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Case Report

Abdominal bleeding due to ruptured primary hepatic malignant fibrous histiocytoma: A case report

George Imvrios[1*], Georgios Katsanos[1], Evangelia Katsiki[1], Antigoni Mavroudi[2], Maria Daoudaki[1], Ioannis Xinias[2] and Ioannis Fouzas[1]

[1]Division of Organ Transplantation, Department of Surgery, Aristotle University Medical School, Hippokration Hospital, Thessaloniki, Greece
[2]Aristotle University of Thessaloniki School of Medicine, Hippokration Hospital, Thessaloniki, Greece

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ABSTRACT

Introduction: Malignant fibrous histiocytoma (MFH) is a soft tissue sarcoma with ill-defined characteristics, common in late adult life and usually occurring in the extremities, though rarely occurs in the liver. Advanced histological grade and large tumor size constitute unfavorable prognostic agents. The case of a 22-year-old female is presented who was diagnosed with MFH. The patient warranted a surgical management which was extensive hepatectomy. Beside to the scarcity of the tumor, we regard the case unique as there are no previously reported cases of ruptured hepatic MHF tumors in the literature, presenting with intra-abdominal bleeding.

Case Report: A 22-year-old female was admitted to hospital due to symptoms of intra-abdominal bleeding, with a palpable large mass in the right upper of the abdomen and general malaise. After the patient's stabilization, she underwent CT and MRI imaging which revealed advanced hepatomegaly and a 25cm vascular liver tumor occupying the liver segments IV, V, and VIII. Intra-arterial angiography was performed with embolization of the feeding vessels of the tumor which originated from the right hepatic artery and the right phrenic artery.

The biochemical markers of liver function were slightly elevated or normal, HBsAg and HBcAb positive, HCVAb negative and the following tumor markers, CEA, AFP, and CA19-9 were found to be negative. Though signs of malignancy were present in the radiology examination, such as heterogeneous multi-nodular mass badly delineated from surrounding liver parenchyma, heterogeneous vascular enhancement, and necrotic areas, radiology failed to identify the type of tumor and led to an initial diagnosis as hepatocellular carcinoma.

The liver remnant (segments I, II, III) was found to be 1.132.69 ml or 93.16% of the estimated standard liver volume. The immunohistochemistry of the tumor obtained upon right extended hepatectomy revealed a diagnosis of MFH.

Conclusion: Hepatic malignant fibrous histiocytoma is a rare mesenchymal tumor with varying features and clinical presentation that makes the diagnosis difficult. The prognosis on MFH is poor due to its insidious appearance, aggressive behavior and frequent occurrence of distant metastases. Surgical resection of the tumor may provide the only chance of survival.

**Correspondence to: Georgios Imvrios MD, PhD, Division of Organ Transplantation, Department of Surgery, Aristotle University Medical School, Hippokration Hospital, Thessaloniki, Greece; E-mail: georgeimvrios@gmail.com*

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Introduction

The malignant fibrous histiocytoma (MFH), known as undifferentiated pleomorphic sarcoma as well, which was firstly described by O' Brien and Stout in 1964, has been regarded as the most common soft tissue sarcoma occurring usually in the proximal in late adulthood [1, 2]. It is a relatively uncommon entity in the posterior retroperitoneum, the abdominal cavity, or other sites such as the skin and the head. Primary MFH of the liver is rare accounting for less than 1% of primary hepatic malignancies according to Liver Cancer Study Group of Japan and since the first report in the literature in 1985, a limited number of cases have been published [1-13]. The clinical presentation of primary hepatic MFH miscellaneous and nonspecific varies as there are asymptomatic cases while others present with symptoms which are common in a variety of diseases [8, 13]. This lack of specific symptoms is the main reason of the high incidence for the pre-operative misdiagnosis of MFH [13]. The clinical-pathology of primary hepatic MFH is far to be well understood. Histologically, MFH is composed of a heterogeneous group of tumors with the most commonly found form, the pleomorphic variant with spindle cells in a storiform pattern [4, 7, 9, 11-15]. Our patient was managed by extended hepatectomy. Beside to the scarcity of the tumor, we regard the case unique as there are no previously reported cases of ruptured hepatic MHF tumors in the literature, presenting with intra-abdominal bleeding.

Case Presentation

We present the case of a 22-year-old female who was admitted to hospital due to symptoms of intra-abdominal bleeding, with a palpable large mass in the right upper of the abdomen and general malaise. She had a history of childbirth, 40 days previously. The liver function tests of the patient were slightly elevated. She was HBsAg and HBcAb positive and HCVAb negative. The tumor markers, carcinoembryonic antigen (CEA), carbohydrate antigen 19– 9 (CA 19- 9), and alpha fetal proteinin (AFT) serum were all within normal limits. She underwent CT and MRI imaging which revealed advanced hepatomegaly and a large vascular tumor of 25cm, which occupied the liver segments IV, V, and VIII (Figure 1). However, signs suggesting malignancy were present in the patient's radiology examinations, including heterogeneous multi-nodular mass badly delineated from surrounding liver parenchyma, heterogeneous vascular enhancement, and necrotic areas. On angiography, the feeding vessels of the tumor were revealed, which were the right phrenic artery and branches of the right hepatic artery. The previous arteries were embolized for further control of the bleeding (Figure 2). The history of hepatitis B virus and the failure of radiology to identify the type of tumor led to an initial diagnosis as hepatocellular carcinoma and the bleeding was to attribute to partial rupture of the liver tumor. The radiology examinations demonstrated a large volume of the segments I, II, III as the regeneration result of an obstructive pressure from the tumor to the right portal vein branch, that preconceived for a safe right extended hepatectomy. The future liver remnant (segments I, II, III) was measured with CT and found to be 1.132.69 ml, accounting for 93.16% of the estimated standard liver volume according to the Vauthey formula [16]. No other systemic tumor was found. The patient underwent right extended hepatectomy, recovered well and the postoperative course was uneventful. The surgical specimen measured 34x30x13 cm and weighted 2600gr (Figure 3). The greatest dimension of the lesion was 26cm long. The tumor appeared multinodular with irregular geographical margins, and a yellow tan with necrosis on the cut surface area. On microscopy, the neoplastic cells had a spindle, epitheliod morphology with a high degree of nuclear pleomorphism. Additionally, the cells appeared anaplastic, multinucleated with dense of coagulative necrosis being a common feature. Immunohistochemically, the neoplastic cells were positive to fibro-histiocytic markers such as vimentin, CD 68 and a1-antithrypsin and negative to CD34, SMA, desmin, myogenin, MyoD1, inhibin, c-kit, b-catenin, S-100, Melan A, CK 7 and 20, LMWK, HepPar1, AFP, bHCG, hPL. The diagnosis of malignant fibrous histiocytoma was made (Figure 4, 5). The patient despite the advice to receiving additional chemotherapy moved abroad and the follow up was made only for a month after discharge from the hospital.

Discussion

Primary hepatic MFH predominantly affecting, but not exclusively, adults aged 50 years and older with a reported male to female ratio of 1.9:1 [11, 13]. In this case, the patient was a 22 years young female adult. The MFH occurs in the liver very rare, especially when its incidence is compared with that of the primary common malignant neoplasms of the liver. Based on its morphological pleomorphism, five histologic subtypes of MFH were described by Enzinger and Weiss: pleomorphic storiform, myxoid, giant cell, inflammatory and angiomatoid. According to the WHO classification, the terms myxofibrosarcoma and angiomatoid fibrous histiocytoma are used instead of myxoid MFH and angiomatoid MFH respectively. Now the myxofibrosarcoma is included in the myofibroblastic list and the angiomatoid fibrous histiocytoma in the tumors of uncertain differentiation [4,7,9,11-15]. It has been suggested that the tissue of origin of an MFH is the primitive undifferentiated mesenchymatic cells which have the capability of multidirectional differentiation [4,7,18,17]. The MFH histopathologically includes a pleomorphism of varying degree, mononuclear cells, multiple nucleated giant cells multiple nucleated giant cells and spindle cells arranged in a storiform pattern [4,11-13,18]. The histology of our patient was consistent with the previous findings already reported in the literature.

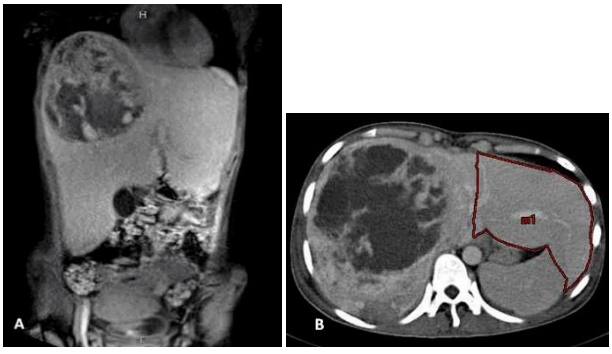

Figure 1: CTs demonstrating advanced hepatomegaly, a large tumor occupying the liver segments IV, V, and VIII (A, B) and the free of disease segments I, II, III [outlined in red(B)] calculated at 1.132.69 ml.

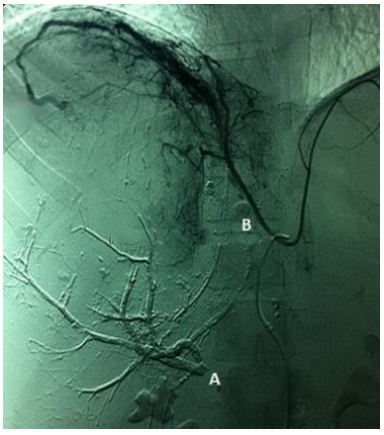

Figure 2: Angiography of the feeding vessels of the tumor, which shows the feeding branches of the right hepatic artery after the embolization(A) and the right phrenic artery (B) before its embolization.

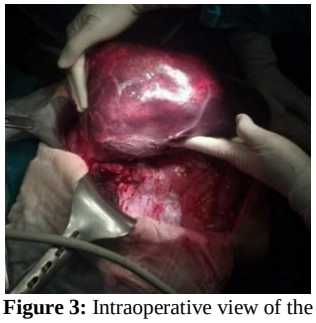

Figure 3: Intraoperative view of the hepatic MFH.

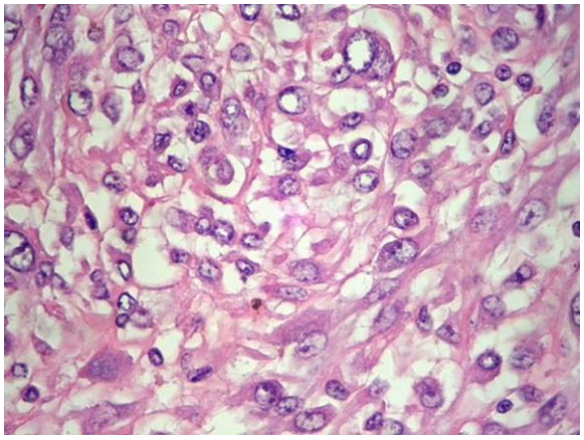

Figure 4: Pathological examination showing storiform-pleomorphic spindle cell areas arranged in fascicles (hematoxylin and eosin X400).

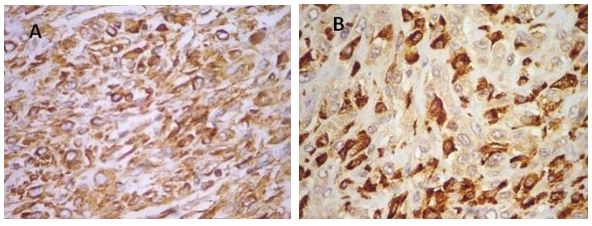

Figure 5: Immunohistological staining showing a positive reaction to a1-antichymotrypsin (A) and to CD68 (B)(X400).

The clinical presentation of hepatic MFH variations includes abdominal pain or discomfort, fever, malaise, anorexia, obstructive jaundice and weight loss although there are cases nearly without any symptom [11-13]. In our case, the clinical presentation was intra-abdominal bleeding, due to rupture of the tumor. The previous finding has not been previously reported as a presenting sign of an MFH tumor in the literature. The laboratory examinations are not helpful. The liver functions tests usually are within the normal range and the tumor markers serum AFP, CEA, CA19-9, and CA125, are normal or slightly elevated and they could not be predictors indexes for MFH hepatic tumor. Radiological work-ups of hepatic MFH, show in the CT and MRI imagine homogeneous solid lesions or heterogeneous dense with areas of cystic changes or necrosis and characterized by hypoechoic or hyperechoid, mixed pattern or cystic masses. These radiological presentations of hepatic MFH are nonspecific for this tumor and it is difficult to differentiate them from cholangiocarcinoma, HCC and fibrolamellar hepatocarcinoma, angiosarcoma, a metastatic tumor or liver abscess [11- 13]. In this case, radiology failed to differentiate the MFH tumor from other types of tumors. A preoperative needle biopsy is a recommendable and useful tool [4, 8, 13, 17]. Care must be given to the US or CT guided biopsy to avoid retrieving necrotic tissue from the masse. However, a worse prognosis of the patients who undergo biopsy has been reported, probably due to the spread of cancer cells across the needle tunnel [13].

Under the above conditions, it is well understood that the preoperative diagnosis of hepatic MFH is difficult and the incidence of misdiagnosis is high. These diagnostic difficulties could lead to delayed treatment or even worse to the wrong treatment [11-13]. The MFH has a high propensity for recurrence topically even in case of an excision with negative margins. The metastasis is made via the circulatory (30%) and lymphatic (12%) system [11]. Some efforts have to be done to determine clinicopathological factors related to prognosis in hepato-MFH suffering patients, such as high Bcl-2 expression, high proliferation index, vascular invasion, bone morphogenic protein-2, without adequate credibleness. However, the expression of ezrin protein in pleomorphic MFH is related to poor survival [6, 17].

The cornerstone of the treatment for primary hepatic MFH is the early diagnosis and the complete surgical resection with negative resection margins. In case of recurrence, the reoperation could be effective. The aggressive nature of hepatic MFH has no room for good prognosis [3, 12, 19]. Studies have reported a survival rate of up to 33% of the affected patients for more than 2 years [13]. The vast majority of the patients have very limited survival rate. Prognostic factors for the patient survival are the “profile” of the tumor, which corresponds to the tumor size, grade, depth, sufficiency of primary excision, metastasis and the histopathological grade [6, 13, 18]. Regarding the adjunctive therapies, i.e. chemotherapy or radiation therapy, there are controversies among the scientific community for their effectiveness [4, 7, 13, 14]. Another point of interest in this patient is the history of childbirth 40 days before she was admitted to hospital. That means the MFH was evolving the patient’s liver during gestation. The MFH accounts for 5% of all soft-tissue and bone tumors during the pregnancy [20].

Though there is a lack of documentation that the progression of these tumors is aggravated by pregnancy, the low immune response during gestation could play a role in the accelerated growth of the tumor [21]. Reports in the literature regarding the adverse effect of MFH in the fetus during gestation and the prognosis for the newborn is still under investigation. Once has been reported that mother’s disease affects the fetus but has been reported no metastatic evidence as well in newborn [20, 22]. We are unable to know if the local obstetricians had been aware of the liver tumor during the prenatal care examinations in the presented case because the patient gave birth in another country and no reports have been on the issue.

Conclusion

MFH of the liver is a very infrequent malignant mesenchymal tumor followed by poor prognosis. The preoperative misdiagnosis is high due to a diversification of its clinical presentations, laboratory tests and radiology images that are similar to other tumor and lesion entities of the liver. The prognosis is poor and the integrated surgery initially or in case of recurrence is the treatment of choice, providing an ability for surviving. There is no undeniable documentation that the patients benefit from adjunctive therapies, such as chemotherapy or radiation.

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