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Case Report

Spontaneous Rupture of Hepatocellular Carcinoma with Hemorrhagic Shock

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Abstract

Spontaneous rupture of hepatocellular carcinoma is a fatal and rare complication. Most of the patients admitted to the emergency department with abdominal pain and hemodynamic instability. After appropriate intravenous fluid therapy different treatment modalities can be chosen due to patient's functional liver reserve, clinical status and tumor's features.

A 48 years old male patient admitted to the emergency department with upper abdominal pain and severe hypotension. Dynamic contrast enhanced computerized tomography showed ruptured partially hypervascularized lesion at segment 4b and 5 in the liver. Also there were free hemorrhagic fluid densities at perihepatic and perisplenic areas. First of all transcatheter arterial embolization was performed at the interventional radiology department, then central hepatectomy including segment 5 and segment 4b was performed. The patient was discharged without any complication.

Ruptured hepatocellular carcinoma is an emergency clinical situation. Staged hepatectomy after transcatheter arterial embolization for ruptured hepatocellular carcinoma may be the best treatment option for patients who have acceptable liver functions and resectable tumor features.

Keywords: ruptured hepatocellular carcinoma, surgery, spontaneous

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Spontaneous rupture of hepatocellular carcinoma (HCC) is a fatal and rare complication. The incidence rate of spontaneous rupture for HCC is between 2,6-26 %.[1] The incidence rate has reduced due to early diagnosis during the last decade, but mortality rates are still high like 25-100 % in most cases.[1] Most of the patients consulted at the emergency department with abdominal pain and hypotension. It is difficult to choose the right treatment modality for these clinically unstable patients. Studies have shown different treatment strategies such as emergency hepatectomy, hepatic arterial ligation, perihepatic packing and transcatheter arterial embolization (TAE). Liver functions and histopathologic features of tumor have the key role for choosing the right treatment option and also they affect the prognosis of the patient. We aimed to report a spontaneous rupture of hepatocellular carcinoma case that was treated successfully with central hepatectomy after TAE.

Case Report

A 48 years old male patient has applied to the emergency department with severe hypotension and tachycardia. (Ar-

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terial blood pressure: 90/ 50 mmHg and heart rate: 120 b/min). He also had mild abdominal pain. Physical examination was revealed. There was abdominal tenderness at the epigastric region. The patient was monitored for the vital signs. Intravenous fluid resuscitation was started rapidly, and blood samples were collected for laboratory tests. Hemoglobin level was 5.5 g/dl. AFP level was 16,31 ng/ml. All the other biochemical test analyses were in normal range. (AST: 30 IU/L, ALT: 35 IU/L, Total bilirubin: 1.1 mg/dl, INR: 1.02) After fluid resuscitation and red blood cell transfusion, the patient's vital signs were stabilized. Dynamic contrast enhanced computerized tomography showed hypervascularized lesion at segment 4b and 5 with the dimensions of 6x4 cm in the liver. Also free hemorrhagic fluid densities were observed at perihepatic and perisplenic areas (Fig. 1). In order to stop active bleeding, transcatheter arterial embolization was performed at the interventional radiology department. Then elective surgery was planned. Central hepatectomy including segment 5 and segment 4b was performed. Post-operative course was uneventful and the patient was discharged without any complication. Final pathological examination revealed moderately differentiated ruptured hepatocellular carcinoma with the dimensions of 4x3,5x3 cm (Figs. 2-3).

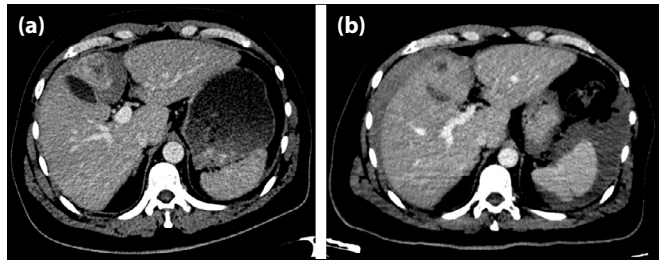

Figure 1. Contrast enhanced CT obtained one day before the admission **(a)** and at the day of admission **(b)** shows hypervascular tumor located in segment IV. An increase in the amount of perihepatic fluid consistent with hemorrhagic fluid is seen in these serial CT examinations.

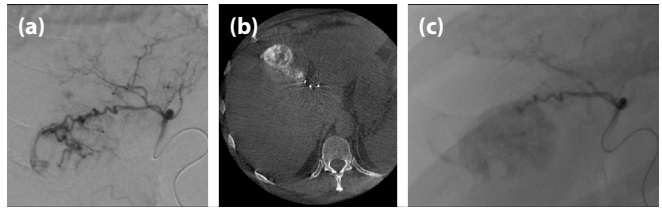

Figure 2. Superselective catheterization of the tumor feeding arterial branch of segment IV artery shows slight active contrast extravasation from the periphery of the tumor **(a)**. Cone-beam CT slice **(b)** shows the hypervascular tumor. After selective bland embolization with calibrated particles selective angiography image **(c)** demonstrates retained contrast in the tumor and cessation of active contrast extravasation.

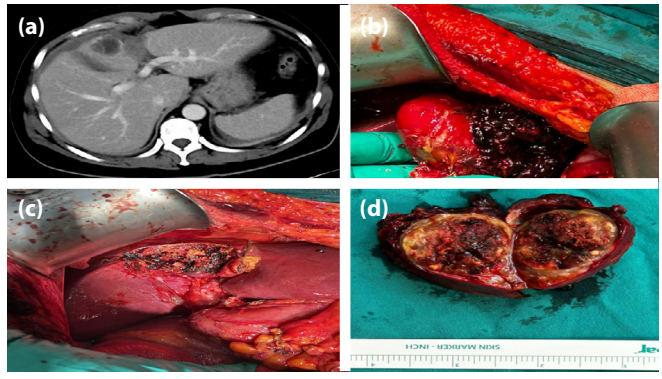

Figure 3. Post-embolization control CT slice **(a)** demonstrates necrosis of the tumor **(b)** and the decrease in the amount of perihepatic hemorrhage. Central hepatectomy **(c)** and macroscopy of the tumor **(d)**.

Discussion

Male gender and Child-Pugh A class patients' predominance has been shown in studies for ruptured HCC.[1] Our patient was a 48 year old male patient and his liver functions were fine at the admission. Hemodynamic instability, hemoperitoneum, and the degree of liver injury are the major factors affecting 30 day mortality.[1] Ruptured HCC with massive hemoperitoneum often results with hemorrhagic shock which should be treated urgently with intravenous fluid resuscitation in order to stabilize patients. We had treated our patient with intravenous fluids and red blood cell transfusion.

As we know that most of the HCC tumors' blood supply arises from the hepatic artery, conservative treatment strategies wouldn't be enough to decrease the risk of continuous or repeated bleeding. After hemodynamic stabilization of the patients TAE and/or surgery should be considered for ruptured HCC patients.[2] TAE is a better hemostatic method when compared with surgical hepatic arterial ligation.[3] Although TAE has an excellent hemostatic effect in ruptured HCC, Zhong et al observed that when TAE is compared with hepatectomy TAE has lower therapeutic effect. [1] Li et al suggested staged TAE followed by surgery in selected patients as a solution because due to hemodynamic instability the surgery may be difficult as a first choice.[4]

It should be considered that if TAE is a definitive or preliminary treatment modality case by case. Reevaluation of the patient after TAE; especially post TAE liver functions and patient's clinical condition are the main factors for choosing surgery after TAE as a definitive treatment. In a recent study liver failure after TAE was observed in 19 % patients who receive TAE after ruptured HCC, which suggests that patients with good reserved hepatic function should be se-

lected for TAE.[1] Liver functions and general clinical condition of our patient were excellent so we initially chose TAE for hemodynamic stabilization and afterwards surgery as a definitive treatment.

Patients who have ruptured HCC with stable hemodynamic parameters, acceptable liver functions and resectable tumor features may be considered for emergency hepatectomy. In a recent study spontaneous rupture independently predicted poor overall survival after hepatectomy but overall survival and recurrence free survival after hepatectomy for ruptured HCC in the emergency and staged subgroups were not significantly different in multivariable analyses.[5]

Conclusion

Ruptured HCC is an emergency clinical situation which should be evaluated by a multidisciplinary team consisted of surgeons, interventional radiologists, hepatologists and medical oncologists. Staged hepatectomy after TAE for ruptured HCC may be the best treatment option for patients who have acceptable liver functions, resectable tumor features and fine clinical conditions.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship Contributions: Concept – F.O.; Design – F.O.; Supervision – R.K.; Materials – F.O., R.K.; Data collection &/or processing – F.O., R.K.; Analysis and/or interpretation – F.O.; Literature search – F.O.; Writing – F.O., R.K.; Critical review – R.K.

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