RESEARCH PAPER

Silent Menace in Liver: Incidental Hepatocellular Adenoma Unmasked

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Received: 24th April, 2026; Revised: 20th May 2026; Accepted: 30th June, 2026; Available Online: 10th July, 2026

ABSTRACT

Background: Hepatocellular adenoma (HCA) is a benign neoplasm of hepatocellular origin arising in the noncirrhotic liver. The female-to-male ratio is as high as 11:1. HCA is classified into four molecular subtypes: HNF-1α inactivated, β-catenin activated, inflammatory, and unclassified. The β-catenin activated subgroup carries the highest risk of hemorrhage and malignant transformation.

Case Summary: 70-year-old male who presented to the outpatient department with complaints of abdominal pain and was subsequently found to have rupture with hemoperitoneum. Histopathological examination confirmed multiple hepatocellular adenomas, probably of the HNF-1α mutated subtype.

Conclusion: HCA in elderly males is exceedingly rare and clinically significant due to its propensity for rupture and potential for malignant transformation. Early diagnosis and prompt surgical management are essential.

Keywords: Hepatocellular adenoma; HCA; HNF-1α; liver tumor; hemoperitoneum; elderly male; rare entity
How to cite this article: Dr. Subhashree Mohan, Dr. Sowmiya Jayachandran, Dr. Muthu Sudalaimuthu, Dr. Balaji Radhakrishnan, Silent Menace in Liver: Incidental Hepatocellular Adenoma Unmasked Int J Drug Deliv Technol. 2026; 16(70s): 260-264. DOI: 10.25258/ijddt.16.70s.27
Source of support: Nil.
Conflict of interest: None

INTRODUCTION

Hepatic adenoma is a rare benign hepatic neoplasm that is of clinical interest for several reasons: it is predominantly associated with women using oral contraceptives or with men on anabolic steroid therapy or those with glycogen storage diseases; it may be difficult to distinguish from other benign or malignant liver tumours; larger tumours have a marked tendency to haemorrhage; and they may undergo malignant transformation.[2,3,4,5]

According to the World Health Organization (WHO), 85% of HCAs occur in women of child-bearing age. HCA is rare in men, children, and individuals aged >65 years. When multiple adenomas (≥10 lesions) are present, the condition is referred to as hepatic adenomatosis. Oral contraceptive pills constitute the major risk factor in women, while anabolic steroid use poses a major risk in men. Additional predisposing conditions include glycogenosis types 1 and 3, galactosemia, tyrosinemia, familial adenomatous polyposis coli, beta-thalassemia, obesity, and metabolic syndrome.[2,3]

CASE PRESENTATION

A 70-year-old male with no significant prior medical history presented to the outpatient department with complaints of acute abdominal pain. Clinical examination revealed features consistent with peritoneal irritation. Imaging revealed a ruptured hepatic mass with hemoperitoneum, necessitating urgent surgical intervention. Intraoperatively, a hemorrhagic liver lesion was identified and resected. The patient was stabilized with packed red blood cell transfusions and supportive care perioperatively.

INVESTIGATIONS

Laboratory investigations at admission are summarized in Table 1. Notably, the patient demonstrated severe transaminitis (SGOT 5892 IU/L; SGPT 1412 IU/L), hypoalbuminemia (2.4 g/dl), elevated D-dimer (12.86), and a markedly prolonged prothrombin time (PT 57.8 sec; INR 72.2 sec), consistent with hepatic synthetic dysfunction in the setting of massive hepatic hemorrhage.

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Table 1: Laboratory Investigations at Admission

Investigation	Value
Hemoglobin	7.6 g/dl
MCV	95 fl
Neutrophil	82.9%
Lymphocyte	14.3%
Platelet	1,10,000 /µL
HbA1c	4.8%
Total Bilirubin	2.55 mg/dl
Direct Bilirubin	1.39 mg/dl
Total Protein	2.55 mg/dl
Albumin	2.4 g/dl
Globulin	1.5 g/dl
SGOT	5892 IU/L
SGPT	1412 IU/L
GGT	275 U/L
D-Dimer	12.86
PT	57.8 sec
APTT	4.65 sec
INR	72.2 sec

HISTOPATHOLOGICAL EXAMINATION

Gross findings: A well-circumscribed, encapsulated nodular lesion was identified.

Microscopy: Sections showed cords and sheets of well-differentiated hepatocytes with steatotic cytoplasm. Nuclear atypia was mild and mitoses were absent. No vascular invasion or malignant transformation was identified.

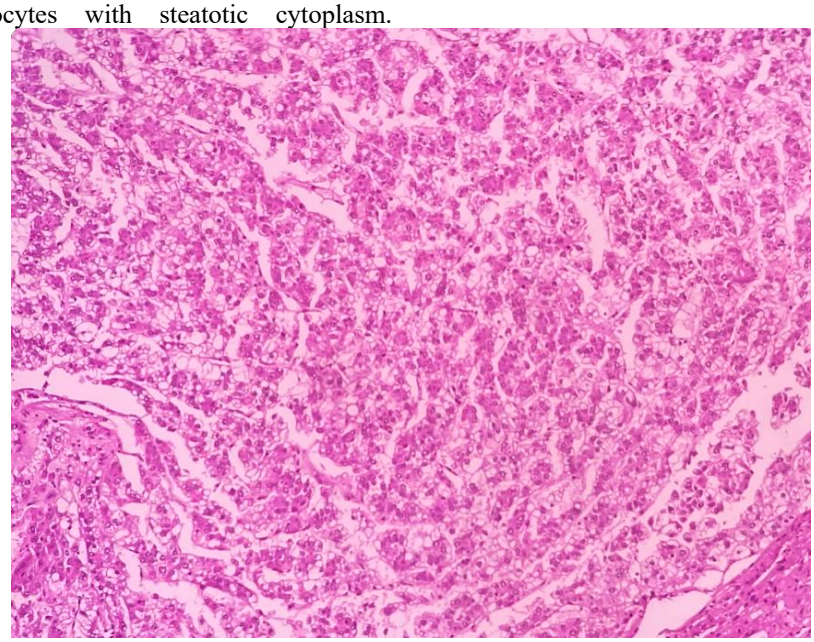

Figure 1:Well circumscribed, capsulated nodular lesion composed of cords and sheets of well differentiated hepatocytes

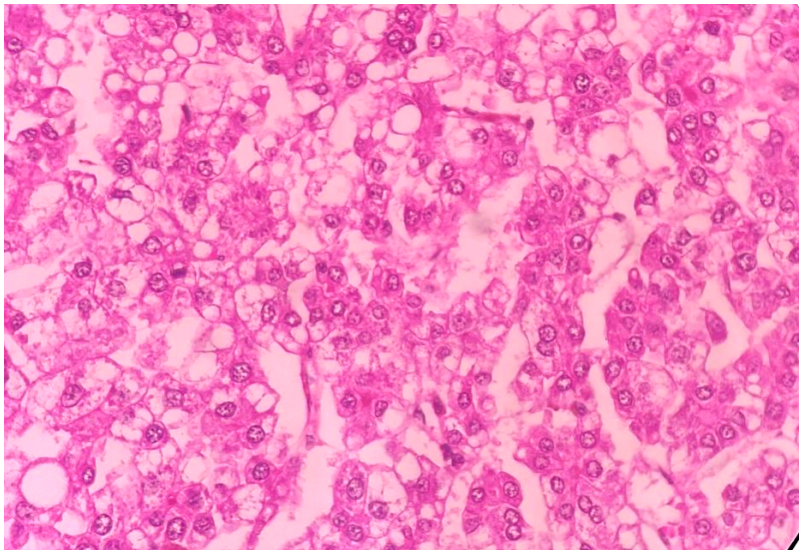

Figure 2: Sheets and cords of differentiated hepatocytes

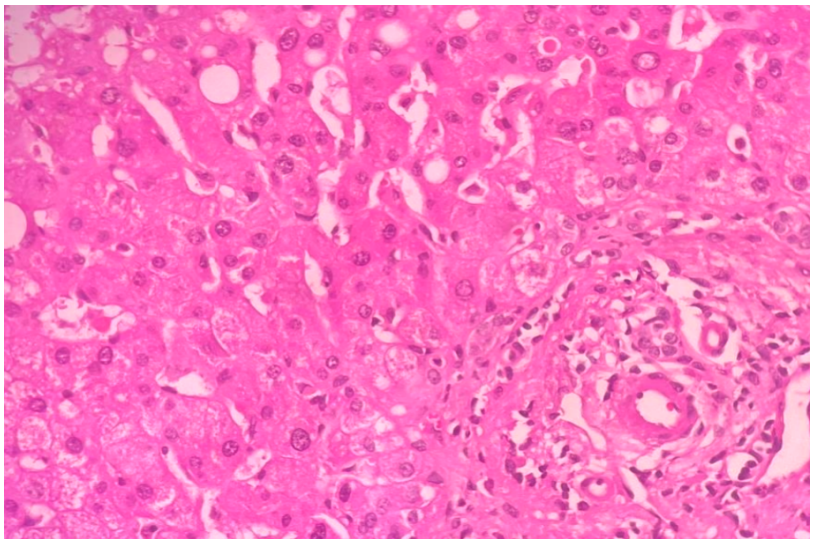

Figure 3: Rest of the liver parenchyma appears normal with inflammation.

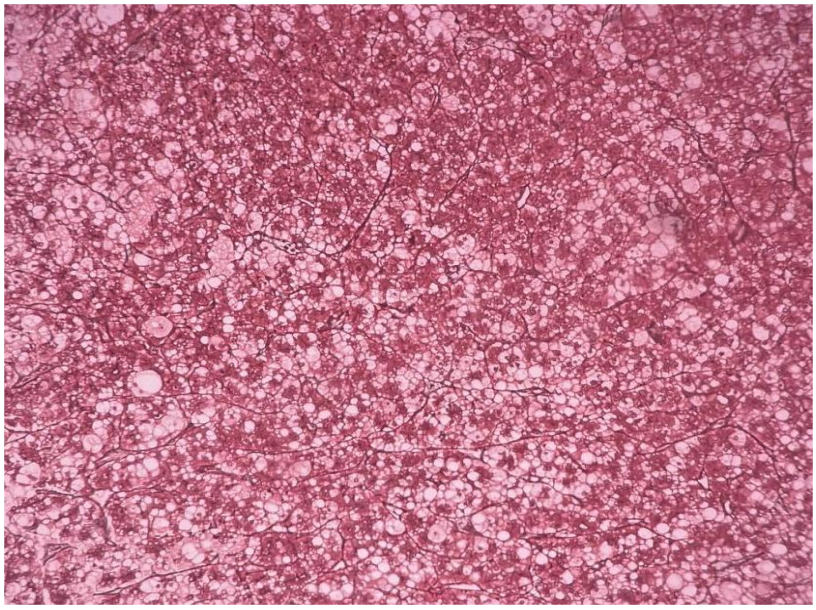

Figure 4: Special Stains: Reticulin staining demonstrated a predominantly intact pattern

Final HPE Diagnosis: Hepatocellular Adenoma, probably HNF-1α mutated subtype.

DISCUSSION

Hepatic adenomas may be single or multiple and may occasionally exceed 20 cm in size; consequently, clinical presentation varies widely. Pain in the upper abdomen (epigastric or right upper quadrant) occurs in 25–50% of patients. Liver enzyme changes (elevation of ALP in approximately 23% of cases) and bilirubin elevation may accompany expansion of the neoplasm. Large hepatic adenomas (>5 cm) carry a significant potential for spontaneous bleeding and rupture, presenting as acute abdomen in 8–20% of cases. Spontaneous rupture occurs more frequently in men, particularly anabolic steroid users, and is a life-threatening condition.[5,9,10]

HCA must be distinguished from hepatocellular carcinoma (HCC), focal nodular hyperplasia (FNH), hepatic angioleiomyoma, and hepatic hemangioma. The differential diagnosis between FNH and HCA is particularly important as it directly influences management: FNH requires no intervention, whereas HCA carries operative indications.[11,15,16]

According to the WHO classification, HCAs are clonal tumours that are typically soft, with variable areas of necrosis, fibrosis, and hemorrhage. Histologically, HCA is composed of benign hepatocytes arranged in cords one to two cells thick. The cytoplasm may be clear, normal, or steatotic; bile pigment may be present. Nuclear atypia is mild, and mitoses are unusual.[5,13]

The HNF-1α inactivated subtype (H-HCA) accounts for 30–35% of all HCAs. It is characterized by marked steatosis in lesional hepatocytes, largely intact reticulin pattern with focal packeting, and diagnostic loss of L-FABP expression on immunohistochemistry. This subtype is rarely associated with malignant transformation.[11,15]

The occurrence of HCA in a 70-year-old male is exceptionally rare given the strong epidemiological association with oral contraceptive use in women of reproductive age. In men, the predominant risk factors are anabolic steroid exposure and glycogen storage diseases. This case underscores the importance of maintaining HCA in the differential diagnosis of hepatic masses even in elderly male patients without classical risk factors.[4,7,8]

CONCLUSION

Hepatocellular adenoma is a very rare, noninvasive liver tumour predominantly diagnosed in women of reproductive age. Its occurrence in elderly males is exceedingly uncommon and clinically significant. Molecular classification based on phenotypic and genotypic criteria aids in risk stratification and guides management. Surgical resection is recommended for all HCAs in male patients and for all tumours larger than 5 cm, although lymphadenectomy and wide-margin excision are not required.[5,7,9,17]

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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