Case Report

A Progressive Growing Inflammatory Pseudotumor of the Liver

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Inflammatory pseudotumors of the liver are very rare, and their etiology and pathogenesis remain unclear. The diagnosis is often difficult to make because these masses of ten mimic other lesions such as primary neoplasms, metastases or liver abscesses. Herein, we report a rare case of progressive growing hepatic pseudotumor in a 47-year-old man. The patient presented with body weight loss and general malaise. A series of radiological examinations showed the progressive growth of the hepatic tumor from 3.5 cm to 10.0 cm in diameter within 8 months. He underwent a right lobectomy of the liver, and the final diagnosis was proven by pathology. There were no complications in the post-operative course. [Chin Med J (Taipei) 2001;64:725-730]
from severe left flank pain after several courses of extracorporeal shock-wave lithotripsy (ESWL) for renal stones approx 8 months prior. Abdominal computed tomography (CT) revealed bilateral renal hematomas and an incidental hypodense lesion (3.5 × 2.5 cm) in the right lobe of the liver with contrast enhancement (Fig. 1). ESWL was discontinued thereafter. A full blood count showed hemoglobin of 12.5 g/dL, a white blood cell (WBC) count of 16,150 mm$^3$ with 85% polymorphs, and 10% lymphocytes. Other laboratory results revealed serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvic transaminase (SGPT) levels of 16 U/L and 21 U/L (normal 5-40 U/L and 10-60 U/L, respectively), total bilirubin level of 0.51 mg/dL (normal 0.2-1.2 mg/dL), and alkaline phosphatase (Alk-P) and gamma-glutamyl transpeptidase (GGT) levels of 96 U/L and 35 U/L (normal 40-130 U/L, and 10-80 U/L, respectively). Hepatitis B surface antigen (HBsAg) and antibody to hepatitis C virus (anti-HCV) were negative. Tumor markers including alpha-fetoprotein (AFP), carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA19-9) were all within normal limits. A liver biopsy was performed, and the histology showed proliferative connective tissue with mixed inflammatory cell infiltration, predominantly plasma cells and lymphocytes. Focal necrosis was also present. The histology was consistent with inflammatory pseudotumor. As hepatic pseudotumors are benign and self-limited, regular follow-up was advised. The follow-up abdominal ultrasonography 3 months later showed an enlarged hepatic lesion (5 × 4 cm) with heterogeneous echogenicity. An abdominal CT also revealed a 5 cm hypodense mass with rim enhancement. Hepatic angiography showed a 5 cm hypovascular lesion in the right hepatic lobe. A second liver biopsy was done and demonstrated similar pictures to those of the first liver biopsy. The tumor markers were cluding AFP, CEA, and CA 19-9 were again within normal limits. He did not have any symptoms at that time. Thus, observation of the tumor was suggested under the impression of a hepatic pseudotumor. For 4 months, he suffered from general malaise and 4 kg body weight loss. He visited the local hospital again, and abdominal ultrasonography revealed the growth of the hepatic tumor to 10 cm in diameter with mosaicism. He was referred to our hospital for further evaluation and management of the hepatic tumor. On physical examination, he appeared healthy and afebrile. Liver span was 15 cm. Laboratory results included the following: WBC, 23,400 mm$^3$ with 83.1% polymorphs, 7.8% lymphocytes; hemoglobin, 13.2 g/dL; SGOT, 15 U/L; SGPT, 16 U/L; total bilirubin, 0.5 mg/dL; Alk-P, 196 U/L; GGT 86 U/L. Tumor markers including AFP, CEA, CA 19-9, and prostate-specific antigen were all within normal limits. Abdominal CT and magnetic resonance imaging (MRI) revealed a 10-cm hepatic mass with rim enhancement and necrosis in the right lobe of the liver, and 3 enlarged lymph nodes in the hepatic hilum. Magnetic resonance imaging (MRI) findings confirmed the diagnosis of hepatic pseudotumor. A small amount of fluid was evident in the subcapsular space of bilateral kidneys. Hepatic angiography revealed a 10-cm hypovascular mass in the right hepatic lobe with malsegmentation on the small hepatic mass. UGI panendoscopy and colonoscopy were negative. Although the series of imagings of the hepatic mass were compatible with an inflammatory pseudotumor, a metstatic lesion or hypovascular primary hepatic malignancy could not be completely ruled out. The patient therefore underwent a right lobectomy of the liver. En-
larged lymph nodes in the hepatic hilum were also resected. Inflammatory pseudotumor of the liver measuring $11.5 \times 10 \times 4$ cm was proven by pathology. The pathologic findings revealed proliferation of connective tissue with heavy chronic inflammatory cell infiltration by a mixture of polyclonal plasma cells, lymphocytes, eosinophils, and histiocytes. Focal necrosis and abscess were identified (Fig. 4). The post-operative course was smooth and he remained free of symptoms and pseudotumor recurrence in the 1-year follow-up.

**Discussion**

Inflammatory pseudotumors of the liver are especially rare. To the best of our knowledge, this is the first reported case of a progressively growing inflammatory pseudotumor of the liver. The lesions occur about three times more frequently in males than in females. They affect children as young as 10 months of age and adults up to 83 years of age; the highest incidence occurs in middle-aged adults. An increased frequency occurs in tropical and subtropical countries. The lesions are usually solitary, more common in the right lobe, and range from 1 to 25 cm in diameter. The pathogenesis and etiology of the hepatic pseudotumors remain unclear, although many hypotheses including infection, immune reactions, intraparenchymal hemorrhage and necrosis, and occlusive phlebitis of the intrahepatic veins have been suggested. Our patient had a history of bilateral renal stones and received several courses of ESWL before the hepatic tumor was found incidentally. Although ESWL was discontinued, the hepatic lesion grew progressively. There was no strong evidence supporting the association between ESWL and the occurrence of...
hepatic pseudotumor.

The diagnosis of hepatic inflammatory pseudotumors is a challenge to clinicians by the fact that most of the reported cases have been diagnosed by surgical procedures.\textsuperscript{1,2} The clinical presentations of hepatic pseudotumors include fever, weight loss, abdominal pain, and malaise. Our patient did not complain of upper abdominal pain or fever as the hepatic tumor grew from 3.5 cm to 10 cm in diameter. The laboratory examination often reveals leukocytosis, elevated erythrocyte sedimentation rate and positive C-reactive protein.\textsuperscript{3} The findings by ultrasonography, CT, MRI and angiography are very similar between hepatic pseudotumor and hepatocellular carcinoma.\textsuperscript{2,3,5,11} In our case, the series CT and MRI imagings were compatible with inflammatory pseudotumor of the liver; however, primary or secondary malignancy of the liver cannot be excluded due to progressive enlargement of the lesion. In addition, liver abscess is also a possible diagnosis. The lack of air/fluid level in a series of imagings and characteristic histopathological finding of liver biopsy is against this diagnosis.

A diagnostic histology procedure is usually needed to differentiate inflammatory pseudotumor from liver neoplasms. The histologic appearance of inflammatory pseudotumor of the liver in cludes proliferation of connective tissue with a mixture of chronic and inflammatory cells in the tissue by polyclonal plasma cells, lymphocytes, eosinophils, and fibroblasts.\textsuperscript{12} Inflammation may be different from spindle cell tumors such as lymphoma, malignant fibrous histiocytoma, dendritic cell tumor and leiomyosarcoma.\textsuperscript{3}

According to previous reports, hepatic pseudotumors may regress or very rarely progress. When the clinical, imaging and liver biopsy data are consistent with inflammatory pseudotumor, conservative treatment should be instituted with close follow-up. Surgical intervention may be reserved for presumed malignancy.

**References**


