Evaluation of Ultrasonically Guided Liver Biopsy for the Diagnosis of Small Hepatocellular Carcinoma

HIDEKAZU ITOH, JUN KAWAI, KENJI ARII, HIROSHI TOKUYAMA, TORU TANIDA, TETSUJI YAMANISHI, KIKUKAZU SAKATSUJI, KENICHI AIZAWA, and SHINGO NISHIOKA

The Second Department of Internal Medicine, Wakayama Medical College, Wakayama, 640 Japan

ABSTRACT

Ultrasonically (US)-guided percutaneous liver biopsies were carried out in 410 patients without postoperative complications. US-guided fine needle biopsies detected small hepatocellular carcinoma (HCC) with a diameter of 9 mm. As it is difficult to make a differential diagnosis of a small focal lesion in the liver using various imaging techniques and tumor markers, we recommend actively using a fine needle liver biopsy guided by US.

KEY WORDS: small hepatocellular carcinoma, liver biopsy, ultrasound

INTRODUCTION

With the recent widespread use of an ultrasound (US) diagnostic device, intrahepatic space occupying lesions are beginning to be detected accurately. A majority of the 22 patients were histologically diagnosed as having small hepatocellular carcinoma (HCC) with a diameter of less than 2 cm by US-guided liver biopsy carried out in the Second Department of Internal Medicine of Wakayama Medical College. This paper reports the practice of various techniques for liver biopsy and complications1-3), evaluation of the ability of biopsy to hit the target tumor and an interesting case.

SUBJECTS AND METHODS

The subjects were 636 patients who had liver biopsies in the Second Department of Internal Medicine of Wakayama Medical College during 13 years from January 1980 to December 1992. Biopsies were conducted 226 times using 3-mm diameter thick Silverman needles4) under laparoscopy, 172 times using 13 G Oku's Silverman-type needles guided by US, 132 times using 15 G Matsuda's True-cut type5) needles, and 106 times using 21 G Majima's Aspiration type6) fine needles. Figure 1 shows methods of collecting tissues for each liver biopsy technique.

RESULTS

Only one patient (0.4%) who had biopsy under laparoscopy developed hemobilia which needed blood transfusion. US-guided liver biopsies conducted in 410 patients caused no complications (Table 1). An analysis of the ability of a Majima fine needle to target intrahepatic small space occupying lesions with a diameter of less than 2 cm revealed that the needle tended to show a decreased ability to hit a distant target. As a whole, however, the needle showed a very high percentage of accuracy; it hit the target 43(75.4%) of the 57 times (Fig. 2).

CASE PRESENTATION

A 53-year-old man came to the Second Department of Internal Medicine of Wakayama Medical College regularly because of HBs Ag-positive liver cirrhosis B. He was diagnosed as having a 9-mm diameter hypoechoic lesion in the Couinaud's S5, the liver segment, by a US examination conducted at the out-patient clinic, and was hospitalized November 4, 1992. Laboratory
OKU (Silverman) Needle  MATSUDA (Tru-Cut) Needle  MAJIMA (Aspiration) Needle

Fig. 1 Method of collecting tissues using various needles.

Table 1 Results and complications of liver biopsies conducted in the Second Department of Internal Medicine of Wakayama Medical College.

<table>
<thead>
<tr>
<th>Name of Inventors</th>
<th>Type &amp; Diameter of Needles</th>
<th>Number of Biopsies</th>
<th>Complication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silverman I.</td>
<td>Silverman 3 mm</td>
<td>226</td>
<td>1</td>
</tr>
<tr>
<td>O. Oku A.</td>
<td>Silverman 13G</td>
<td>172</td>
<td>0</td>
</tr>
<tr>
<td>Y. Matsuda</td>
<td>True-cut 15G</td>
<td>132</td>
<td>0</td>
</tr>
<tr>
<td>Y. Majima</td>
<td>Aspiration 21G</td>
<td>106</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>636</td>
<td>1</td>
</tr>
</tbody>
</table>

* Hemobilia

Fig. 2 Ability of the Majima's needle to target a less than 2-cm diameter space occupying lesion in liver.

Fig. 3 Short arrow indicating hypoechoic lesion in the Couinaud's S5 and long arrow demonstrating tip of a biopsy needle.

Fig. 4 Tissues for biopsy revealing hepatocellular carcinoma.