

: CT 1

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: ( ) CT

: CT , CT, ERCP, CT , CT

3 ( ; 25% , ; 25%-75%, ; 75% ) CT , 20 CT : 30 10 10 8 (80%) 20 3 (15%) 가 (p<0.05). 10 3 (30%) , 20 7 (35%) 가 (p>0.05).

가 (p>0.05). 24 , 가 5 (21%), 14 (58%), 5 (21%) 6

: CT 가

(1,2), CT (2-6). CT 가 , (3,4). (8). CT (2-4), CT ), (3-7).

1995 1 1998 9 CT 30  
가 8 가 22  
40 82 56 30  
CT,  
(ERCP) 7 23

CT HiSpeed advantage scanner(General Electric Medical system, Milwaukee, U.S.A.)  
CT 130-150ml 4ml/sec  
7mm, 7mm, 1:1  
pitch 30 60-70  
CT

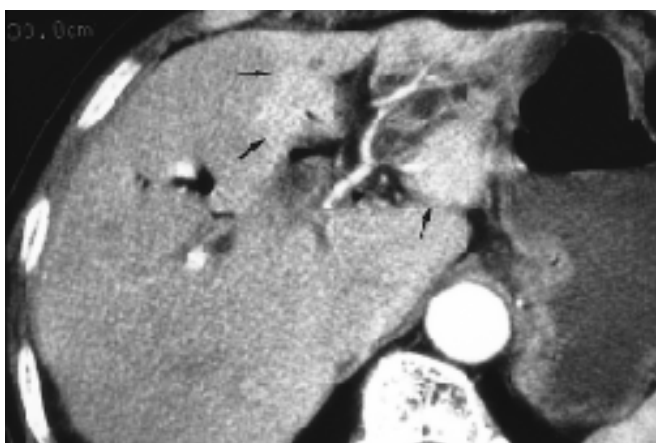
가 (Charcot's triad;  
(4,6). x<sup>2</sup> test , p <0.05  
가

30 10 CT  
, 20 CT  
10 8 (80%)  
(Fig. 1),  
20 3 (15%)  
가 (p<0.05). 3  
10 3  
(30%) 20 7 (35%)  
(Fig. 2),  
가 (p>0.05) (Table 1).  
10  
2 (20%), 20 5 (25%)

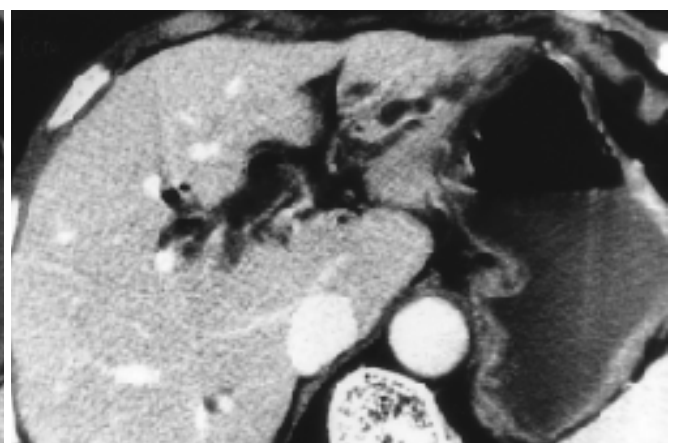
Table 1. Correlation between Acute Inflammatory Symptoms with Findings of Two-Phase Spiral CT

	Acute Inflammation	
	Presence	Absence
<b>Arterial phase</b>		
Transient periductal parenchymal enhancement*	8/10(80)	3/20(15)
Ductal wall enhancement	3/10(30)	7/20(35)
<b>Portal phase</b>		
Periductal parenchymal enhancement	2/10(20)	5/20(25)
Ductal wall enhancement	5/10(50)	13/20(65)

\* Statistically significant p< 0.05  
numbers in parenthesis are percentage



A



B

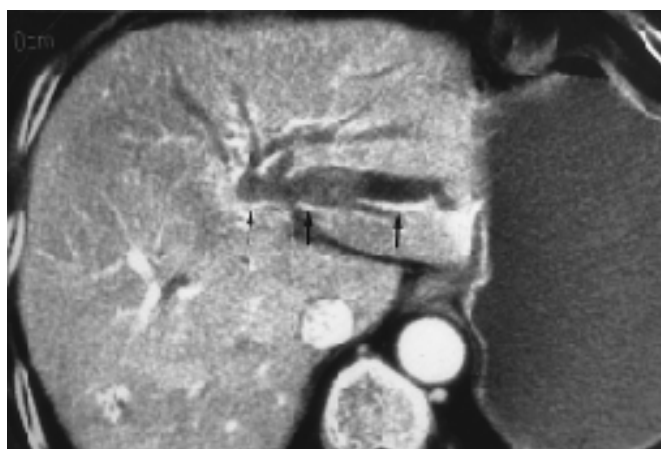
Fig. 1. A 82-year-old woman with recurrent pyogenic cholangitis during acute inflammatory stage.  
A. Arterial-phase CT scan shows transient segmental parenchymal enhancement (arrows) in the lateral segment of the left hepatic lobe with dilatation of intrahepatic duct.  
B. Portal-phase CT scan shows no significant attenuation difference between the right hepatic lobe and affected left hepatic lobe.

(50%), 20 13 (65%) 10 5  
( $p>0.05$ ) (Table 1).  
24  
16 , 6 , 2  
24 가 5 (21%)  
(Fig. 2), 가 14 (58%) (Fig. 3), 5 (21%)  
(Fig. 4)  
6 (Table  
2). CT 30 ,  
24 , 5 , 18 , 6  
8  
(recurrent pyogenic cholangitis)  
(oriental cholangitis), (oriental cholangiohep-

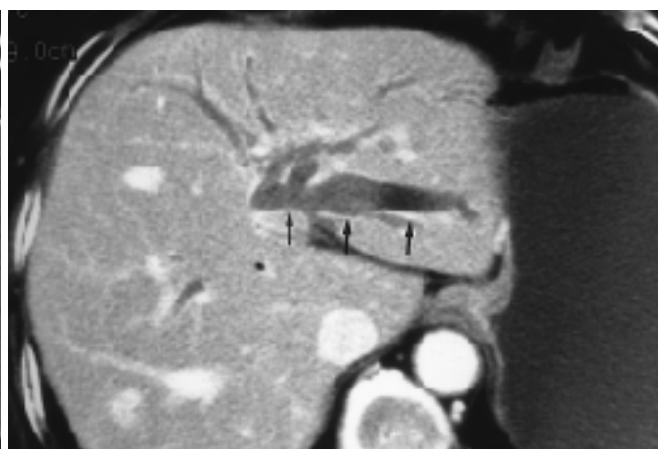
atitis), (intrahepatic pigment stone disease),  
Hong Kong disease  
(1,3-7,9,10)  
(2-7,9-11),  
가 가 가 (3,4,9).  
(1,3-5). CT  
(2-7,9,10). CT

Table 2. Correlation between Hepatic Parenchymal Atrophy with Portal Vein Stenosis

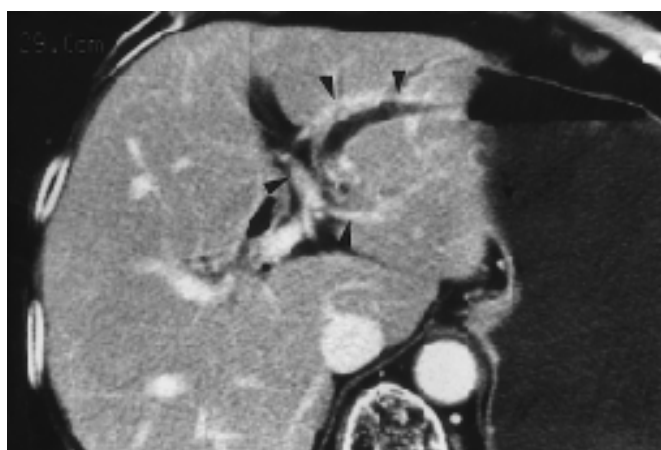
Degree of PV Stenosis	Atrophy	
	Presence (n= 24)	Absence (n= 6)
Normal		6(100%)
Mild	5(21%)	
Moderate	14(58%)	
Severe	5(21%)	



A



B



C

Fig. 2. A 72-year-old woman with recurrent pyogenic cholangitis without acute inflammatory symptom.

A. Arterial-phase CT scan shows marked dilatation of the intrahepatic duct in the lateral segment of the left hepatic lobe. Note moderate enhancement of walls of dilated intrahepatic ducts (arrows).

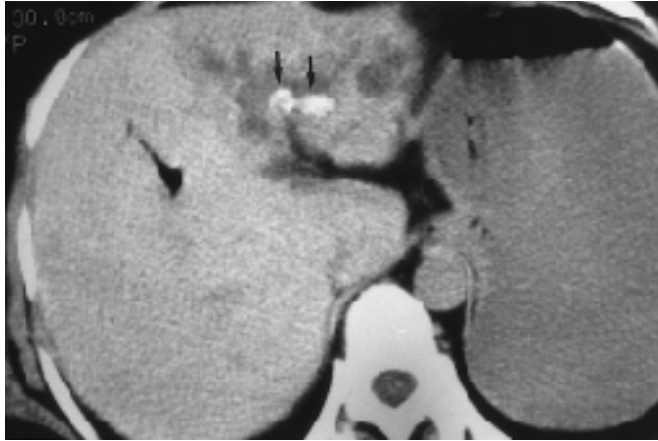
B. Portal-phase CT scan at the same level to A also shows contrast enhancement of walls of dilated intrahepatic ducts (arrows).

C. Portal-phase CT scan at the caudal level to B shows mild atrophy of the lateral segment of the left hepatic lobe and relatively preserved portal vein (arrowheads) of affected left hepatic lobe.

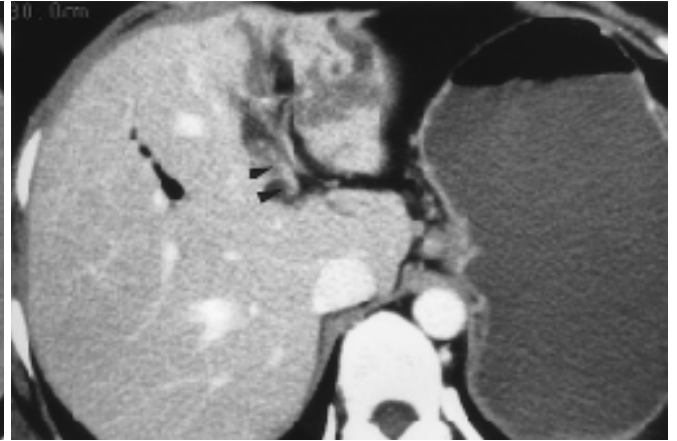
CT

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(12).



A

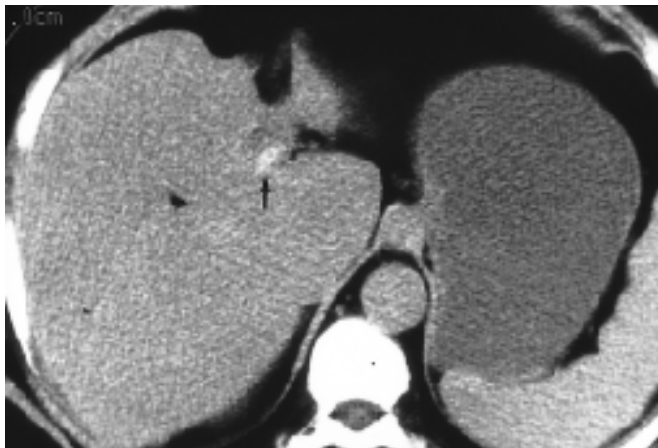


B

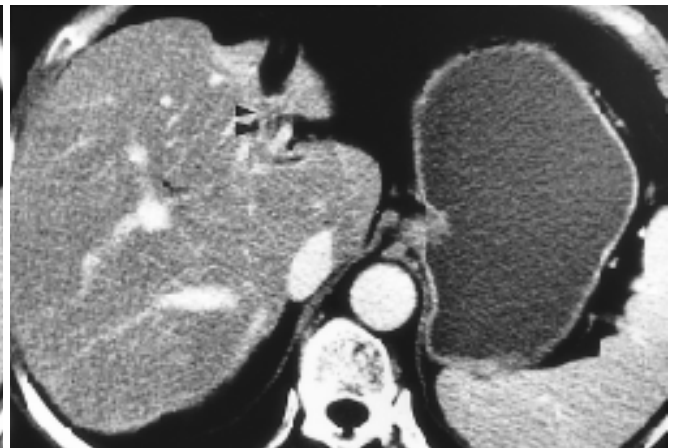
Fig. 3. A 36-year-old woman with recurrent pyogenic cholangitis.

A. Unenhanced CT scan shows two stones (arrows) in dilated left intrahepatic ducts and moderate atrophy of the lateral segment.

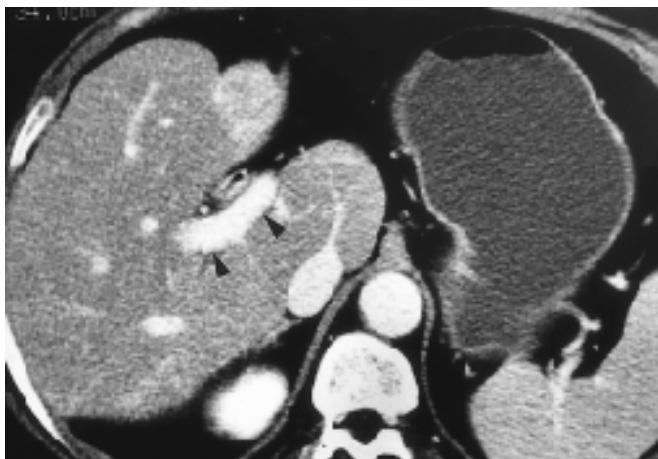
B. Portal-phase CT scan shows moderate portal vein stenosis (arrowheads) in affected left hepatic lobe.



A



B



C

Fig. 4. A 56-year-old woman with recurrent pyogenic cholangitis

A. Unenhanced CT scan shows severe atrophy of the lateral segment of left hepatic lobe with intrahepatic stone (arrow).

B. Portal-phase CT scan shows obliteration of the left portal vein (arrowheads) in affected left lobe with severe atrophy, due to severe portal vein stenosis.

C. Portal-phase CT scan at the caudal level to B shows a main portal vein (arrowheads) with normal caliber.

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CT  
(2,4,13). 가 CT  
(4), CT  
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가  
가  
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(4). Kusano (11)  
CT,  
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## Recurrent Pyogenic Cholangitis : Efficacy of Two-Phase Helical CT<sup>1</sup>

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**Purpose :** To evaluate the usefulness of two-phase helical CT in patients with recurrent pyogenic cholangitis (RPC) for the detection of acute inflammation and assessment of the degree of portal vein (PV) stenosis as a cause of hepatic parenchymal atrophy.

**Materials and Methods :** We retrospectively reviewed two-phase CT findings in 30 patients with RPC diagnosed by CT, ERCP (endoscopic retrograde cholangiopancreatography), and surgery. Two-phase helical CT scans were obtained 30 sec (arterial phase, AP) and 70 sec (portal phase, PP) after the start of IV administration of contrast material. Without prior information, we analyzed periductal parenchymal and ductal wall enhancement during the AP and PP, and the degree of PV stenosis during the PP. Acute inflammation was diagnosed on the basis of symptoms and laboratory findings. To evaluate the relationship between parenchymal atrophy and PV stenosis, the degree of PV stenosis in affected parenchyma was classified as one of three types (mild, < 25%; moderate, 25-75%; severe, > 75%), as compared with the diameter of normal PV in unaffected parenchyma.

**Results :** Ten of the 30 patients underwent CT during the acute inflammatory stage and 20 during the remission stage. Of the ten patients with acute inflammation, eight (80%) showed transient periductal parenchymal enhancement during the AP ( $p < 0.05$ ), which correlated closely with acute inflammation. Only three (15%) of the 20 patients with remission, however, showed transient parenchymal enhancement during this phase, at which time ductal wall enhancement was seen in three (30%) of the ten patients with acute inflammation and in seven (35%) of the 20 who showed remission ( $p > 0.05$ ). There was no significant difference in parenchymal and ductal wall enhancement during the PP between patients with acute inflammation and those who showed remission ( $p > 0.05$ ). Hepatic parenchymal atrophy of the lesion was seen in 24 patients. Among these, PV stenosis was mild in five (21%), moderate in 14 (58%), and severe in five (21%). Degree of PV stenosis correlated closely with severity of parenchymal atrophy during the PP. In six patients without parenchymal atrophy, PV caliber was normal.

**Conclusion :** Our results suggest that in patients with RPC, two-phase helical CT is useful for the detection of transient periductal parenchymal enhancement accompanying acute inflammation during the AP, and for assessment of the degree of PV stenosis as a cause of hepatic parenchymal atrophy during the PP.

**Index words :** Cholangitis  
Liver, CT

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