International Journal of Research in Medical and Basic Sciences
Volume 7 Issue 11, November 2021 ISSN: 2455-2569 Impact Factor: 6.997
Journal Homepage: http://mbsresearch.com, Email: mbsresearchp@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal

ADVANCED HEPATOCELLULAR CARCINOMA WITH RUPTURE: AN AUTOPSY CASE REPORT

Sam Ewune Kinako
Department of Anatomical Pathology, Rivers State University, Nkpolu-Oroworukwo, P.M.B 5080, Port Harcourt, Rivers State, Nigeria
[1]Email: drkinakosam@gmail.com

Boma Precious Athanasius
Department of Anatomical Pathology, Rivers State University, Nkpolu- Oroworukwo, P.M.B 5080, Port Harcourt, Rivers State, Nigeria
Email: bommyphils@yahoomail.com

ABSTRACT

Ruptured hepatocellular carcinoma is not common, but when it occurs, it has a high mortality rate. The case report presents a 35year old negroid male, who is a chronic alcoholic and a chain cigarette smoker who was referred from a peripheral health centre to the Accident Department with a diagnosis of chronic liver disease with pulmonary tuberculosis. He was initially clinically stable,but was noticed to be gradually becoming paler. The findings of the autopsy showed massivehemoperitoneum, ruptured nodule of hepatocellular carcinoma, metastasis to the right and left lungs, macronodular liver cirrhosis, severe pallor and jaundice. The prognosis of survival was poor and it was due to an advanced stage of the disease and rupture of the tumour nodule which resulted into an uncontrollable massive hemoperitoneum anddeath.

Key words

Hepatocellular carcinoma, macronodular liver cirrhosis, metastasis, massive hemoperitoneum, autopsy.

CASE REPORT

A 35-year-old negroid man, who was previously been treated with antikock'sin a peripheral health centre for over three weeks prior to admission. He is a known chronic alcoholic and a chain smoker of cigarette. He was diagnosed with hepatocellular carcinoma on admission and he came with the following symptoms namely cough, jaundice, weight loss and anorexia. He was chronically ill-looking, severely pale and jaundiced. His right and left lungs were dull on percussion and there was reduced air entry, bronchial breath sounds and a few basal crepitations heard over both lung fields.

There was tenderness in the hypogastrium and epigastrium. The liver surface was rough and there was hepatomegaly. The spleen was not palpable and both kidneys were not ballotable.

The laboratory work-up revealed a hemoglobin of 9.0g/dl (RV:11.5-16.5g/dl), leucocytes of 10.0 x 109/L (RV:3.5 – 10x109/L), and platelets of 245x109/L (RV:100-400x109/L), alkaline phosphatase of 591u/L (RV: 5-270WL), aspartate transaminase of 388u/L (RV:5-34u/L), alanine transaminase of 113u/l (RV: 5-50u/L), Total bilirubin of 45.9umol/L (RV:3.4 – 22umol/L), hepatitis B surface antigen seronegative and his abdominal ultrasound scan revealed an enlarged liver with nodular outline and it measured 17.8cm in the midclavicular line, his chest x-ray revealed mild to moderate perihilar markings.

He received a pint of whole blood and his post-transfusion hemoglobin was 6g/dl (RV: 11.5g/dl – 16.5g/dl), he was noticed to be gasping for breath and his pulse and blood pressure were not recordable despite attempts at resuscitation which was unfortunately abortive.

He was certified dead three(3) hours after admission and his body was sent to the morgue for autopsy.

AUTOPSY FINDINGS

The corpse weighed 50kg and measured 180cm in length,the body mass index is 15.4kg/m and during the external examination he is severely pale and jaundiced. The internal examination revealed no pneumothorax and all the internal organs are located in their normal anatomical location. The pleural and pericardial cavities are normal and their surfaces are smooth and glistening. The peritoneal cavity contains two (2) litres of blood(See Figure 1).

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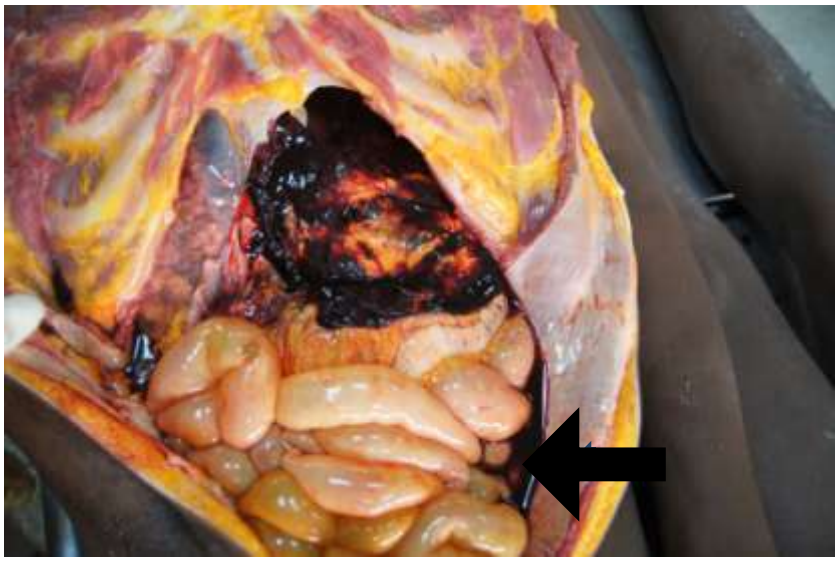

Figure 1: Gross examination of the peritoneal cavity showing hemoperitoneum.

The liver weighed 2260gms (RV: 1400 – 1600gms) and the capsule is ruptured around the anteroinferior part of the left lobe. The cut surface revealed a solid grayish-white tumour measuring 10cm in its widest diameter and on a background macronodularcirrhosis(See figure 2). The gall bladder was normal and patent.

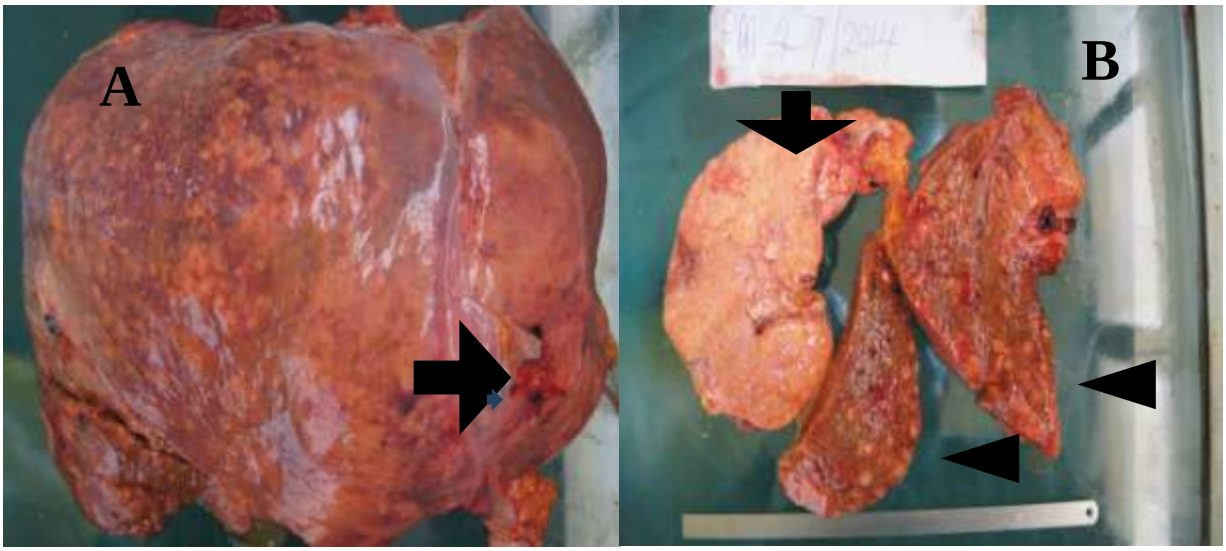

Figure 2; Gross examination of the liver.(A) Showing area of rupture(arrow); B-Showing the cut surface of the liver: displaying a solid grayish white tumour(arrow) and on a background of numerous grayish-white macronodules(arrow head).

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The oropharynx, nasopharynx, laryngopharynx, trachea and the right and left main bronchi appear normal. The right lung weighs 1470gms (RV: 375 – 500gms) and the left lungs weighs 1100gms (RV: 325 – 450gms). The right and left bronchial branches appear normal. The surfaces of the right and left lungs are similar and show red to brownish areas interspaced by diffuse grayish-white nodules with diameters measuring between 3mm to 4mm(see figure 3).

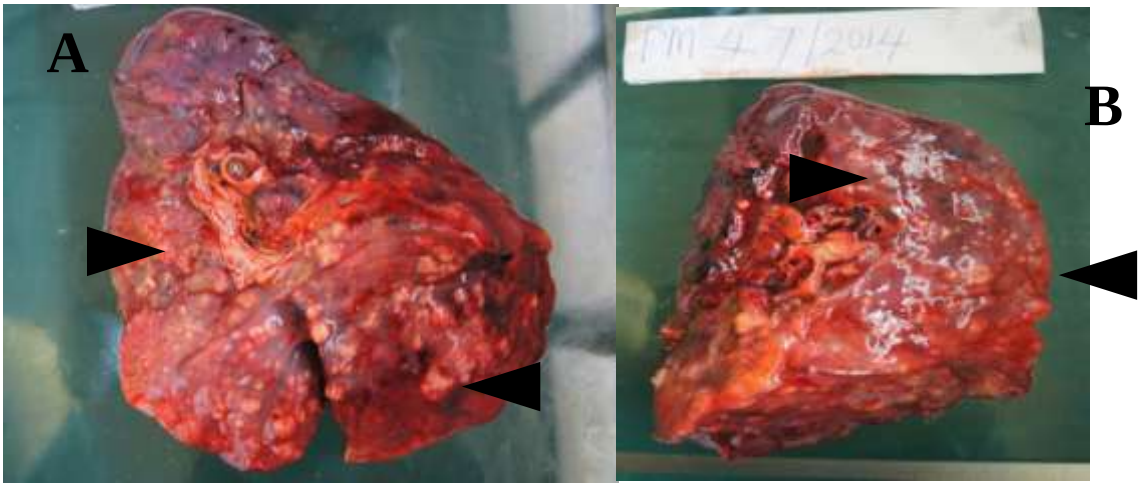

Figure 3: Gross examination of the right(A) and left(B) lungs show 'cannon ball' metastasis

The left and right pulmonary arteries and vein appear normal and there is prominent left and right perihilar lymph nodes. Other organs appear normal and showed no evidence of metastasis.

Histology of his liver revealeda poorly differentiated hepatocellular carcinoma(trabecular type) on a background macronodular liver cirrhosis(see figure 4).

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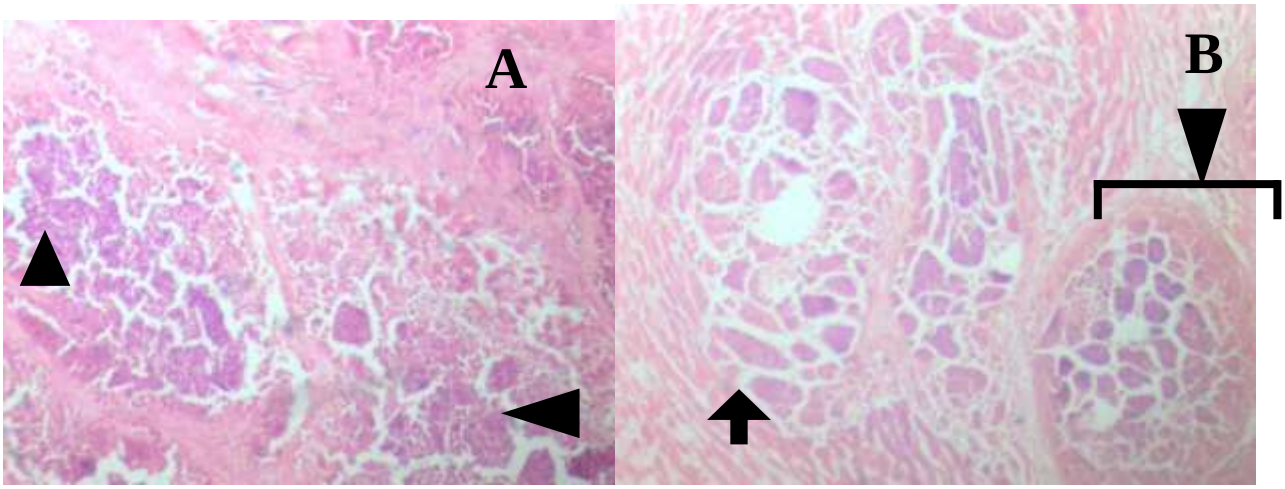

Figure 4: Photomicrography of the liver showing hepatocellular carcinoma on a background liver cirrhosis. (A) High magnification of the liver showing malignant hepatocytes disposed in macrotrabecular pattern(arrow head)(H&E, 400x); B-High magnification of the other areas of the liver showing irregular regenerating nodules composed of malignant hepatocytes disposed in macrotrabecular pattern(arrow head) been surrounded by dense fibrous connective tissues(arrow)(H&E, 400x). Also there is metastasis to the right and left lungs. The histology of other organs revealed a normal morphology. The findings of the autopsy points towards massive hemoperitoneum as the immediate cause of death due to ruptured advanced hepatocellular carcinoma and on a backgroundmacronodular liver cirrhosis.

DISCUSSION

Hepatocellular caricinoma (HCC) is the most common primary malignant tumour of the liver. [1] It is the sixth most common cancer globally and with an estimate of more than 906,000 new cases annually and the third leading cause of cancer death. [2, 3, 4] It is commoner in males between the age of 30 to 50. [5] This is consistent with the index case being a male and 34 years of age.

The main risk factors for hepatocellular carcinoma are chronic alcoholism, hepatitis B infection, hepatitis C infection, aflatoxin, cirrhosis of the liver, tyrosinemia, glycogen storage disease and ∝ 1 antitrypsin deficiency. [5,6] Among these factors chronic alcoholism and liver cirrhosis were the risk factors identified in the index case.

Spontaneous rupture of hepatocellular carcinoma is a potentially fatal complication and the third leading cause of death in patients with hepatocellular carcinoma.[6]The index case showed the most dreaded sequelaeof hepatocellular carcinoma namely rupture of the tumour nodule, massive hemorrhage and mortality. In Africa and Asia, up to 8% - 15% of patients

with hepatocellular carcinoma present with rupture.[7]Mahibul et al 2013 reported cases of non-bleeding spontaneous rupture of hepatocellular carcinoma, this is contrary to the index case due to the findings of liver function derangement by the evidence of elevated liver enzymes which would have contributed to intraperitoneal hemorrhage after rupture. Large and peripherally located tumours are prone to rupture as was seen in the index case. Both primary and metastatic tumours can be highly vascular and necrotic. [9, 10, 11]. Rupture may occur when the portal and or hepatic venous vessels have been disrupted by a penetrating trauma, non penetrating trauma operative or spontaneous event. The index case revealed no history of trauma despite rupture. Spontaneous rupture of hepatocellular carcinoma tends to occur during advanced stage suggesting long term survival isunlikely. [12]

The mechanism of rupture of hepatocellular carcinoma is not exactly known but hypothesis suggest a rapid growth of the tumour and necrosis may lead to rupture by splitting the overlying non-tumourous liver parenchyma or by erosion of a vessel or by increased intra-tumour pressure with the occlusion of hepatic veins by tumour thrombi or by invasion and coagulopathy.[7] Degeneration of elastin and degradation of type IV collagen renders the blood vessels stiff, weak and in some instances split easily.

This case has contributed to the incidence of hepatocellular carcinoma presenting with haemoperitoneum in Africa. However it is reported to be rare in western countries.[13, 14, 15]

The histologic patterns of hepatocellular carcinoma include trabecular, pseudoglandular and solid growth. Other less common patterns include clear cell, steatohepatitis like inflammatory, anaplastic giant cell and spindling clear cell.[16] Among these the index case displayed a solid growth and trabecular histologic pattern. Histologic grades of hepatocellular carcinoma include well differentiated, moderately differentiated and poorly differentiated types.[17]
The histological grade of index case is poorly differentiated and it is known to be extremely rare in small and early stage of the tumour. [17] This is consistent with the index case been large and in an advanced stage.

CONCLUSION

Hepatocellular carcinoma with metastasis to the right and left lungs indicatean advance stage of the disease. However rupture of the tumour node may occur in a background of an advanced stage of the disease and this may be fatal as was present here.The autopsy was done to identify the cause of death in the index case.

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