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Hepatic Sarcoidosis Mimicking Liver SOL: A Case Series from South India

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ABSTRACT

Background: Hepatic involvement in sarcoidosis is common histologically but rarely presents as focal liver space-occupying lesions (SOL), often mimicking tuberculosis or malignancy, especially in endemic regions.
Methods: We retrospectively reviewed patients with confirmed sarcoidosis evaluated between January 2023 and December 2024. Patients with focal or multifocal hepatic SOL on imaging and histological confirmation of hepatic sarcoidosis were included.
Results: Among 58 patients with sarcoidosis, 8 (13.8%) had hepatic SOL. The mean age was 47 years, and 62.5% were male. Hepatomegaly and cholestatic liver function abnormalities were present in all patients. Multifocal hepatic lesions were observed in 62.5%, while 37.5% had solitary lesions. Elevated serum ACE levels were noted in 87.5%. Liver biopsy demonstrated non-caseating granulomas with Langhans giant cells in all cases. Extrahepatic involvement was present in 62.5% of patients. Synthetic liver function remained preserved in all patients.
Conclusion: Hepatic sarcoidosis presenting as liver SOL is an uncommon but important differential diagnosis of focal hepatic lesions. Recognition of characteristic clinical, biochemical, imaging, and histological findings can prevent misdiagnosis and unnecessary treatment.

Keywords*: Sarcoidosis; Hepatic Sarcoidosis; Liver Space-Occupying Lesion; Non-caseating Granuloma; Liver Biopsy.*

INTRODUCTION

Sarcoidosis is a multisystem granulomatous disorder of unknown aetiology characterized by non-caseating granulomas(1). Although pulmonary and mediastinal lymph node involvement predominate, hepatic involvement is detected in up to 50–80% of patients on histology(1,2). Clinical hepatic sarcoidosis is often underdiagnosed due to asymptomatic presentation or nonspecific biochemical abnormalities(1,3). Rarely, it presents as focal hepatic lesions, posing a diagnostic challenge in tuberculosis-endemic regions such as India(1,3,4). We report a case series of eight patients with hepatic sarcoidosis presenting as liver space occupying lesion (SOL).

METHODS

Study design: Retrospective case series

This was a retrospective descriptive case series conducted in the Department of Gastroenterology and Hepatology, JSS Hospital, Mysuru. All patients with a confirmed diagnosis of sarcoidosis evaluated at our centre between January 2023 and December 2024 were screened for hepatic involvement using clinical assessment, biochemical parameters, and cross-sectional imaging. Patients demonstrating focal or multifocal liver space-occupying lesions (SOL) on imaging were identified, and those with histological confirmation of hepatic sarcoidosis on liver biopsy were included in the study. Patients without radiologically apparent hepatic SOL were excluded from the final analysis.

Inclusion criteria:

- Histological evidence of non-caseating granulomas on liver biopsy
- Compatible clinical and radiological features

Exclusion criteria:

- Evidence of tuberculosis, primary biliary cholangitis, viral hepatitis B or C, drug-induced liver injury, or malignancy

Clinical, biochemical, radiological, and histopathological data were analysed.

RESULTS

During the study period, a total of 58 patients with confirmed sarcoidosis were evaluated at our centre. Of these, 8 patients (13.8%) demonstrated hepatic involvement in the form of focal or multifocal liver space-occupying lesions (SOL) on imaging and constituted the study cohort. The remaining patients had no radiologically evident focal hepatic lesions.

Demographic and Clinical Features

Of the eight patients, five were male (62.5%) and three female (37.5%), with a mean age of 47 years (range 34–66 years).Right upper quadrant abdominal pain and fatigue were the most common presenting symptoms, seen in 6 patients (75%).Hepatomegaly was present in all patients (100%), while splenomegaly was noted in 5 patients (62.5%).None of the patients had jaundice, ascites, hepatic encephalopathy, or clinical liver failure at presentation

Biochemical Findings

All patients demonstrated a cholestatic pattern in liver function test (100%), characterized by elevated ALP and GGT. Mild transaminase elevation (<2× ULN) was observed in 5 patients (62.5%), while 3 patients (37.5%) had near-normal transaminase levels. Serum ACE levels were elevated in 7 patients (87.5%), and hypercalcemia was observed in 2 patients (25%). Synthetic liver function remained preserved in all cases.

Imaging Findings

Abdominal ultrasonography and contrast-enhanced CT revealed hepatomegaly and focal or multifocal hepatic SOL in all patients. Multifocal hepatic lesions were seen in 5 patients (62.5%), while solitary lesions were present in 3 patients (37.5%).Splenic nodules were identified in 3 patients (37.5%), and abdominal lymphadenopathy was noted in 4 patients (50%).

Histopathology

All liver biopsies demonstrated well-formed non-caseating granulomas (100%) with Langhans giant cells (100%).There was no evidence of caseation or fibrosis (0%), and liver architecture was preserved in all patients (100%).

Extrahepatic Manifestations

Extrahepatic sarcoidosis was documented in 5 patients (62.5%).Pulmonary involvement was present in 3 patients (37.5%), cutaneous manifestations (erythema nodosum) in 2 patients (25%), gastrointestinal involvement in 1 patient (12.5%), and lymph node involvement in 5 patients (62.5%).

Table 1: Imaging Characteristics

Case	Ultrasound Findings	CT Abdomen Findings	Splenic Lesions	Abdominal Lymphadenopathy
1	Hepatomegaly, SOL	Multiple non-enhancing hepatic & splenic lesions	Present	Present
2	Hepatomegaly, SOL	Multiple non-enhancing hepatic lesions	Absent	Present
3	Hepatomegaly, SOL	Multiple hepatic lesions	Absent	Absent
4	Hepatomegaly	Multifocal hypodense hepatic lesions	Present	Present
5	Hepatomegaly, SOL	Solitary hypodense hepatic lesion	Absent	Absent
6	Hepatomegaly	Hepatic and splenic nodules	Present	Present
7	Hepatomegaly	Multifocal hepatic lesions	Present	Present
8	Hepatomegaly, SOL	Solitary hypodense hepatic lesion	Absent	Absent

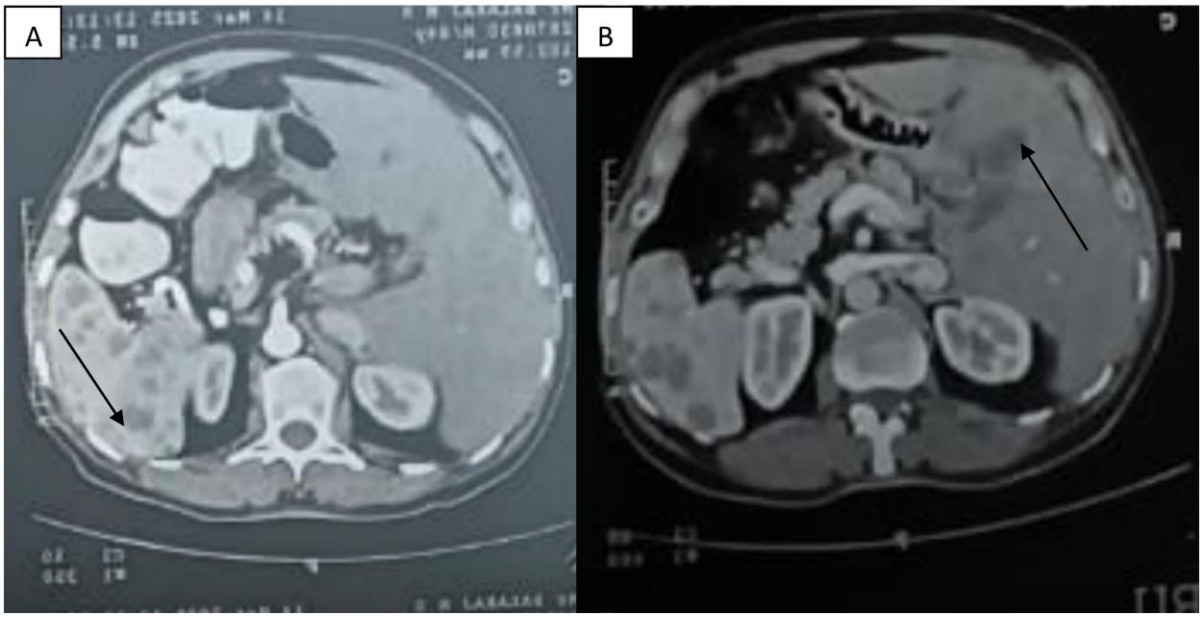

Figure 1: Image A & B-CT image showing hepatic and splenic nodules

Table 2: Extrahepatic Involvement

Case	Pulmonary	Cutaneous	Gastrointestinal	Lymph Node
1	Yes	No	No	Yes
2	No	Yes	Yes	Yes
3	No	No	No	No
4	Yes	No	No	Yes
5	No	No	No	No
6	No	Yes	No	Yes
7	Yes	No	No	Yes
8	No	No	No	No

Table 3: Histopathological Findings on Liver Biopsy

Case	Non-caseating Granulomas	Langhans Giant Cells	Caseation	Fibrosis	Liver Architecture
1	Present	Present	Absent	Absent	Preserved
2	Present	Present	Absent	Absent	Preserved
3	Present	Present	Absent	Absent	Preserved
4	Present	Present	Absent	Absent	Preserved
5	Present	Present	Absent	Absent	Preserved
6	Present	Present	Absent	Absent	Preserved
7	Present	Present	Absent	Absent	Preserved
8	Present	Present	Absent	Absent	Preserved

Table 4: pattern of liver function test

Case	AST (U/L) Range (0-50)	ALT (U/L) Range (0-50)	ALP (U/L) Range (40-129)	GGT (U/L) Range (0-60)	Total Bilirubin (mg/dL) Range(0-1.2)	Albumin (g/dL) Range(3.5-5.2)	INR
1	42	38	245	120	0.8	4.1	1.0
2	58	72	218	110	0.9	3.9	1.1
3	36	34	208	80	0.7	4.3	1.0
4	64	70	310	145	1.0	3.8	1.1
5	40	42	276	132	0.8	4.0	1.0
6	68	75	295	150	0.9	3.7	1.1
7	72	78	322	160	1.1	3.6	1.2
8	38	36	260	118	0.8	4.2	1.0

DISCUSSION

Hepatic sarcoidosis is an underrecognized entity, particularly in tuberculosis-endemic regions such as India, where granulomatous liver disease is frequently attributed to tuberculosis(1,4). Presentation as a liver SOL further complicates diagnosis and often raises concern for malignancy or infective aetiologies (1, 3). In the present study, hepatic space-occupying lesions were identified in 13.8% (8 of 58) of patients with sarcoidosis, a prevalence that is consistent with prior large cohort studies reporting nodular or mass-like hepatic involvement in approximately 5–15% of cases (1,2). These findings indicate that the frequency of focal hepatic sarcoidosis in our cohort is comparable to existing literature, reinforcing that such presentations, although uncommon, represent a recognized manifestation of hepatic sarcoidosis (1,3). In our series, hepatomegaly was universal (100%), and a cholestatic pattern of liver enzyme abnormality was observed in all patients, findings consistent with prior large cohorts reported by Devaney et al. and Tadros et al. (2,3), where cholestasis predominated in 70–90% of cases. Preserved synthetic liver function in all our patients mirrors observations from Western cohorts, where progression to portal hypertension or cirrhosis is uncommon (2,5).

Elevated serum ACE levels were observed in 87.5% of our patients, slightly higher than the 60–80% reported in previous studies(3,5), supporting its adjunctive diagnostic value while acknowledging limited specificity. Focal or multifocal hepatic lesions were present in all patients included in the study cohort, reflecting the case-selection criteria rather than overall disease prevalence. When considered within the entire sarcoidosis population evaluated, hepatic space-occupying lesions were identified in 13.8% of patients, a frequency consistent with the 5–15% prevalence of nodular hepatic involvement reported in prior studies (1). The presence of splenic nodules (37.5%) and abdominal lymphadenopathy (50%) in our cohort parallels findings reported by Ebert et al. (1) and Chazouillères et al. (6), underscoring the multisystem nature of sarcoidosis. Extrahepatic manifestations were present in 62.5% of patients, with pulmonary involvement seen in 37.5%, which is lower than the 70–90% pulmonary involvement reported in Western populations(5,7). This highlights the possibility of isolated or liver-predominant sarcoidosis, particularly in Asian cohorts, as previously noted by Sharma and Mohan (4).

Liver biopsy remains the diagnostic cornerstone. All patients demonstrated non-caseating granulomas with preserved architecture, consistent with classic descriptions by Devaney et al (2). Absence of fibrosis in our cohort may explain the preserved liver function and favourable short-term outcomes. In TB-endemic regions, hepatic sarcoidosis presenting as SOL is frequently misdiagnosed, leading to unnecessary antitubercular therapy or invasive oncological work-up(1,4). Recognition of a cholestatic biochemical profile, characteristic imaging features, multisystem involvement, and confirmatory histology is essential to establish the diagnosis (1, 3).

CONCLUSION

Hepatic sarcoidosis presenting as focal or multifocal liver space-occupying lesions is an uncommon and diagnostically challenging entity, particularly in tuberculosis-endemic regions where granulomatous liver disease is frequently misattributed to infection or malignancy. This case series represents one of the larger single-centre cohorts describing hepatic sarcoidosis manifesting as liver SOL to date. Our findings demonstrate that such presentations, although infrequent, occur at rates comparable to existing literature and are characterized by cholestatic biochemical abnormalities, preserved synthetic liver function, and confirmatory histology. Awareness of this atypical presentation and early consideration of hepatic sarcoidosis in the differential diagnosis of liver SOL may prevent misdiagnosis, inappropriate antitubercular therapy, and unnecessary invasive or oncologic interventions.

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