Case Report

A Case of Solitary Necrotic Nodule Treated with Laparoscopic Hepatectomy: Spontaneous Regression of Hepatocellular Carcinoma?

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Solitary necrotic nodule of the liver is a rare benign lesion with a completely necrotic core and a hyalinized fibrotic capsule containing elastic fibers. The pathogenetic mechanism is still unclear. We here describe a case of SNN, whose central reticulin fibers within the nodule suggest the origin as hepatocellular carcinoma (HCC) or other hepatocyte-origin tumors, treated with laparoscopic anatomical IV segmentectomy of the liver.

1. Introduction

Solitary necrotic nodule (SNN) of the liver is a rare benign lesion first reported in 1983 by Shepherd and Lee, who described four lesions with a completely necrotic core and a hyalinized fibrotic capsule containing elastic fibers [1].

The pathogenetic mechanism is still unclear. In their original study, Shepherd and Lee favored traumatic or infectious etiology [1]. Sundaresan et al. showed the presence of the feeding vessels within the nodule suggesting hemangiomaticous origin. They also described central reticulin fibers within the nodule, suggesting the origin as sclerosing hemangioma [2].

We here describe a case of SNN, whose central reticulin fibers within the nodule suggest the origin as hepatocellular carcinoma (HCC) or other hepatocyte-origin tumors, treated with laparoscopic anatomical IV segmentectomy of the liver.

2. Case Presentation

A 76-year-old Japanese female, with no prior medical history and no symptom, visited our hospital with the heterogeneous hypoechoic lesion in the liver segment VI incidentally pointed out in abdominal ultrasonography (US). There were no abnormal findings in her routine laboratory data, including liver function tests, serology profile for hepatitis B or C,
Figure 1: Computed tomography (CT) with contrast demonstrated a 11 mm low-density lesion with mild ring enhancement on the rim in the arterial phase, located in the liver segment VI.

Figure 2: On the cut section of the surgical specimen, a 1.2 × 1.2 cm sized, homogeneous, whitish-yellow-colored nodule with central small cystic area was observed in the liver segment IV. The nodule was well demarcated from surrounding normal liver tissue with the fibrous capsulation.

Figure 3: Histologically, the liver nodule was necrotic tissue without viable cells and signs of inflammation, which had fibrous capsule and central cystic change.

3. Discussion

SNN is a rare hepatic lesion, pathologically characterized by central amorphous necrotic core, sometimes accompanied with central cystic change, and enclosed by a hyalinized fibrotic capsule [1–4]. In the majority of cases, this condition is clinically silent and often detected incidentally at US examination [5]. Most SNNs are single small lesions and found most commonly under the superficial capsule in the right lobe [2–4]. These characteristics are comparable to the present case. Although SNN is reported to occur in adult males predominantly (68.6% of cases), the present case was in an adult female [4].

SNN appears as heterogeneous hypoechoic nodule with unclear margins on US and shows hypodensity lesion with peripheral enhancement when enhanced on CT scan [4]. Differential diagnosis is hard for SNN from intrahepatic cholangiocarcinoma and necrotic metastasis by US and CT scan [6, 7]. Also, percutaneous liver needle biopsy may not be useful for distinguishing SNN from necrotic malignant tumor [8]. In the present case, we also performed surgery under the suspicion of malignant tumor with necrosis, such as HCC.

The etiology of SNN is still unclear. Several pathogenetic hypotheses of SNN are suggested: evolution of hemangioma, lesion of traumatic etiology, and sequelae of previous infection such as parasite [1, 2, 9, 10]. There are previous reports described this entity as a “burnt-out phase” of a variety
of lesions and most of them lack specific etiology [11, 12]. However, the alignment of ghost cells and reticulin fibers in the present case is different from previously reported SNN, which origins were suggested as hemangioma or metastasis. Trabecular pattern alignment of ghost cells and reticulin fibers orthogonal to the capsule in the present lesion, it is possible that an SNN is occurred from spontaneous regression of HCC.

Furthermore, laparoscopic hepatectomy for this lesion with the difficulty of diagnosis should be useful, since it is usually located near the surface of the liver and easy to resect laparoscopically. Even anatomical resection of segment IV for the possibility of HCC in the present case had been performed safely.

References


