Research Article

Unraveling The Mystery: A Case of Pyrexia Of Unknown Origin Due To Splenic Marginal Zone Lymphoma

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Abstract

Background: Pyrexia of unknown origin (PUO) continues to pose a diagnostic challenge despite advances in imaging and laboratory diagnostics. The etiological spectrum includes infections, inflammatory disorders, malignancies, and miscellaneous causes.
Case Presentation:A 28-year-old female presented with low-grade continuous fever for one month without localizing symptoms. Extensive evaluation including laboratory tests, cultures, and imaging was performed.
Investigations:Initial investigations were inconclusive. Imaging revealed splenomegaly with focal lesions, prompting further evaluation with contrast-enhanced imaging and histopathological confirmation.
Conclusion: Splenic marginal zone lymphoma, though rare, should be considered in prolonged unexplained fever. A structured diagnostic approach and judicious use of imaging are essential.

Keywords: PUO, Splenic lymphoma, Marginal zone lymphoma, Fever of unknown origin, Splenomegaly.

Introduction

Pyrexia of unknown origin (PUO) is classically defined as:
- Fever >38.3°C on multiple occasions
- Duration >3 weeks
- No diagnosis after 1 week of evaluation

Despite advances in diagnostics, PUO remains complex. Malignancies account for 10–20% of cases, with lymphomas being a significant contributor.

Investigations

1. Laboratory Findings

Case Presentation

A 28-year-old female from West Bengal presented with:
- Fever: Low-grade, continuous, 1 month duration
- No chills, rigor, or diurnal variation
- No systemic symptoms:
  - o No cough, dyspnea
  - o No abdominal pain or urinary symptoms
  - o No neurological deficits
  - o No autoimmune features

Past history:
- Multiple empirical antibiotic treatments → no response

- No TB contact, travel, or high-risk exposure

Clinical Examination

- Vitals: Stable except low-grade fever
- No lymphadenopathy
- Mild splenomegaly (later confirmed on imaging)
- No hepatomegaly or rash

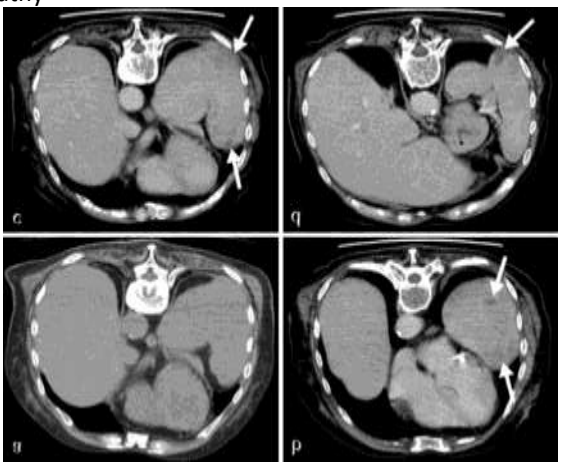
Parameter	Result	Interpretation
Hemoglobin	Mild anemia	Chronic disease
WBC count	Normal/ slightly elevated	Non-specific
ESR/CRP	Elevated	Inflammatory process
Blood cultures	Negative	Infection less likely
LFT/RFT	Normal	No organ dysfunction

2.Imaging Findings Ultrasound Abdomen

- Splenomegaly
- Hypoechoic focal lesions

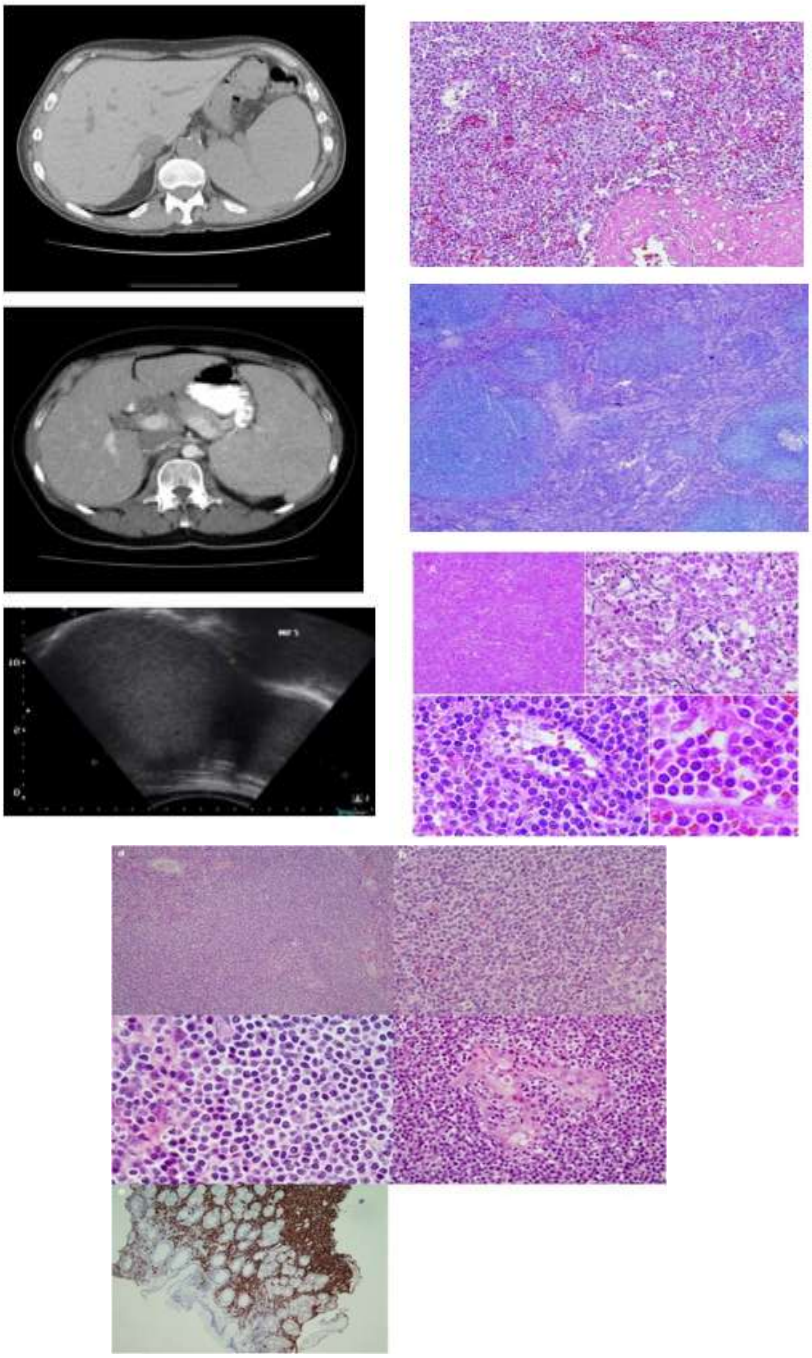
CECT Abdomen

- Enlarged spleen
- Multiple hypodense lesions
- No significant lymphadenopathy



3. Histopathology

- Splenic biopsy
- Features consistent with Splenic Marginal Zone Lymphoma (SMZL)



Inflammatory	SLE, vasculitis
Neoplastic	Lymphoma, leukemia
Miscellaneous	Drug fever

Diagnostic Approach PUO Workup Strategy:

1. Initial labs → inconclusive
2. Cultures → negative
3. Imaging → splenic lesions
4. Targeted biopsy → diagnosis

Timeline of Events

Time	Event
Week 1–2	Fever onset
Week 2–4	Antibiotics (no response)
Week 4	Imaging done
Week 5	Splenic biopsy
Week 6	Diagnosis confirmed

Differential Diagnosis

Graphical Representation

Etiology of PUO (Pie Chart – Suggested Figure)

- Infections – 40%
- Malignancy – 20%
- Inflammatory – 20%
- Miscellaneous – 20%

Diagnostic Yield of Investigations

Modality	Yield
Blood tests	Low
Cultures	Low
Imaging	Moderate

Biopsy	High

Discussion

Splenic marginal zone lymphoma (SMZL) is a rare, indolent B-cell lymphoma that:

- Primarily involves the spleen
- Often presents with splenomegaly and cytopenias
- Rarely presents as isolated PUO

Why this case is important:

- No lymphadenopathy
- No B symptoms (weight loss/night sweats)

- Only presenting feature → prolonged fever

Radiological significance:

- Splenic lesions in PUO should raise suspicion of:

o Lymphoma
o Granulomatous disease
o Metastasis

Learning Points:

- Avoid empirical antibiotic overuse
- Early imaging is crucial
- Biopsy remains gold standard

Conclusion

This case emphasizes:

- Importance of structured PUO evaluation
- Role of imaging in narrowing diagnosis
- Need to consider rare malignancies like SMZL

Early diagnosis prevents:

- Delayed treatment
- Unnecessary antibiotic exposure

Figures

1. Figure 1 – CT abdomen showing splenic lesions
2. Figure 2 – Ultrasound spleen
3. Figure 3 – Histopathology slide

4. Figure 4 – PUO diagnostic flowchart
5. Figure 5 – Pie chart of PUO causes
6. Figure 6 – Timeline graph

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