



# Spontaneous Hepatic Hemangioma Rupture

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## ABSTRACT

Hepatic hemangiomas are congenital vascular malformations. These hemangiomas are the most common benign tumors of the liver and are often asymptomatic. Spontaneous rupture of hemangiomas have very high risk but occurs rarely. In spontaneous rupture, sudden abdominal pain, anemia, which is secondary to hemoperitoneum, and shock are observed. If the volume of hemangioma increases, then the risk of rupture also increases. The size of hemangiomas at which prophylactic surgery will be conducted varies depending on the clinics where the surgery will take place. Surgery is restricted to certain specific situations. In spontaneous or traumatic rupture with hemoperitoneum, intratumoral bleeding, and consumptive coagulopathy, there are certainly surgical indications. Hemangioma rupture must be kept in mind for the patient who has no known abdominal disease and presents with acute abdominal pain. (*JAREM* 2015; 5: 128-30)

**Keywords:** Hepatic hemangioma, liver tumor, spontaneous rupture

## INTRODUCTION

Hemangiomas are common benign tumors mainly seen in the livers of adult women. They are usually smaller than 4 cm in diameter, are asymptomatic, and are mostly found in the right lobe of the liver (1-5). As symptomatic findings, a hemangioma may cause abdominal pain (particularly in the right upper quadrant), vomiting, jaundice, or a palpable mass as well as symptoms due to the compression of adjacent organs. A hemangioma carries the risk of rupture and bleeding that may cause sudden death. It is a rare complication that can spontaneously occur as a result of abdominal bleeding, biopsy, or trauma, and its mortality rate is high (6, 7). It has been stated that the risk of spontaneous liver hemangioma rupture is very low, and it has been reported in recent meetings that this condition is not encountered even in places where there are numerous potential patients.

Liver hemangiomas are usually diagnosed during imaging procedures or laparotomies performed for other reasons. There are insufficient data on treatment. Various treatments, such as steroid therapy, radiation therapy, ablation therapy, interferon treatment, and surgery, have been tried (2, 7). In symptomatic patients, the treatment option is surgery for symptoms of rupture, hemorrhage, thrombosis, increase in diameter, abdominal pain, suspicion of malignancy, and compression.

## CASE REPORT

A patient having complaints of abdominal pain, nausea, and vomiting for a week applied to the emergency service. The patient was observed to have chronic obstructive pulmonary disease for 5 years and had minimal sensitivity in all quadrants in the physical examination. In laboratory tests, the hemoglobin (Hb) level was 8 g/dL, white blood cell count was 22,000/mm<sup>3</sup>, platelet count was 450,000, aspartate aminotransferase level was 214, and alanine aminotransferase level was 590. In

abdominal ultrasonography (USG), an 87 x 41 mm subcapsular hematoma was detected in the antero-inferior segment of the right lobe and 12 x 10 mm hemangioma was detected in the anterior part of the left-right junction of the liver. USG findings were confirmed with abdominal computed tomography (CT), which was performed in the emergency department. It was seen that the hematoma continued toward the outside of the parenchyma, and high-density fluid compatible with blood was observed within the perihepatic, perisplenic, and bowel loops (Figure 1). A hemangioma rupture diagnosis was made, and the patient was admitted to the inpatient service. Complete blood count, physical examination, and vital sign monitoring were performed.

The patient's hemodynamic findings remained normal. Sudden drops in Hb levels, Htc, urine output, and central venous pressure did not occur. A total of 2 packed red cells and 2 units of fresh frozen plasma were given. Two weeks after admission to the emergency service, abdominal magnetic resonance imaging (MRI) was performed for control in the patient, whose vital signs remained stable; it was seen that the hematoma in the liver had regressed to 76 x 51 mm and that no free fluid remained in the abdomen (Figure 2). The patient who was monitored due to the diagnosis of spontaneous rupture of hemangioma was discharged without surgical intervention after 19 days.

## DISCUSSION

Liver hemangiomas are observed between 0.4 and 7.4% of adult people in autopsy series, and their volumes are usually less than 4 cm<sup>3</sup> (1-4). Hemangiomas most commonly affect females (80%) and adults aged 40 to 50, and liver hemangiomas are divided into two major groups: capillary hemangioma and cavernous hemangioma. Hemangiomas are usually multifocal and are settled in the right lobe (1, 4). Liver hemangiomas carry

risks of spontaneous rupture and bleeding that may potentially cause sudden death; although the possibility of hemangioma rupture is as low as 1 to 4%, it may occur spontaneously or as a result of simple trauma, and the mortality rate is high (60%) (3).

Thirty four cases have been presented in the literature since spontaneous liver hemangioma rupture was first described by Von Haefner in 1898 (7). In the spontaneous rupture series of 12 cases of Sewell and Weiss (2), the mortality rate was determined to be 75% in 1961. The mortality rate was found to be 75% in the 20 case study of Yamamoto et al. (8) Uncertainty exists regarding the etiology of hemangiomas; according to some authors, hemangiomas are quietly growing hamartomas of the liver. Although there are no precise data related to genetic inheritance, Moser et al. (9) found hemangiomas that caused symptoms in three women from three generations of the same Italian family. Some pharmacological agents are associated with the growth and development of hemangiomas. Steroid therapy, estrogen therapy, and pregnancy enlarge existing hemangiomas (10). Hemangiomas have been shown to have estrogen receptors in some studies (11).

Although hepatic hemangiomas are usually asymptomatic, they can sometimes cause upper quadrant pain due to capsular tension or focal necrosis. Thrombosis, infarction, bleeding into the

lesion, and compression of surrounding tissues are other factors that cause pain. Giant hemangiomas may also cause biliary colic, obstructive jaundice, and gastric outlet syndromes in addition to pain (12). If there is no trauma or anticoagulation, spontaneous rupture of hemangioma is a rare complication, and it is accompanied by hepatocellular carcinoma (HCC), hepatic adenoma, or cavernous hemangioma rupture (13). While sudden and severe pain and anemia due to hemoperitoneum develop in spontaneous rupture of hemangioma, disseminated intravascular coagulopathy may also develop (6, 14). In addition, a picture of hypovolemic shock develops in about one-third of patients. Even though the mortality rate in hemangioma rupture increases depending on the lesion volume, the average death rate is 35%. As the size of the hemangioma increases, the chance of rupture increases in lesions that are settled on the surface of the liver and grow extrahepatically, as well as in patients using steroids (6, 7). Ultrasound, CT, MRI, hepatic arteriography, digital angiography and single photon emission CT (SPECT) are used for the detection of hemangiomas (8). MR and SPECT are more advantageous to detect lesions smaller than 2 cm. Biopsy is accepted as contraindicated in hemangiomas and is not performed unless necessary. However, biopsy can be performed on small lesions that cannot be diagnosed radiologically or cannot be definitively diagnosed, even if the lesion is considered to be hemangioma. The treatment of hemangiomas is set according to the volume and location. Lesions smaller than 4 cm are monitored periodically, and surgery is recommended only in special cases. Surgical procedures are classified as follows: 1. anatomical, non-anatomical resection, enucleation; 2. selective portal vein embolization; and 3. liver transplantation.

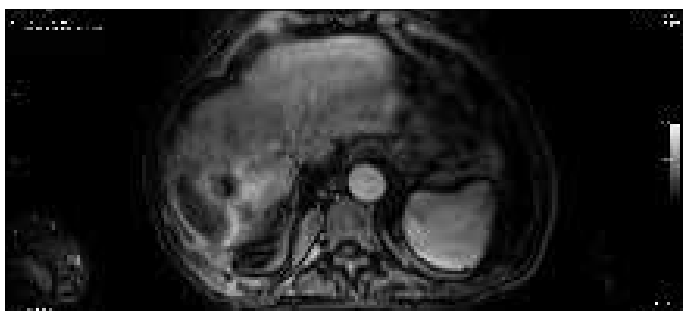
Although transcatheter hepatic arterial embolization has recently been used in the treatment of hemangiomas, it is still controversial because it leads to ischemia, infection, abscess, or abdominal bleeding (7). Radiofrequency ablation can be used in the treatment of hemangiomas together with laparoscopic or open procedures. Radiotherapy is a possible treatment method in patients in whom surgery cannot be performed.

## CONCLUSION

Hemangiomas are common benign tumors of the liver. They are usually identified through radiological tests performed for other reasons. Surgical treatment can be performed in symptomatic cases. Spontaneous rupture of hemangiomas is rare and life threatening. Patients often lose their lives due to massive bleeding. Because the general condition of patients with spontaneous hemangioma rupture is too poor to tolerate surgery, hemodynamic stabilization should quickly be provided (with packing or hepatic artery ligation), and subsequently, when stabilization is established, the operation should be planned. Hemangioma ruptures should always be kept in mind as a differential diagnosis in cases of sudden and severe abdominal pain. Patients can be monitored without surgery in spontaneous ruptures of hemangioma unless disorders occur in the clinical condition of the patient. If a disorder does not occur in the clinical condition of a patient with spontaneous rupture, close follow-up can be attempted in hospitals with the necessary infrastructure and experience.



**Figure 1.** Tomography scan showing diffuse free fluid in the abdomen



**Figure 2.** MR-sectional view without diffuse free fluid in the abdomen

**Informed Consent:** Due to the retrospective design of the study, informed consent was not taken.

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