

Giant Hepatic Hemangioma Treated with Enucleation After Selective Portal Ven Embolisation

Selektif Portal Ven Embolizasyonu Sonrasında Enükleasyon İle Tedavi Edilen Dev Karaciğer Hemangiyomu

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Abstract

Hemangioma is the most common benign tumors of the liver and it is often asymptomatic. It is occur in all age but predominantly in women. They often do not need to be removed or treated. Conservative treatment of the liver hemangioma is preferred because of the minimal risk of complications. However, they may be large, produce a mass effect and severe complications. Surgical resection is effective method of the treatment for symptomatic lesions, rapidly enlarging masses, rupture, severe thrombocytopenia and an uncertain diagnosis. In our report, we want to present a symptomatic giant hemangioma which has been evaluated as inoperable at other centers because of its volume. We treated this case with enucleation after making the case operable by reducing the size with selective portal vein embolization.

Key words: **Hemangioma.**

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Özet

Hemangiomlar karaciğerin en yaygın benign tümörleridir ve genellikle asemptomatiktirler. Tüm yaşlarda görülmelerine rağmen kadınlarda daha sık ortaya çıkarlar. Genellikle çıkarılmaya veya tedaviye ihtiyaç duymazlar. Karaciğer hemanjiomlarında komplikasyon oluşturma riskinin düşük olması nedeniyle konservatif tedavi tercih edilmektedir. Fakat çok büyüyebilirler, kitle etkisi ve ciddi komplikasyonlar oluşturabilirler. Kesin tanının konamadığı, ciddi trombositopeniye neden olan, rüptüre olmuş, hızlı büyüyen ve semptomatik olan olgularda en uygun tedavi cerrahi rezeksiyondur. Makalemizde hacmi nedeniyle diğer merkezler tarafından inoperabl olarak kabul edilen semptomatik dev hemangiom olgusunu sunmak istedik. Bu olgumuzu selektif portal ven embolizasyonu ile hacmini küçültüp operabl hale getirildikten sonra enükleasyon ile tedavi ettik.

Anahtar Kelimeler: **Hemanjiom.**

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Introduction

Hemangiomas are the most common benign tumor of the liver, present in 0.7–7% of the population (1). The liver is the most commonly affected internal organ by hemangioma. They occur in all age but predominantly in women. Although most of these lesion remain asymptomatic, they may do so because of capsule tension, local necrosis and even severe complications such as spontaneous rupture, abscess or pressure on surrounding tissue or organs. Malignant degeneration does not occur. Tumors greater than 4cm in size are defined as “giant” hemangiomas (2). They often do not need to be removed or treated. Therapeutic options include steroids, hepatic artery ligation, hepatic artery embolization, radiation therapy, a-interferon, surgical resection and liver transplantation (3). Surgical resection is effective method of treatment for symptomatic lesions, rapidly enlarging masses, rupture, severe thrombocytopenia and an uncertain diagnosis (3). Different surgical methods may be used, such as enucleation and anatomic and nonanatomic liver resections. The laparoscopic approach has also been used recently as a surgical alternative in selected cases (4, 5).

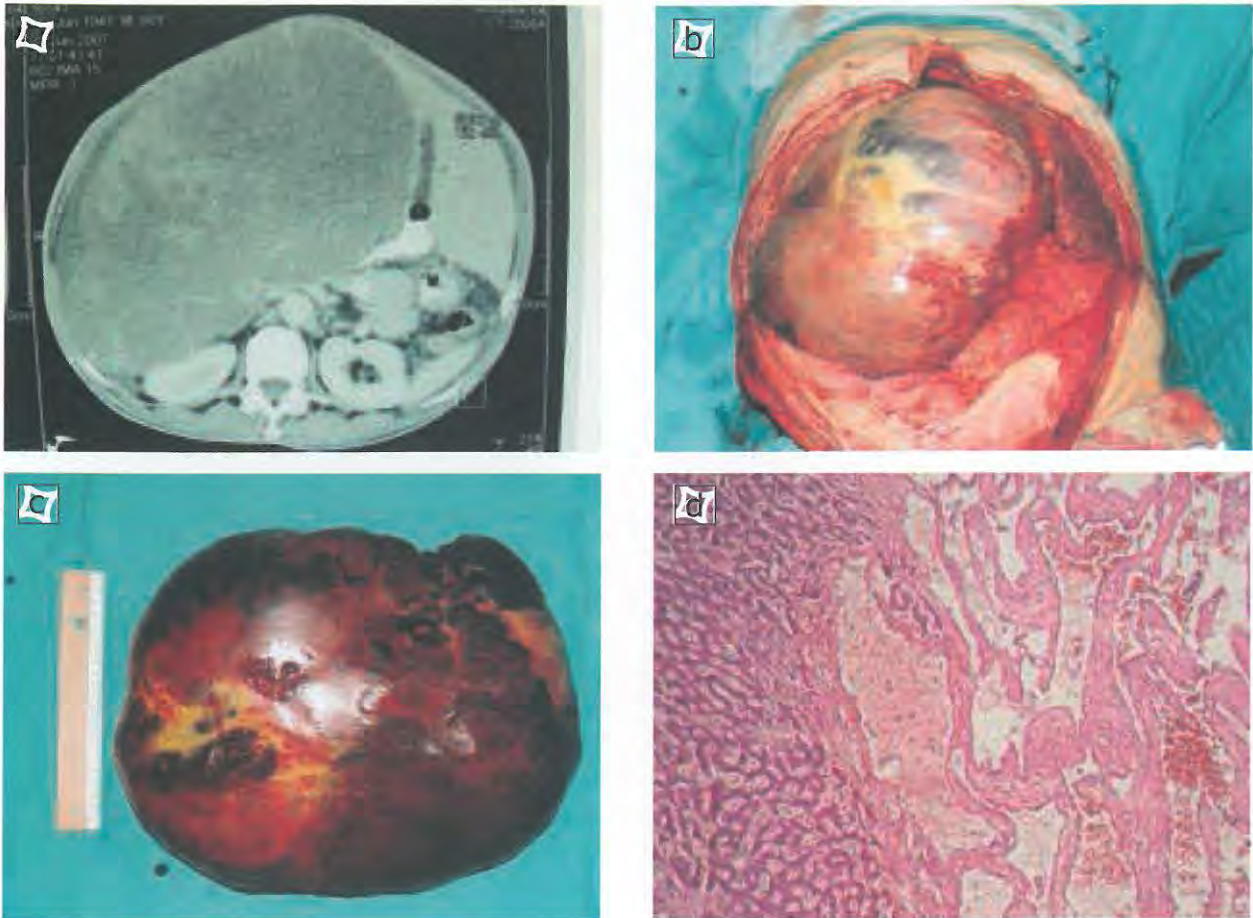
We want to report a middle-age of man with extremely complicated giant hemangioma in the liver, involving segments IVa, V, VI, VII and VIII, who was considered inoperable in different centers

Case Report

A 52-yr-old man was referred to our clinic giant haemangioma of the liver (diameter 35 cm) due to an abdominal mass and pain. He had a history of intermittent complaints such as a sense of fullness and pain in the right upper quadrant. At admission a physical examination revealed giant mass and severe pain in the upper abdomen and signs of peritoneal effusion. His upper abdomen was entirely filled with a tumoral mass protruding up to both crista iliaca anterior-superior. Blood pressure was measured as 120/70 mmHg and pulse rate as 98/min. The contrast-enhanced computed tomography (CT) scan examination ,the masses showed enhancement which were subsequently filled in with contrast from the periphery in the late images, which is typical of hemangioma (Picture 1a) and demonsrated perihepatic and perisplenic effusion, and a giant haemangioma, measuring about 35x22x14 cm, and occupying the whole right lobe of the liver (Picture 1b). Due to the suspicion of insufficiency at the liver tissue left after resection, right selective portal vein embolization was performed two times with an interval of two months

at the preoperative period in order to get ready for surgery. Four months were awaited for hypertrophy of the left hepatic lobe. After evaluating the volume of left lobe as 1600 ml with volumetric analysis, preoperative preparations were finished and the surgery was performed.

We made an inverted T-shaped skin incision, after the exploration of the abdominal cavity, liver is fully mobilized. Hepatoduodenal ligament is prepared for a possible Pringle maneuver to control an unexpected bleeding during resection. After transection line is drawn with electrocautery for ligasure application, the capsule was passes with electrocautery. Ligasure system was operated after the active part of the 5-mm clamp was placed as far as it may move inside the parenchyma. With each application, 3-4 mm of tissue was coagulated by smashing, from surface to the deeper parts. Intraoperative blood loss was about 200 mL. The resected tumour measured 35x 22x14 cm in size (Picture 1c). The histological findings revealed a liver hemangioma of 32.5 cm in diameter (Picture 1d). The postoperative course was uneventful and the patient was discharged in the 14th postoperative day.



Picture 1. CT shows two giant masses, 35x22x14 cm in right lobe (a); a giant haemangioma occupied the whole right hepatic lobe (b); the resected tumour measured 35x 22x14 cm in size (c) and the histological findings revealed a liver hemangioma (HE; x100) (d).

Discussion

The most frequent primary tumor of the liver is hepatic hemangioma (7) The liver is the most commonly affected internal organ by hemangioma. Liver hemangioma has a prevalence between 0.4 and 7.4% in autopsy (8). Hemangiomas generally occur in the third to fifth decades of life and are most commonly found in women. Malignant transformation of hemangioma is extremely rare. Most hemangiomas are clinically asymptomatic although symptoms may be observed in lesions with diameters larger than 5 cm. Complications may occur, especially when a hemangioma is enlarged and superficially located. Spontaneous rupture, severe thrombocytopenia, hypofibrinogenemia, chronic consumption coagulopathy, known as Kasabach-Merritt syndrome are rare complications of giant liver hemangioma (5).

Pain is the most common clinical manifestation and most likely occurs from stretching of Glisson capsule, infarction, or pressure on surrounding tissue or organs. Giant hemangioma can also cause obstructive jaundice, biliary colic and gastric outlet obstruction (9). In our case, there was no symptom other than right upper quadrant pain and upper abdomen was entirely filled with a tumoral mass protruding up to both crista iliaca. Liver function tests are generally found to be normally in hemangioma cases, although intrahepatic compression of the biliary tract could cause some changes and some cases, thrombocytopenia can also be observed (9).

With the widespread use of abdominal ultrasound, incidental determination of liver lesions is common. Hemangiomas are screened as sharp-edged hyperechoic

lesion with clear borders at ultrasound. But they may have different appearances at cases of hemorrhage, fibrosis and necrosis. For these reasons, it's reported that ultrasound isn't reliable for decisive distinction of liver malignancies (10). Contrast dynamic tomography (CT) may be used for diagnosis of hemangiomas but metastatic disease and hepatoma may be interfered (11). At cases which may not be diagnosed by US and CT, it's more appropriate to have the screening by magnetic resonance imaging (MRI). It's reported that MRI has more specificity and sensitivity compared to US and CT (12).

A wide range of management options exists for the treatment of liver hemangiomas. Conservative treatment of the liver hemangioma is preferred because of the minimal risk of complications. Small hemangiomas (< 4 cm) can be managed by observation. When they are larger than 4 cm and spontaneous or traumatic rupture, intratumoral bleeding or thrombosis, consumptive coagulopathy, and rapid growth are mandatory surgical indications (13). If surgery is indicated, there are three surgical procedures for the treatment of liver hemangioma; anatomic, nonanatomic resection, enucleation, ligation of the hepatic artery and liver transplantation (14). Ligation of hepatic artery has application indication at cases where it is not possible to remove it, but its benefit is suspicious. At cases where it is too big to remove, another alternative that we perform is reducing the size of hemangioma with selective portal vein embolization and letting the remaining liver tissue to be hypertrophied.

Giant symptomatic hemangiomas of the liver require therapy; enucleation remains as the procedure of choice. In most instances, this is an easy and bloodless operation in experienced hands once the surgeon defines the right dissection plane between the thin fibrous capsule of the hemangioma and the compressed normal liver (15). The incidence of postoperative complications is about 20-45% (16)

As a result, hemangiomas are the most common benign tumors of the liver. Generally, they are detected during the radiological screening performed for other reasons. At symptomatic cases, especially at giant hemangiomas, surgical treatment should be preferred. Enucleation is the most preferred surgical method, it's the first treatment method to be chosen at cases where surgery is planned as it keeps more healthy parenchyma, causes less bleeding and it's fast to perform compared to other methods.

References

1. Ishak KG, Rabin L. Benign tumors of the liver. *Med Clin North Am.* 1975; 59:995–1013.
2. Poon RT, Chan J, Fan ST. Left hepatic vein kinking after right trisegmentectomy: a potential cause of postoperative liver failure. *Hepatogastroenterology* 1998; 45: 508–509.
3. Lai HJ, Yu JC, Liu YC, Shih ML, Hsieh CB Anterior approach for a symptomatic giant hepatic haemangioma (>30 centimetre). *ANZ J Surg* 2006; 76:863-865.
4. Tsai HP, Jeng LB, Lee WC, Chen MF Clinical experience of hepatic hemangioma undergoing hepatic resection. *Dig Dis Sci* 2003; 48:916–920.
5. Hamaloglu E, Altun H, Ozdemir A, Ozenc A. Giant liver hemangioma: therapy by enucleation or liver resection. *World J Surg.* 2005; 29:890-893
6. Bengisun U, Ozbas S, Gurel M, Ensari A. Laparoscopic hepatic wedge resection of hemangioma: report of two cases. *Langenbecks Arch. Surg.* 2000; 385:363–365
7. Moser C, Hany A, Spiegel R. Familiäre Riesenhämangiome der Leber. *Praxis* 1998; 87: 461–468 Review, German
8. Belli L, De Carlis L, Beati C, Rondinara G, Sansalone V, Brambilla G. Surgical treatment of symptomatic giant hemangiomas of the liver. *Surg Gynecol Obstet* 1992; 174:474–478
9. Tuncer I, Arslan H, Harman M. Two giant cavernous hemangioma caused cavernous transformation of the portal vein in a pregnant woman. *Turk J Gastroenterol* 2002; 13:229-231
10. Yılmaz Ö, Okcu N. Karaciğer Hemanjiomları. *Güncel Gastroenteroloji* 2006; 10: 194-199
11. Tsai CC, Yen TC, Tzen KY. The value of Tc-99m red blood cell SPECT in differentiating giant cavernous hemangioma of the liver from other liver solid masses. *Clin Nucl Med* 2002; 27:578-581.
12. Soyer P, Dufresne AC, Somveille E, Lenormand S, Scherrer A, Rymer R. Differentiation between hepatic cavernous hemangioma and malignant tumor with T2-weighted MRI: comparison of fast spin-echo and breathhold fast spin-echo pulse sequences. *Clin Imaging* 1998; 22:200-210.
13. Yamagata M, Kanematsu T, Matsumata T, Utsunomiya T, Ikeda Y, Sugimachi K. Management of haemangioma of the liver: comparison of results between surgery and observation. *Br J Surg* 1991; 78:1223–1225.
14. Borgonovo G, Razzetta F, Arezzo A, Torre G, Mattioli F. Giant hemangiomas of the liver: surgical treatment by liver resection. *Hepatogastroenterology* 1997; 44:231–234
15. Hazinedaroglu SM, Kayaoglu HA, Ali Yerdel M. Enucleation of centrally located giant hepatic hemangioma: report of two cases. *Dig Dis Sci* 2006; 51:1213-1217.
16. Mc Clean GRK, Bernardino ME, Phillips VM. The liver and spleen. In: Putman CE, Ravin CE, Bowje JD, editors. *Textbook of diagnostic imaging.* 2nd ed. Philadelphia: WB Saunders: 1994. p.858-908.