

Giant Hepatocellular Adenoma in a Young Male: Report of an Extremely Rare Case

Bhatia JK¹, Purkayastha A^{2*}, Bhatia JS³, Singh G⁴, Gupta D⁵

¹Department of Pathology, Armed Forces Medical College, Pune, India

²Department of Radiation Oncology, Command Hospital (Southern Command), Pune, India

³Department of Anaesthesia, Command Hospital (Southern Command), Pune, India

⁴Department of Radiodiagnosis, Command Hospital (Eastern Command), Kolkata, India

⁵Department of Pathology, Armed Forces Medical College, Pune, India

***Corresponding author:** Purkayastha A, Department of Radiation Oncology, Command Hospital (Southern Command), Pune, Maharashtra, India, Tel: 9650901736, E-mail: abhi5296@gmail.com

Citation: Bhatia JK, Purkayastha A, Bhatia JS, Singh G, Gupta D (2018) Giant Hepatocellular Adenoma in a Young Male: Report of an Extremely Rare Case. SAJ cancer sci 5: 106

Abstract

Hepatocellular Adenoma (HCA) is a rare primary benign hepatic tumour, seen in young and middle-aged women and associated with the use of Oral Contraceptives (OCP). Though generally asymptomatic, large hepatic adenomas are complicated by rupture and spontaneous bleeding with increased risk in tumours larger than 7cm. The presentation is varied and these tumours are extremely rare in males affecting mainly females with the highest prevalence in reproductive age and located in the right hepatic lobe with greater frequency. This case was unusual as it occurred in a male patient and in the left lobe of liver which is extremely rare. We report such a rare case in a 30-year-old male with no predisposing factor who presented with upper abdominal pain and was diagnosed to have a giant HCA, inflammatory subtype (HA-1) measuring 7.5 x 8 x 2.5 cm by histopathological confirmation of resection specimen.

Keywords: Hepatocellular adenoma; Hepatic resection; Rupture; Malignant transformation

Introduction

Hepatocellular adenoma (HCA) also known as hepatic adenoma (HA) or liver cell adenoma is a rare primary benign neoplasm of hepatocellular origin comprising 2% of all liver neoplasms with an incidence of 3/1000000 per year in European and North American countries [1]. It commonly affects young women with a long-term history of oral contraceptive (OCP) use and is increasingly being detected due to widespread use of radio imaging modalities [2-4]. HCA may be also found in association with conditions like diabetes mellitus, pregnancy, Fanconi anemia, Hurler disease, Familial Adenomatous Polyposis (FAP) and tyrosinemia [5-8]. Rarely, HCA has been associated with abusive use of anabolic-androgenic steroids, seen mainly among body builders and weight trainers [9-11]. Though generally asymptomatic, large hepatic adenomas are complicated by rupture and spontaneous bleeding with increased risk in tumours larger than 7cm [12].

Case report

A 30-year-old male with no known co-morbidities presented to our hospital for management of abdominal pain in the right upper quadrant for the past 3 months. The pain was mild to moderate in intensity, non-radiating with no aggravating or relieving factors. There was no associated history of fever, jaundice, vomiting, hematemesis, melena or abdominal distention. Family history was non-contributory. There was no history of any long-term medication in the past. General examination revealed normal vitals. Pallor was present however no icterus, pedal edema, generalized lymphadenopathy or cyanosis was present.

On per-abdominal examination, the abdomen was soft in consistency with no guarding or rigidity. Tenderness was present on deep palpation in the right hypochondrium and liver was enlarged with a span of 17 cm. A single soft to firm lump measuring approximately 4 x 4 cm was palpable just below the xiphisternum, extending transversely from the midline up to 4 cm. The liver could not be palpated separately from the mass. There was no free fluid and bowel sounds were present. His liver function tests were normal and alpha fetoprotein was within normal limits.

Triple phase CT scan of abdomen was done which was suggestive of a homogeneously enhancing capsulated benign hepatic mass lesion in the left lobe indenting the right wall of body of stomach (Figures 1-4). Resection of the mass was done under General Anaesthesia (GA) and intra-operative findings revealed presence of a Space Occupying Lesion (SOL) in the left lobe of liver. Grossly the specimen measured 11 x 12 x 3 cm. Cut section showed a well-circumscribed tumour measuring 7.5 x 8 x 2.5 cm. The tumour was yellowish in colour and soft in consistency with few areas of haemorrhage. No necrosis was seen (Figure 5).

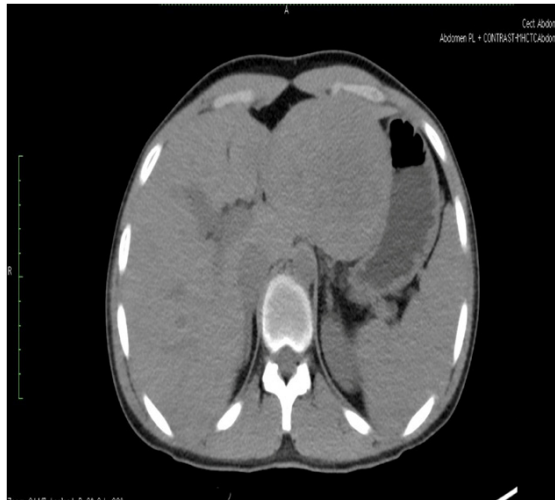


Figure 1: Triphase CT scan abdomen (axial image) showing a mildly homogenous mass in the left lobe of liver indenting the right wall of body of stomach (yellow arrow); (C); (D)



Figure 2: Triphase CT scan abdomen (axial image): Arterial phase contrast enhanced image demonstrating hypervascularity of the mass with multiple enlarged arteries within the mass

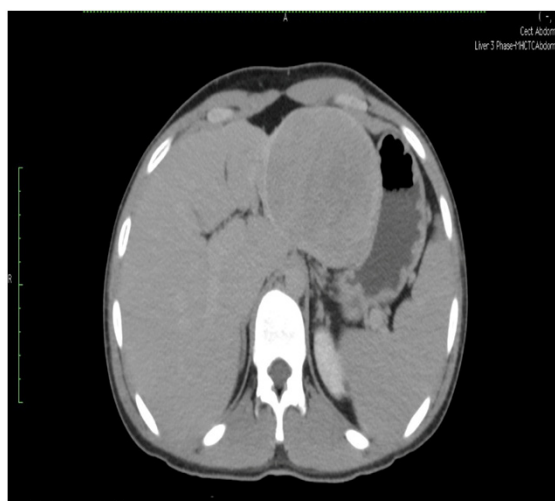


Figure 3: Triphase CT scan abdomen (axial image) showing imaging after 5 minutes delay confirms washout of contrast from the mass



Figure 4: Triphase CT scan abdomen (axial image) showing portal venous phase shows hyperenhancement of the mass



Figure 5: Gross examination: (A) showing a well circumscribed tumour; (B) Cut section with well-circumscribed yellow tumour

The routine Haematoxylin and Eosin (H & E) stained sections examined from the mass showed a well circumscribed tumour composed of hepatocytes arranged in cords and trabeculae which were 1-2 cell thick plate separated by sinusoids. Pseudo-portal tracts were prominent along with presence of mild inflammation comprising of lymphocytes, histiocytes, neutrophils and plasma cells. Portal tracts were absent. Kupffer cells were reduced to absent. The cells lacked cytological atypia with minimal nuclear pleomorphism (Figure 6). No mitosis was noted and few areas of haemorrhage were seen. No necrosis noted. Normal hepatic parenchyma was seen at the periphery. Reticulin stain revealed presence of intact hepatic architecture with minimal plate thickening (Figure 7). Based on these features a diagnosis of HCA inflammatory subtype (HA-I) was rendered. Postoperative period was uneventful. There was no recurrence or metastasis during one year of follow up.

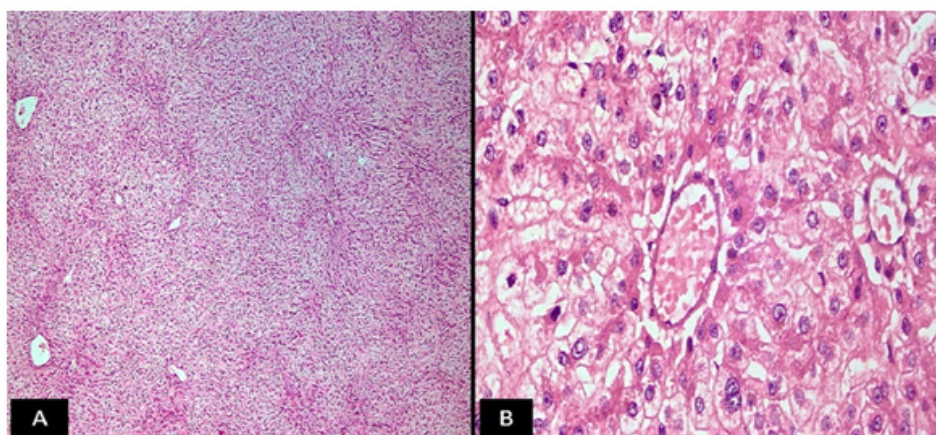


Figure 6: Microscopic examination showing tumor composed of 1-2 cell thick plate hepatocytes arranged in cords and trabeculae separated by sinusoids and absent portal tracts. No atypia (H & E; A 100X, B 400X)

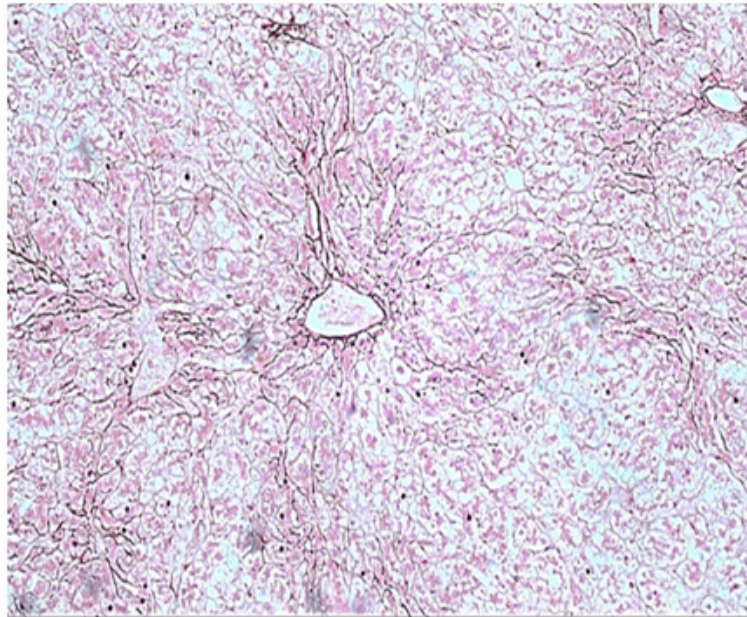


Figure 7: Reticulin stain showing intact hepatic architecture with minimal plate thickening

Discussion

HA is a benign tumour that was rare before the introduction of OCPs in 1960. A possible association between use of OCPs and the development of hepatic adenoma was first described by Baum in 1973 [13]. These tumours are clinically associated with OCP use in women and occasionally anabolic corticosteroid use in men [14]. Our case was peculiar as it occurred in a young male without any usual predisposing factors and the diagnosis in this unusual clinical setting was challenging. The diagnosis of HCA is important as it can rupture, leading to life threatening haemorrhage. They also have a small propensity to transform into hepatocellular carcinoma (HCC) with an overall risk of 4.2% [14-16]. The clinical presentation varies from majority of patients being asymptomatic to those with symptoms, usually right upper quadrant pain secondary to HCA bleeding, which can present as internal haemorrhage with necrotic changes mostly observed in adenomas > 4 cm or there can be spontaneous rupture that causes subcapsular hematoma and possible hemoperitoneum [17]. Approximately 70% -80% of HCA are solitary lesions usually located in the right lobe of liver but our case showed a left lobe lesion which itself is very unusual [18,19].

Clinical evaluation may reveal a palpable intra-abdominal mass or enlarged liver in less than 30% of cases [18]. Radiological imaging with Ultrasound (USG), Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are used to determine the diagnosis, but it is difficult to accurately distinguish between HCA and other lesions, such as Focal Nodular Hyperplasia (FNH). In such cases, a liver biopsy is necessary to establish a diagnosis [17-20]. On macroscopic examination, HCAs are unencapsulated and solitary tumours varying from 1- 20cm with areas of haemorrhage and necrosis [19]. Microscopically HCA appear as monotonous sheets of hepatocytes lacking biliary structures, fibrosis or dysplasia. There are 4 subtypes of HCA; (1) HA-H Subtype shows steatosis and an absence of inflammation or atypia; (2) HA-B subtype shows pseudoacinar formation with mild atypia, There is no steatosis or inflammation; (3) HA-I subtype has pseudoportal tracts that without bile ducts or veins and show inflammation. Inflammatory infiltrate is predominantly mononuclear as was seen in this case. HA-I is the most common variant (35-50 % of HCAs). These have an increased risk of bleeding and are associated with small risk of malignant transformation; (4) HA-U Subtype which shows adenoma-like features but does not have any distinctive features [12,19]. Novel tissue analysis techniques such as Q-Bend 10, erbB2-immunostaining and fluorescence in-situ hybridization (FISH) may help overcome the dilemma of accurate tissue diagnosis [21].

The role of elective surgical resection for HCA is still controversial and mainly depends upon the risk of complications, the uncertain diagnosis and the presence of symptoms related to tumor size and site, particularly with regard to the risk of rupture and resulting haemorrhage [22]. Malignant transformation is rare, but there have been a few cases reported [14]. In one series of 39 cases of unresected liver adenoma, 5 cases subsequently developed HCC [23]. Sometimes HA is difficult to distinguish from a well differentiated HCC. Therefore surgery should be indicated when clinical diagnosis of hepatocellular carcinoma can't be ruled out or malignant transformation is suspected. In our case the clinical findings, radio-imaging and histopathological examination helped in arriving at the definitive diagnosis. Alternate therapeutic modalities such as selective arterial embolization (SAE) and radio-frequency ablation (RFA) may be useful in cases not amenable to surgery [24]. Liver transplantation may be reserved for unresectable patients or those with malignant transformation, symptomatic with recurrent or ruptured adenoma [25,26].

Conclusion

We hereby report an unusual and sporadic case of a large HCA in a male who had no predisposing factors which was successfully resected. The diagnosis of a HCA can be suggested by a combination of imaging modalities, but owing to the non-specificity

of imaging findings, tissue diagnosis is a necessity. Histological confirmation can also be difficult as low grade HCCs can look similar to HCAs. Ultimately, large HCAs should be surgically removed owing to potential haemorrhage and the small possibility of malignant transformation. Documenting the occurrence of HCA in an unusual clinical setting will give an insight into the natural history of this very rare tumour.

Acknowledgement

We extend our gratitude to SAJ Cancer Science publishing group for providing complete waiver of processing and publication fees. We thank the patient for allowing us to publish the case report and use the images taken during his stay in hospital. The manuscript has been read and approved by all the authors, the requirements for authorship have been met, and each author believes that the manuscript represents honest work.

References

1. Vijay A, Elaffandi A, Khalaf H (2015) Hepatocellular adenoma: An update. *World J Hepatol* 7: 2603-9.
2. Kerlin P, Davis GL, Mc Gill DB, Weiland LH, Adson MA, et al. (1983) Hepatic adenoma and focal nodular hyperplasia: clinical, pathologic, and radiologic features. *Gastroenterology* 84: 994-1002.
3. Molina EG, Schiff ER (1999) Benign solid lesions of the liver. In: Schiff ER, Sorrell MF, Maddrey WC, editors. *Schiff's diseases of the liver*. (8th edn) Philadelphia: Lippincott-Raven 1245-67.
4. Maillette De Buy Wenniger L, Terpstra V, Beuers U (2010) Focal nodular hyperplasia and hepatic adenoma: Epidemiology and pathology. *Dig Surg* 27: 24-31.
5. Choi BY, Nguyen MH (2005) The Diagnosis and Management of Benign Hepatic Tumors. *J Clin Gastroenterol* 39: 401-12.
6. Grazioli L, Federle MP, Brancatelli G, Ichikawa T, Olivetti L, et al. (2001) Hepatic adenomas: imaging and pathologic findings. *Radiographics* 21: 877-92.
7. Herman P, Pugliese V, Machado MAC, Montagnini AL, Salem MZ, et al. (2000) Hepatic Adenoma and Focal Nodular Hyperplasia: Differential Diagnosis and Treatment. *World J Surg* 24: 372-6.
8. Tervikatan T, de Wilt JH, de Man RA (2001) Indications and Long-term outcome of treatment for benign hepatic tumors: a critical appraisal. *Arch Surg* 136: 1033-8.
9. Martin NM, Dayyeh BKA, Chung RT (2008) Anabolic abuse causing recurrent hepatic adenomas and haemorrhage. *World J Gastroenterol* 14: 4573-5.
10. Soe KI, Soe M, Gluud S (1992) Liver pathology associated with the use of anabolic-androgenic steroids. *Liver* 12: 73-9.
11. Socas L, Zumbado M, Pérez-Luzardo O, Ramos A, Pérez C, et al. (2005) Hepatocellular adenomas associated with anabolic androgenic steroid abuse in body-builders: a report of two cases and a review of the literature. *Br J Sports Med* 39: e27.
12. Dhingra S, Fiel MI (2014) Update on the New Classification of Hepatic Adenomas Clinical, Molecular, and Pathologic Characteristics. *Arch Pathol Lab Med* 138: 1090-7
13. Baum JK, Bookstein JJ, Holtz F, Klein EW (1973) Possible association between benign hepatomas and oral contraceptive. *Lancet* 2: 926-9.
14. Gordon SC, Reddy KR, Livingston AS, Jeffers LJ, Schiff ER (1986) Resolution of a contraceptive steroid induced hepatic adenoma with subsequent evolution into hepatocellular adenocarcinoma. *Ann Intern Med* 105: 547-9.
15. Leese T, Farges O, Bismuth H (1988) Liver cell adenomas: a 12 year surgical experience from a specialist hepato-biliary unit. *Ann Surg* 208: 558-4.
16. Stoot JH, Coelen RJ, De Jong MC, Dejong CH (2010) Malignant transformation of hepatocellular adenomas into hepatocellular carcinomas: a systematic review including more than 1600 adenoma cases. *HPB (Oxford)* 12: 509-22.
17. Marini P, Vilgrain V, Belghiti J (2002) Management of spontaneous rupture of liver tumours. *Dig Surg* 19: 109-13.
18. Dokmak S, Paradis V, Vilgrain V, Sauvanet A, Farges O, et al. (2009) A single-center surgical experience of 122 patients with single and multiple hepatocellular adenomas. *Gastroenterology* 137: 1698-05.
19. Cristiano A, Dietrich A, Spina JC, Ardiles V, Santibanes E (2014) Focal nodular hyperplasia and hepatic adenoma: Current diagnosis and management. *Updates Surg* 66: 9-21.
20. Chiche L, Dao T, Salamé E, Galais MP, Bouvard N, et al. (2000) Liver adenomatosis: reappraisal, diagnosis, and surgical management: eight new cases and review of the literature. *Ann Surg* 231: 74-81.
21. Wilkens L, Bredt M, Flemming P, Becker T, Klempnauer J, et al. (2001) Differentiation of liver cell adenomas from well-differentiated hepatocellular carcinomas by comparative genomic hybridization. *J Pathol* 193: 476-482.
22. Soe KL, Soe M, Gluud S (1992) Liver pathology associated with the use of anabolic-androgenic steroids. *Liver* 12: 73-9.
23. Foster JH, Berman MM (1994) The malignant transformation of liver cell adenomas. *Arch Surg* 129: 712-7.
24. Ahn SY, Park SY, Kweon YO, Tak WY, Bae HI, et al. (2013) Successful treatment of multiple hepatocellular adenomas with percutaneous radiofrequency ablation. *World J Gastroenterol* 19: 7480-6.
25. Santambrogio R, Marconi AM, Ceretti AP, Costa M, Rossi G, Opocher E (2009) Liver transplantation for spontaneous intrapartum rupture of a hepatic adenoma. *Obstet Gynecol* 113: 508-10.
26. Vennarecci G, Santoro R, Antonini M, Ceribelli C, Laurenzi A, et al. (2013) Liver transplantation for recurrent hepatic adenoma. *World J Hepatol* 5: 145-8