CASE REPORT

# Necrotising sarcoid granulomatosis—A covert disease in mycobacterial infection-endemic area: A case report

Maham Sultan[1], Javaria Ahmad[2], Muhammad Arslan[3]

## Abstract

Sarcoidosis is a multisystem illness with an unclear aetiology. The characteristic feature is non-necrotising granulomas in various organs. Rarely, sarcoidosis can present as a case of necrotising granulomas. The objective of this report is to highlight this unusual manifestation of the disease. This report presents the case of a 62-year-old male with a confirmed diagnosis of sarcoidosis. The patient presented with prolonged history of fever without obvious aetiology; anti-tuberculous therapy did not prove helpful. Imaging revealed nodular infiltrations in the liver, spleen, and bone marrow. Upon biopsy histological features were consistent with necrotising granulomatous inflammation. Treatment was started with corticosteroids and the patient's condition began to improve. The patient is currently recovering and is on follow-up. Early diagnosis and treatment of sarcoidosis is crucial for better prognosis. This case highlights the need to consider sarcoidosis in the differential diagnosis of fever of unknown origin and necrotising granulomatous inflammation involving multiple organs.

**Keywords:** Fever of unknown origin, Granuloma, Sarcoidosis.

**DOI: https://doi.org/10.47391/JPMA.22650**

## Introduction

Sarcoidosis is an autoimmune disease with 90% of the patients presenting with intrathoracic involvement with symmetrical bilateral hilar adenopathy, diffuse pulmonary micronodules, usually distributed along the lymphatic system. Extra-pulmonary manifestations, including skin lesions, inflammation of the liver or spleen, uveitis, peripheral arthritis, peripheral and abdominal lymphadenopathy, occur in 20-25% of patients.[1] Development of non-caseating granulomas is a characteristic feature of sarcoidosis.[2] Although rare, some patients may present with sarcoidosis with necrotising granulomatous inflammation,[3] which can create a tricky situation for establishing diagnosis. Fever of unknown origin is also an uncommon feature of sarcoidosis.[4] In this report, we present an unusual case of sarcoidosis with fever of unknown origin, along with necrotising granulomas in liver, spleen, and bone marrow which was revealed upon biopsy. This study aims to contribute towards the limited literature available on this unusual presentation.

## Case report

The patient, a 62-year-old Asian male who is a known case of diabetes mellitus, presented to the outpatient department (OPD) of Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore, on June 8, 2023 with history of prolonged fever, on and off since the last two years. He had been previously treated in another hospital, with four drug regimen of Anti-tuberculosis therapy (ATT) twice during the past two-years.

To rule out other causes of this fever of unknown origin, several laboratory tests and imaging exams were undertaken. CT of the chest abdomen pelvis (CAP) was done, on which bone infiltrates (Figure 1) and diffuse heterogeneity of trabecular pattern of the spine was seen. This required further evaluation with MRI. MRI of the pelvis revealed multiple osseous metastatic deposits. CT revealed hepatosplenic nodules (Figure 1) which called for an urgent liver biopsy which revealed necrotising granulomatous inflammation (Figure 2). Bone marrow biopsy was done to rule out lymphoma which revealed 40% cellularity replaced by granulomatous inflammation. To rule out tuberculosis,

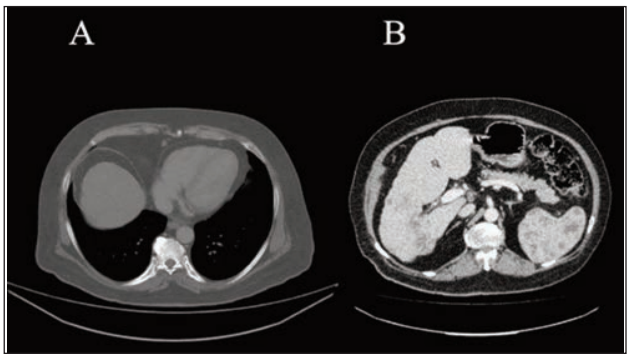


**Figure-1:** Computerised Tomography of the abdomen (axial view): bone infiltrates (A) and hepatic and splenic hypodensities (B).

[1,2]Department of Medicine, CMH Lahore Medical College and Institute of Dentistry, Lahore, Pakistan; [3]Department of Internal Medicine, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, Pakistan.
**Correspondence:** Javaria Ahmad. e-mail: javariaahmad118@gmail.com
ORCID ID: 0009-0005-2187-9282

**Submission completed:** 12-11-2024 **1st Revision received:** 21-01-2025
**Acceptance:** 21-06-2025 **Last Revision received:** 20-06-2025

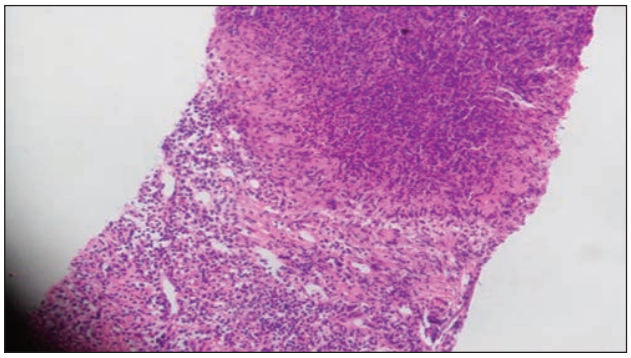

**Figure-2:** Liver Biopsy specimen showing necrotising granulomatous inflammation (Haematoxylin &Eosin stain, 20x magnification).

another four-drug regimen of ATT was started; once for six months and then for four months with a gap of six months in between. However, the fever persisted. His bone marrow and liver biopsy blocks were reviewed again at Shaukat Khanum, which revealed negative acid-fast bacilli (AFB) test. GeneXpert test also came out to be negative.

His CRP, ESR and ANA were raised. SPEP revealed increased levels of alpha 1 and alpha 2, and increased polyclonal immunoglobulins which were suggestive of chronic inflammation. Another CT of the abdomen and pelvis was done on January 18, 2024, which was suggestive of hepatosplenomegaly with innumerable hypodense lesions within the parenchyma and diffuse sclerosis of the skeleton. His prostate was noted to be enlarged but his PSA levels were not raised, excluding prostate CA and associated osseous metastasis.

The patient had no prior history of any animal contact and consumed pasteurised milk which ruled out Brucellosis. To rule out autoimmune and other inflammatory conditions, tests like serum RA Factor, Anti-GBM, p-ANCA, c-ANCA, anti-dsDNA and ACE were done which also came out to be negative. Tests for Bence Jones proteins, serum free light chains and free Kappa Light chains were also negative which ruled out multiple myeloma.

After reviewing radio images and biopsies, no haematolymphoid malignancy was seen. Chronic necrotising granulomatous change and prolonged febrile illness was most likely due to sarcoidosis. Treatment with ATT was discontinued. Corticosteroid therapy was initiated at a dose of 1mg/Kg and tapered off after a four-week period. This led to clinical improvement, with resolution of fever and weight loss.

An informed written consent was taken from the patient to publish his findings and reports.

## Discussion

Sarcoidosis is a disease characterised by multisystem disorder with an exaggerated cellular immune response at the site where the disease is active. The aetiology is still unknown, and the presenting symptoms are very vague: low grade fever, fatigue, night sweats, pain in bones and joints, skin rashes, and swollen lymph nodes. Early diagnosis is very important due to its multi-organ involvement. Involvement of cardiac or neurological systems can cause an irreparable and fatal illness.

Due to non-specific symptoms of sarcoidosis, the diagnosis is majorly based on the presence of non-caseating granulomas and ruling out other causes of granulomas.[5] In rare cases, like in the current patient with spinal and hepatosplenic sarcoidosis, sarcoidosis may present with necrotising granulomas along with fever of unknown origin. In such situations, other possible differential diagnosis must be ruled out one by one to reach a definite diagnosis.

Tuberculosis is one of the differential diagnoses characterised by the presence of caseating granulomas and lymphadenopathies. In suspected patients, it is preferred to start anti-tubercular treatment (ATT) and to assess its response until microbiological and radiological evidence is available.[6] Extensive lymph node involvement might also lead to confusion between lymphoma and necrotising sarcoid granulomatosis (NSG).[7] Bone marrow granulomatous infiltrations, as seen in this patient, are also suggestive of lymphomas or metastatic disease.

Multiple myeloma is another differential diagnosis,[8] which should be ruled out with extensive investigations. Correct diagnosis is, therefore, crucial because of different treatments for different pathologies. Necrotising sarcoidosis has been observed to have a good response to steroid therapy.[7] During literature review, a study was noted that linked fever of unknown origin to sarcoidosis which gradually disappeared on steroid administration,[9] supporting presence of fever of unknown origin with sarcoidosis as in the present case.

Sarcoidosis is difficult to diagnose because it is idiopathic and involves multiple systems. For a physician, there always remains a need to know everything about the disease for timely diagnosis and early management to prevent complications. Limited literature is available, which points out the rare manifestations of sarcoidosis. With not much information, physicians can never be certain before making a definitive diagnosis, hindering proper treatment.

## Conclusion

This study aimed to add to the ongoing quest to find the unusual presentations associated with sarcoidosis as only a simple treatment with steroids is enough to save a

patient's life. This case emphasises how crucial it is to rule out sarcoidosis when making a differential diagnosis for persistent fever of unknown origin and necrotising granulomatous inflammation affecting several organs. However, cohort studies and randomised controlled trials are required for better understanding.

**Disclaimer:** None.

**Conflict of interest:** None.

**Funding disclosure:** None.

## References

1. Sève P, Pacheco Y, Durupt F, Jamilloux Y, Gerfaud-Valentin M, Isaac S, et al. Sarcoidosis: a clinical overview from symptoms to diagnosis. Cells. 2021;10:766. doi:10.3390/cells10040766.
2. Brito-Zerón P, Pérez-Álvarez R, Ramos-Casals M. Sarcoidosis. Med Clin. 2022;159:195-204. doi:10.1016/j.medcli.2022.03.009.
3. Tana C, Donatiello I, Caputo A, Tana M, Naccarelli T, Mantini C, et al. Clinical features, histopathology and differential diagnosis of sarcoidosis. Cells. 2021;11:59. doi:10.3390/cells11010059.
4. Parida GK, Kumar A, Mitra S, Suman A, Muthu GS. Rare case of testicular sarcoidosis detected on FDG PET/CT in a patient with PUO. Clin Nucl Med. 2020;45:e368-9. doi:10.1097/rlu.0000000000003120.
5. Mohammed A, Tang B, Shah RT. A case of sarcoidosis with necrotising granulomas. Chest. 2023;164:a5622. doi:10.1016/j.chest.2023.07.3632.
6. Parejo-Morón AI, Tornero-Divieso ML, Férnandez-Díaz MR, Muñoz-Medina L, Preda O, Ortego-Centeno N. Necrotising sarcoid granulomatosis: a disease not to be forgotten. Case Rep Med. 2020;2020:1-4. doi:10.1155/2020/5730704.
7. Tasleem A, Viquar H, Noorani H, Savani R, Bharat A. A rare case study about necrotising granulomatous sarcoidosis. Cureus. 2020. doi:10.7759/cureus.10220.
8. Gilman A, Burke A, Nolan K, Beckmeyer L, Hefelfinger D, Peters A, et al. An uncommon presentation of a multifocal spinal osseous sarcoidosis: a case report on the diagnosis and exclusion with literature review. Radiol Case Rep. 2024;19:711-5. doi:10.1016/j.radcr.2023.11.021.
9. Shima H, Nishitani M, Tashiro M, Inoue T, Kawahara K, Okada K, et al. Pulmonary sarcoidosis as a cause of intermittent fever of unknown origin in a haemodialysis patient with renal cell carcinoma: a case report and literature review. Haemodial Int. 2019;23:E53-8. doi:10.1111/hdi.12695.

**Author Contribution:**
**MS & JA:** Concept, design, data interpretation, drafting, revision and agreement to be accountable for all aspects of the work.
**MA:** Concept, design, data acquisition, interpretation, final approval and agreement to be accountable for all aspects of the work.