

가 . 49

CT

CTAP

CTAP

(1),
(2-4).

(Fig. 2).

가 1
2

가 (5, 6).

가 1 가 , (Fig.

CT 1 3). 10 가 PaO₂
80%

15 49 가

38,200 ng/ml,
1.6 mg/dL, 65%, HBsAg

CT
8 cm

“ thread and streak ” 가
(Fig. 1).

Cisplatin () 120 mg 15
(Guerbet, Aulnay - sous - Bois, France) 15 cc
(Johnson & Johnson, Skipton, UK)
. 1 6 가

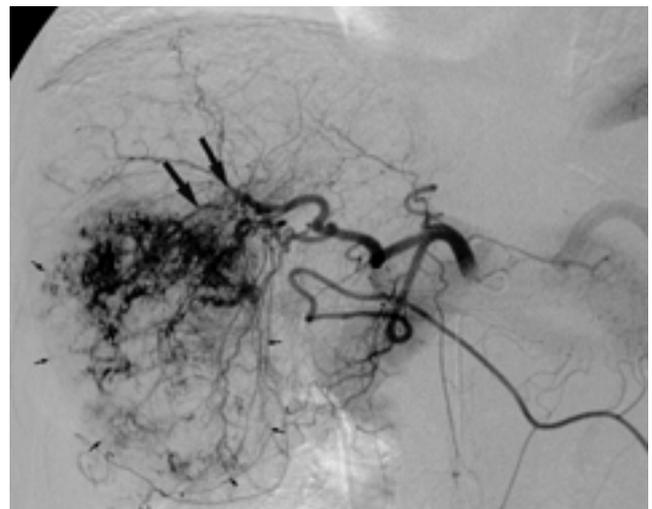


Fig. 1. Common hepatic arteriogram shows a large hypervascular tumor (small arrows) at the right hepatic lobe and “ thread and streak ” sign (large arrows) suggestive of tumor thrombus within the right hepatic vein.

1
2

CT

가

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(Fig. 4).

3

1897 Schmidt가

(7).

366

(Fig. 5).

26%

8.4%

(2).

2

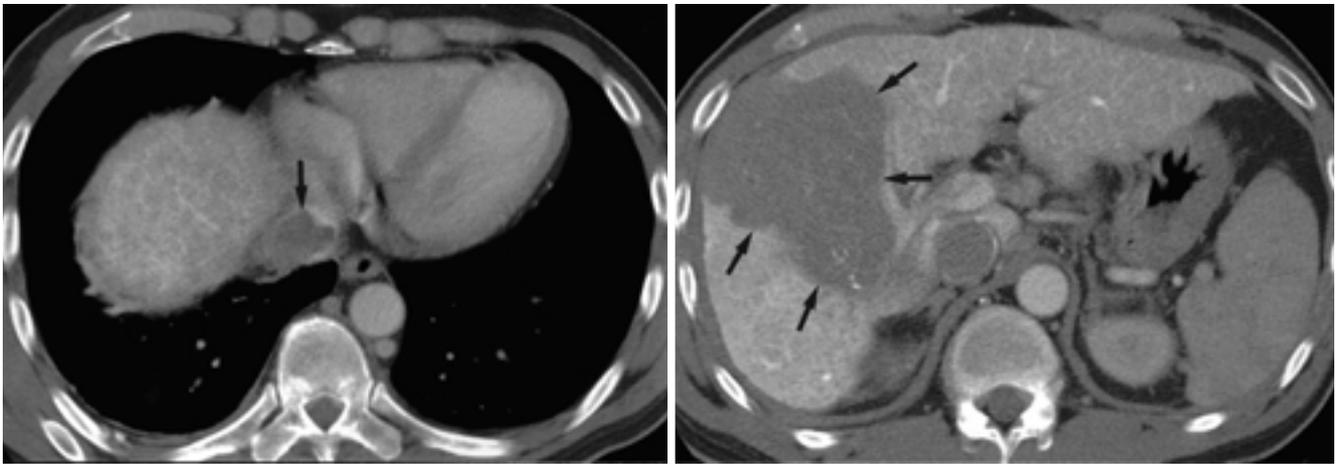


Fig. 2. A, B. CT during arterial portography shows a large perfusion defect (arrows) at the right hepatic lobe and within the inferior vena cava. In CT during hepatic arteriography, this perfusion defect shows good enhancement (not shown here). This indicates that the tumor extends through hepatic vein into the inferior vena cava.

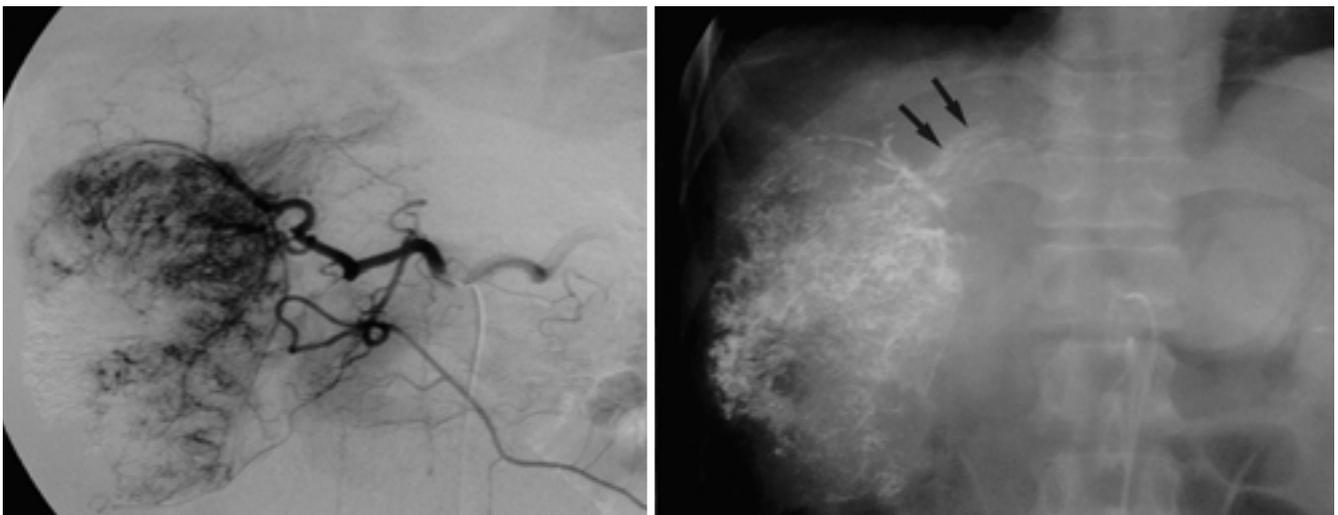


Fig. 3. A. Common hepatic arteriogram shows more aggravated state of the right hepatic mass and tumor thrombus within the right hepatic vein.
B. The uptake of Lipiodol was noted within right hepatic vein (arrows).

가 가 (2-4).

가 (8-

Winterbauer 79 10). Ozaki 20 (6).

20% 0% 10% 30%

25% 8%

57% 29% (2).

가 가 가

가 가 10

가

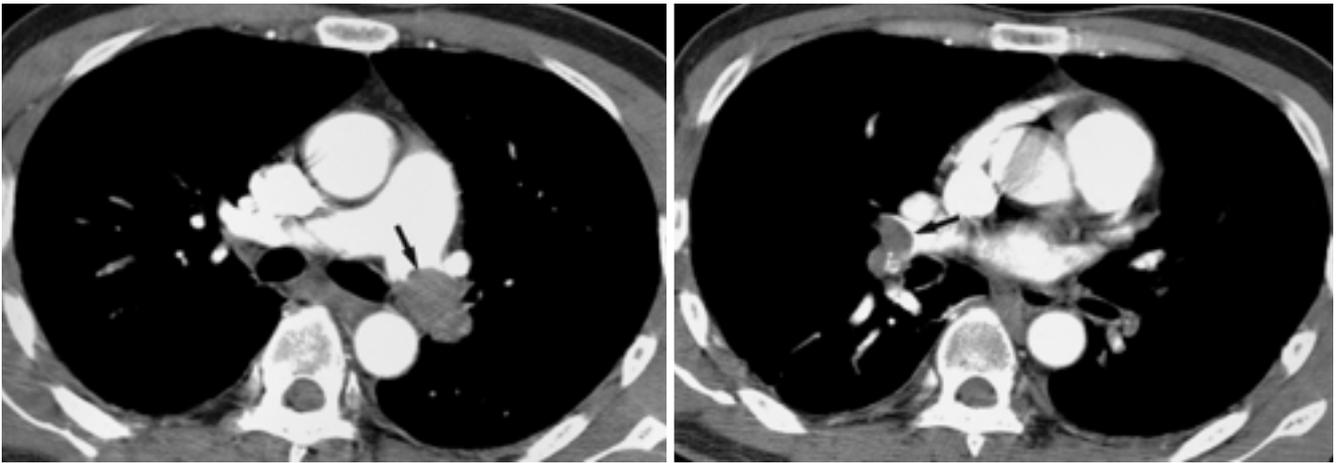


Fig. 4. A, B. Contrast-enhanced chest CT with mediastinal setting shows low attenuated lesions (arrows) in both pulmonary arteries.

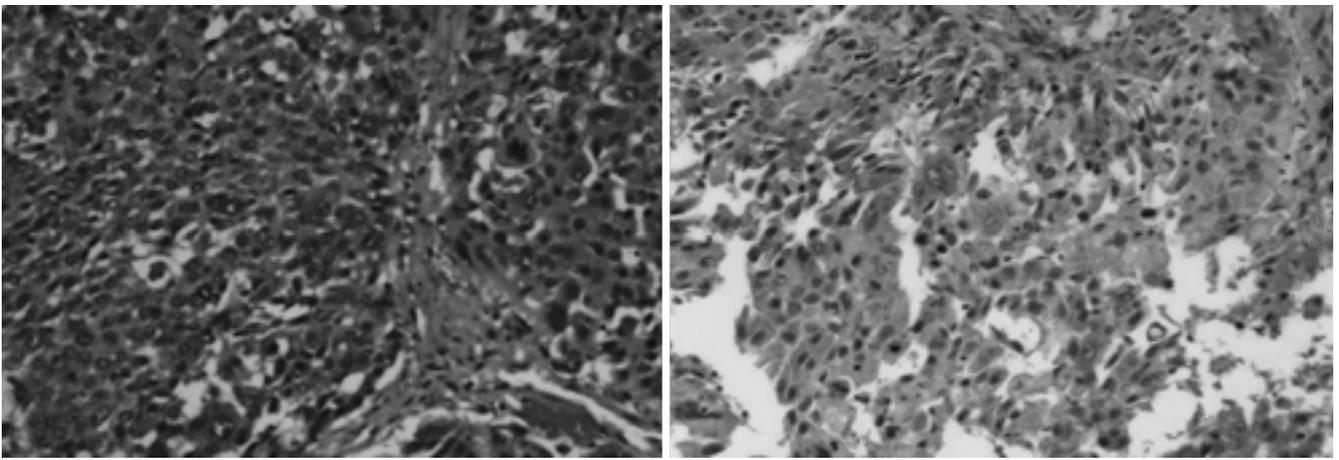


Fig. 5. A. Histological specimen of an embolus shows large amount of viable cells (H & E, $\times 100$).
B. The specimen also shows strong positivity on alpha-fetoprotein stain.

:

가

가

20 cc
2-5
1

14 6
5 10-28

(1).

CT

CT

(1).

CT

15 cc
가

가

, Izaki

(5).
가

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1. Chung JW, Park JH, Im JG, Han JK, Han MC. Pulmonary oil embolism after transcatheter oily chemoembolization of hepatocellular carcinoma. *Radiology* 1993;187:689-693
2. Winterbauer RH, Elfenbein IB, Ball WC. Incidence and clinical significance of tumor embolization to the lungs. *Am J Med* 1968;45:271-290
3. Chan GS, Ng WK, Ng IO, Dickens P. Sudden death from massive pulmonary tumor embolism due to hepatocellular carcinoma. *Forensic Sci Int* 2000;108:215-221
4. Koskinas J, Betrosian A, Kafiri G, Tsolakidis G, Garaziotou V, Hadziyannis S. Combined hepatocellular-cholangiocarcinoma presented with massive pulmonary embolism. *Hepatogastroenterology* 2000;47:1125-1128
5. Izaki K, Matsumoto S, Konishi J, et al. Temporary placement of inferior vena cava filter prior to transcatheter arterial embolization for hepatocellular carcinoma with IVC tumor thrombus-prevention of pulmonary tumor emboli after TAE. *Gan To Kagaku Ryoho* 2001;Abstract:28:1708-1711
6. Ozaki M, Miyagawa K, Takano H, Sekiya T, Natsuyama N, Nakano M. A case of hepatoma suspected pulmonary emboli following transcatheter arterial embolization. *Rinsho Hoshasen* 1989; Abstract:34:165-167
7. Schmidt MB. Ueber Krebszellenembolien in den Lungenarterien. In: Winterbauer RH, Elfenbein IB, Ball WC. Incidence and clinical significance of tumor embolization to the lungs. *Am J Med* 1968;45:271-290
8. Blanloeil Y, Paineau J, Vissett J, Dixneuf B. Intraoperative pulmonary tumor embolism after hepatectomy for liver carcinoma. *Can Anaesth Soc J* 1983;30:69-71
9. Main BJ, Brown TC, Jones PG. Intraoperative pulmonary tumour embolism during hepatectomy. *Can Anaesth Soc J* 1984;31:117
10. Dorman F, Sumner E, Spitz L. Fatal intraoperative tumor embolism in a child with hepatoblastoma. *Anesthesiology* 1985;63:692-693

Massive Tumor Pulmonary Embolism Following Transcatheter Arterial Chemoembolization of Hepatocellular Carcinoma¹

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Pulmonary embolism complicated by transcatheter arterial chemoembolization (TACE) is known to be due to the use of large amount of lipiodol as an embolic agent. To our knowledge, massive tumoral pulmonary embolism following TACE and confirmed by surgery has not been described in the literature. In this report, we detail the case of a 49-year-old man in whom cyanosis and hypotension developed abruptly on the day of TACE. Chest CT revealed diffuse low-attenuated lesions in both pulmonary arteries. Histopathological specimens after emergent pulmonary arterial embolectomy confirmed the presence of massive tumor emboli of hepatocellular carcinoma.

Index words : Liver neoplasms, chemotherapeutic embolization
Embolism, pulmonary
Liver neoplasms, angiography

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