerous intra-cystic contents (loose bodies/ rice bodies) in soft tissue plane with no evidence of bone destruction.

Management:

Patient underwent elective open excision under regional anaesthesia. The Excised specimen sent for biopsy, aerobic culture and PCR for mycobacteria.



Fig. (5) Intraoperative pictures depicts the excision of clover shaped synovial cyst

The histopathological study of excised specimen showed a central amorphous fibrinoid core with surrounding collagenous tissue and occasional synovial cell covering. The synovial tissue showed chronic inflammatory changes without granulomas or atypia. Bacterial cultures and mycobacterial cultures remained negative; PCR for Mycobacterium tuberculosis complex was negative. Findings were consistent with chronic non-specific synovitis with rice body formation. Postoperative recovery was uneventful. The patient received a short course of analgesia and was mobilized with protected weight bearing. At 6 month follow-up the patient remained asymptomatic with no clinical recurrence and preserved foot function.

III. Discussion:

Rice bodies were initially described in tuberculous arthritis but are now recognized in rheumatoid arthritis, seronegative arthritis, and idiopathic synovitis. Their exact pathogenesis remains debated, with two leading hypotheses: A) Origin from synovial microinfarcts, leading to fibrin deposition and detachment. B) Metaplastic proliferation of synovium, forming cartilaginous nodules that later detach.

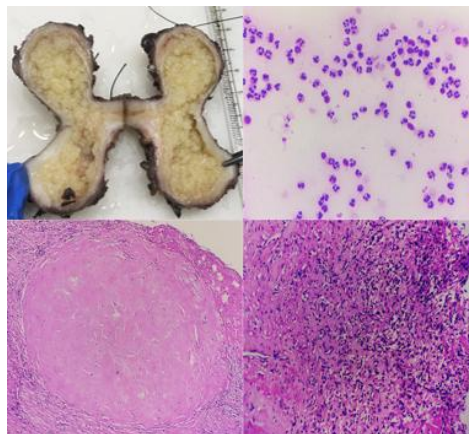


Fig. (6) shows gross and histological images of synovial cyst

The clinical presentation is often nonspecific, mimicking ganglion cysts, pigmented villonodular synovitis, or synovial chondromatosis. Imaging, particularly MRI, plays a key role in diagnosis, while histopathology confirms the nature of rice bodies and rules out neoplastic or infective causes. Management involves complete surgical excision of the cyst and rice bodies. In cases associated with systemic disease such as rheumatoid arthritis or tuberculosis, disease-specific therapy is essential to prevent recurrence.

IV. Conclusion:

Synovial cysts of the foot containing rice bodies are exceedingly rare. Awareness of this entity is important to avoid misdiagnosis and ensure appropriate treatment. Surgical excision combined with histopathological confirmation remains the gold standard for diagnosis and management, with excellent outcomes and low recurrence rates when underlying systemic disease is excluded or treated.

References:

- [1]. Bian J, Liu Y, Tian K, Zheng H, Yuan L, Zhao X, Zhang Y, Wang G. Hip Joint Rice Body Bursitis Combined With Hip Dysplasia And Pelvic Fracture: A Case Report. *BMC Musculoskelet Disord*. 2024;25:831. Biomed Central
- [2]. Zhao H, Zhang W, Zhang P, Li H, Wang J. A Case Of Rice Body Synovitis Of The Knee Joint. *Orthop Surg*. 2022 Mar;14(3):628–632. Doi:10.1111/Os.13195. PMID: PMC8926980. Pubmed+1
- [3]. Tian Y, Zhou HB, Yi K, Wang KJ. Idiopathic Tenosynovitis Of The Wrist With Multiple Rice Bodies: A Case Report And Review Of Literature. *World J Clin Cases*. 2022;10(32):11908–11920. PMID: PMC9669876. PMC+1
- [4]. Rice Bodies — Case Report And Review (Ankle/Foot). *The Foot And Ankle Online Journal (FAOJ)*. (Case And Images Of Rice Bodies In Ankle/Tendon Sheath). Available From FAOJ Case Collection. Faoj.Org
- [5]. Tschandl C, Kim M, Et Al. Mycobacterium Tuberculosis-Induced Multiple Tenosynovial Masses (Rice Bodies): Case Report And Review. *Clin Case Rep*. 2023;11:E8228. (Example Of Infectious Rice-Body Tenosynovitis; Highlights Need For Microbiologic Testing And Tailored Therapy). Wiley Online Library+1
- [6]. Edison MN, Caram A, Flores M, Scherer K. Rice Body Formation Within A Peri-Articular Shoulder Mass. *Cureus*. 2016;8(8):E718. (Illustrative Peri-Articular Rice-Body Case And Discussion) Biomedcentral