SPONTANEOUS RUPTURE OF GIANT HEPATIC HEMANGIOMA

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ABSTRACT

Hemangiomas are the most common benign tumors of the liver, with a prevalence ranging from 0.5 to 7% in necropsies. Tumors larger than 5 cm are called giant hemangiomas. Rupture is a very rare complication, although it is the most severe. We report the case of a 52-year-old patient who presented with a ruptured giant hepatic hemangioma. She was treated with a two-stage surgery, with successful outcome.

Keywords: hemangioma; liver neoplasms; rupture, spontaneous; surgery.

Hemangiomas are the most common benign tumors of the liver, *with a prevalence ranging from 0.5 to 7% in necropsies*. They are more common in women and adults in the 4th or 5th decade of life, usually up to 3 cm in diameter (1). They may be single or multiple (10% of cases), and there seems to be no relationship between age and tumor size (2).

Hepatic hemangioma is believed to be a congenital malformation which increases in size, initially along with the liver and later by ectasia. Tumors larger than 5 cm are arbitrarily called giant hemangiomas (3). Symptoms usually show with tumors larger than 5 cm, particularly with tumors about 10 cm in diameter (4,5). Hemangiomas have a good prognosis and no potential for malignant transformation (3,6,7). Rupture is a very rare complication, although it is the most severe. It may occur spontaneously in up to 1-4% of hemangiomas. Approximately 40 cases have been described in theliterature, with a high mortality rate (up to 60%) (19). In most cases, the injury is located on the lateral or inferior surface of the liver (9,10,11,12).

There is still no consensus on the management of ruptured hepatic hemangiomas (13). We report a severe case of spontaneous rupture, with a description of its management and a brief review on the topic.Case report

A 52-year-old female patient suddenly presented with pain in the right upper quadrant radiating to the lower back and right scapular region. Pain intensity increased over the next few hours. She presented to an emergency service where she had syncope. Physical examination showed sharp pain on palpation of the right hypochondrium and tachycardia with no hypotension.

An abdominal ultrasound revealed hepatomegaly with a large hematoma and a giant hemangioma (about 35 cm in diameter at its widest axis), which occupied almost the entire right lobe of the liver. Laboratory tests performed initially indicated anemia (hemoglobin: 8g/dL). The patient was kept in an intensive care unit (ICU) for clinical monitoring.

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Over the next 24 hours, abdominal pain remained intense and hemoglobin remained low despite blood transfusion. Liver function tests showed aspartate transaminase (AST) levels were 3420 mg / dL, alanine transaminase (ALT) levels were 2946 mg / dL, prothrombin time was 45%, factor V was 42%, and platelets level was 87,000 μ L. The patient was then transferred to Santa Casa de Porto Alegre, a tertiary hospital. Computed tomography (CT) of the abdomen confirmed the sonographic findings (Figure 1).

About 48 hours after the onset of pain and after having received four units of packed red cells and two units of fresh frozen plasma, the patient developed hypotension and tachycardia, which required vasoactive drugs. This lead to respiratory failure, which required mechanical ventilation.

Due to worsening of clinical and laboratory findings, laparotomy was performed through a bilateral subcostal incision with sternal extension. The inventory of the peritoneal cavity revealed voluminous hemoperitoneum and a large subcapsular hematoma due to the rupture of a giant hemangioma of the right lobe of the liver. After an unsuccessful attempt to control bleeding by hepatic packing, we performed a selective dissection and clamping of the right hepatic artery and right branch of the portal vein. Bleeding decreased and hemodynamic stabilization of the patient was achieved. The right branch of the portal vein was ligated. This allowed for hepatic artery.

A second-look procedure was performed on the fifth postoperative day to remove the perihepatic pads and the bond around the right branch of the portal vein.

The postoperative period was uneventful, with slow improvement of liver function tests and coagulation factors. The patient was discharged on the 23rd postoperative day, asymptomatic. A postoperative CT scan showed progressive reduction of lesion size at the end of the first month (Figure 2). Eighteen months after the surgery, it measured about 3 cm (Figure 3).

DISCUSSION

Management of hepatic hemangiomas is still a controversial subject. For patients with asymptomatic lesions smaller than 5 cm, monitoring seems to be one of the few consensus in the literature (2). For larger lesions and symptomatic patients, there is a wide number of therapeutic approaches. Besides surgical resection, other modalities are described,



Figure 1: Preoperative computed tomography scan confirmed hepatic hemangioma and hematoma.



Figure 2: CT scan 30 days after surgery.

such as embolization and hepatic artery ligation. Radiotherapy, chemotherapy, and steroids are also described, even though they are currently less used due to other techniques with better results and fewer side effects (2,6).

Resection of the hepatic hemangioma was first reported by Hermann Pfannenstiel in 1898 (5). Current indications for surgical resection of hepatic hemangioma include spontaneous or traumatic rupture, intra-tumoral bleeding, Kasabach-Merritt syndrome, and rapid growth. Whenever



Figure 3: MR 18 months after surgery.

surgical treatment is recommended, there are two possibilities: anatomic resection or enucleation.

Usually, the surgical strategy is chosen according to the size and location of lesions; segmentectomy can remove smaller tumors confined to a particular hepatic segment, while centrally located lesions can be safely enucleated. One advantage over anatomic resection is that enucleation does not remove functional liver parenchyma, allowing for the resection of hemangiomas regardless of size (3,11). Anatomic resection is usually reserved primarily for lesions that occupy the majority of segments II and III and those for which the diagnosis is uncertain.

Arterial embolization has been suggested as a good method to treat symptomatic liver hemangiomas, either alone or as a procedure prior to surgical resection, reducing the need for occlusion of blood flow and preventing ischemiareperfusion injury of the resected parenchyma. In ruptured hepatic hemangiomas, it can be a valuable technique for avoiding emergency surgery, allowing for an elective liver resection (13). A ruptured hepatic hemangioma is a life-threatening condition which may require a combination of the strategies related above. As we describe in our case, occlusion of the flow coming from the hepatic artery, associated with trauma maneuver, allows for bleeding control and hemodynamic stabilization. It resulted in a successful immediate treatment with great long term outcomes. However, bile duct injury after arterial occlusion is a major concern (3,17,18). Although it is still a controversial treatment, preoperative embolization of the portal vein prior to surgical resection in selected patients has been increasingly accepted.

The behavior of benign liver tumors may not always justify surgical treatment. Liver resection should be performed in specialized and experienced centers where the rates of morbidity and mortality justify the intervention. This case exemplifies the unpredictable natural history of giant hepatic hemangiomas. This successful case confirms that the treatment of ruptured hepatic hemangiomas must be carried out according to the patient's physical status and to the available resources.

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