

Transarterial Therapy of Hepatocellular Carcinoma Fed by the Right Renal Capsular Artery

Masaki Ishikawa, MD, Takuji Yamagami, MD, Hideaki Kakizawa, MD, Masashi Hieda, MD, Naoyuki Toyota, MD, Wataru Fukumoto, MD, Kenji Kajiwara, MD, Rika Yoshimatsu, MD, Hiroshi Aikata, MD, Kazuaki Chayama, MD, and Kazuo Awai, MD

ABSTRACT

Purpose: To evaluate the characteristics of hepatocellular carcinomas (HCCs) fed by the right renal capsular artery and to assess the tumor response and complications in patients treated with transarterial therapy via the renal capsular arteries with or without other extrahepatic arteries and/or intrahepatic arteries.

Materials and Methods: Between March 2006 and May 2012, 24 lesions in 19 patients were treated by transcatheter arterial chemoembolization (23 sessions), transcatheter arterial embolization (two sessions), or transcatheter arterial infusion (one session), with HCCs fed by the right renal capsular artery with or without intrahepatic arteries and/or other collateral arteries. Other intrahepatic lesions were concurrently treated if needed.

Results: Tumor size ranged from 10 mm to 107 mm (mean, 30.5 mm). Of the 24 tumors, 12 were located in segment VI, 10 in segment VII, one in the posterior segment, and one in the anterior segment after posterior segment resection. Severe complication occurred in four patients: liver abscess (n = 2), pleural effusion (n = 1), and duodenal ulcer (n = 1). Pleural effusion might be related to chemoembolization via the right renal capsular artery. A complete response was obtained in six sessions and a partial response in eight; 10 sessions were associated with stable disease and two with progressive disease.

Conclusions: Precise renal capsular artery knowledge would facilitate successful and safe transarterial therapy for HCCs fed by the renal capsular arteries.

ABBREVIATION

HCC = hepatocellular carcinoma

Transcatheter arterial chemoembolization, transcatheter arterial embolization, and transcatheter arterial infusion are accepted treatment methods to address unresectable hepatocellular carcinoma (HCC) (1,2). As the HCC recurrence rate remains high, repeated therapy sessions are often needed. HCCs supplied by extrahepatic

arteries, such as the inferior phrenic artery, omental artery, suprarenal artery, intercostal and subcostal artery, internal mammary artery, renal artery, a branch of the superior mesenteric artery, gastric artery, lumbar artery, and renal capsular artery, have been reported to recur despite repeated chemoembolization (3).

Since Charnsangavej et al (4) first reported that the renal capsular artery was a potential feeding collateral artery, there have been several reports regarding HCCs supplied by the renal capsular artery. The renal capsular artery is the third most frequent collateral artery feeding HCCs (5) and the second most important collateral artery in patients who have undergone previous therapies (3,6). Therefore, the renal capsular artery is more important in patients who have received repeated transarterial therapy than in those with primary HCC. However, a case in which HCC is fed by only the right renal capsular artery has also been reported (7). There have only been a small number of reports on transarterial therapy for HCCs fed by the renal capsular artery (5,6).

From the Departments of Diagnostic Radiology (M.I., T.Y., W.F., K.K., R.Y., K.A.) and Gastroenterology and Metabolism (H.A., K.C.), Hiroshima University; Department of Radiology (H.K.), Hiroshima Red Cross Hospital and Atomic-bomb Survivors Hospital; Department of Radiology (M.H.), Hiroshima City Hospital, Hiroshima; and Department of Radiology (N.T.), Natural Hospital Organization, Kure Medical Center, Kure, Japan. Received July 1, 2013; final revision received and accepted November 11, 2013. Address correspondence to M.I., Department of Diagnostic Radiology, Hiroshima University, 1-2-3 Kasumi, Minami-ku, Hiroshima, Japan 734-8551; E-mail: masaishi@hiroshima-u.ac.jp

None of the authors have identified a conflict of interest.

© SIR, 2014

J Vasc Interv Radiol 2014; 25:389–395

<http://dx.doi.org/10.1016/j.jvir.2013.11.009>

The present retrospective study examined the characteristics of HCCs fed by the right renal capsular arteries and the treatment effects and specific complications elicited by transarterial therapy, in addition to reviewing reports of renal capsular artery anatomy.

MATERIALS AND METHODS

The present retrospective study was approved by the appropriate institutional review board. Between March 2006 and May 2012, transarterial therapy in 2,698 sessions was delivered to 1,101 patients with HCC. Nineteen patients (24 HCC lesions) who underwent 26 sessions were evaluated and also satisfied the following study admission criteria: an intrahepatic lesion fed by the right renal capsular artery, tumor size of at least 1 cm, and availability of follow-up computed tomography (CT) and/or magnetic resonance (MR) imaging studies after transarterial therapy. In this study, 15 patients underwent a single session of transarterial therapy, two underwent two sessions, one underwent three sessions, and one underwent four sessions. Written informed consent was obtained from all patients.

Table 1 summarizes the clinical profiles of 19 patients. All patients received interventional treatments for their HCCs, and 11 of these patients received a partial, segmental, or lobular hepatectomy.

HCCs were diagnosed based on imaging findings (eg, ultrasound, CT, and MR imaging) and the levels of tumor makers (eg, α -fetoprotein and protein induced by vitamin K absence of antagonist-II) in the blood. If CT after previous chemoembolization via intrahepatic arteries indicated an absence of the accumulation of iodized oil for intrahepatic HCCs, feeding by extrahepatic arteries was suspected. During each transarterial therapy session, all patients underwent CT during arterial portography and during hepatic arteriography. The tumor growth morphology was categorized as subcapsular or exophytic. Arteriograms via the celiac and superior mesenteric artery were obtained by using a 3.5- or 4-F catheter before CT during arterial portography and hepatic arteriography in all patients. It is believed that the tumors were fed by an extrahepatic artery in patients in whom the dynamic CT or MR images obtained before transarterial therapy revealed that the tumors were located on the posterior surface of the right hepatic lobe in the absence of enhancement at that site on CT during hepatic arteriography. In such cases, arteriography and CT were performed during arteriography via the inferior phrenic artery to study the blood supply to the tumor via collateral vessels. When arteriography and CT during arteriography via the right inferior phrenic artery failed to demonstrate enhancement, these procedures were repeated in the right renal capsular artery and/or the right inferior suprarenal artery to identify the collateral vessels that

Table 1. Clinical Characteristics of 19 Patients

Characteristic	Value
Mean age (y)	71.3
Sex	
Male	15
Female	4
ECOG performance status	
0	19
1/2	0
> 2	0
Child-Pugh class	
A	15
B	4
C	0
Intrahepatic tumors	
1/2	3
3/4	5
> 4	11
Size of largest tumor	
2 cm	1
2–3 cm	6
> 3 cm	12
Portal/hepatic vein invasion	
Yes	2
No	17
Extrahepatic metastasis	
Yes	1
No	17
BCLC stage	
0	0
A	1
B	14
C	4
D	0
Etiology	
HCV antibody	11
HBs Ag	4
No hepatitis/viral infection	2
Autoimmune hepatitis	1
Alcohol-related	1

BCLC = Barcelona Clinic Liver Cancer, ECOG = Eastern Cooperative Oncology Group, HBs Ag = surface antigen of hepatitis B virus, HCV = hepatitis C virus.

supplied blood to the tumor (**Fig 1**). Tumorous enhancement was evaluated by CT during arteriography obtained via the right renal capsular artery, and the blood supply via the right renal capsular artery was classified as exclusive (100%), predominant (50%–99%), or partial (< 50%).

In all patients, a microcatheter (Masters/Masters C3; Asahi Intecc, Aichi, Japan; or Microferret, Cook, Bloomington, Indiana) was selectively introduced into the right renal capsular artery. A 0.014-inch guide wire (Micromate; Terumo Clinical Supply, Gifu, Japan) was used to navigate the microcatheter. The microcatheter

Download English Version:

<https://daneshyari.com/en/article/4238723>

Download Persian Version:

<https://daneshyari.com/article/4238723>

[Daneshyari.com](https://daneshyari.com)