

= Abstract =

Combined Endoscopic Transpapillary Biopsy and Exfoliative Cytology for the Diagnosis of Bile Duct Cancer

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Background/Aims: In the management of patients with extrahepatic bile duct carcinoma, histologic diagnosis is crucial to determine therapeutic modalities, to predict their outcomes, and to avoid an unnecessary operation. Though various methods were developed, none of them yielded satisfactory results. A combination of those methods was reported to yield superior sensitivity and specificity to a single method. To evaluate the diagnostic efficacy, endoscopic transpapillary biopsy (ETPB) and exfoliative bile aspiration cytology (BAC) was performed in 40 patients with extrahepatic bile duct carcinoma. **Methods:** After visualization of the biliary tree and the lesion by endoscopic retrograde cholangiopancreatography (ERCP), ETPB (n=40) and BAC (n=28) was done in one session with or without endoscopic sphincterotomy (EST) and the results of two methods were analyzed. **Results:** The final diagnoses were made by surgical pathology and by clinical follow-ups of more than a year. The locations of the 40 bile duct carcinomas were in the upper area in 25, the middle in 14 and the lower in 1. ETPB was performed in all patients and BAC in 28 patients. The overall sensitivity of the ETPB was 65.0% (26/40). According to the morphology and location, the sensitivity of ETPB was 65.6% (11/32) for sclerotic, 60.0% (3/5) for papillary, and 66.7% (2/3) for the protruding type, and 68.0% (17/25) for the upper bile duct lesion, 64.3% (9/14) for the middle, and 0% (0/1) for the

: 1999 4 15 , : 1999 5 11
: , 134, : 120-752,
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lower. The overall sensitivity of the BAC was 71.4% (20/28). According to the morphology and location, the sensitivity of BAC was 80.0% (16/20) for sclerotic, 20% (1/5) for papillary, and 100% (3/3) for the protruding type, and 82.4% (14/17) for the upper bile duct lesion and 54.5% (6/11) for the middle bile duct lesion. When the two tests were combined, the sensitivity rose to 96.4% (27/28). **Conclusions:** A combination of ETPB and BAC is useful in making a histologic diagnosis in patients with bile duct carcinoma. (Korean J Gastrointest Endosc 19: 588-596, 1999)

Key Words: Bile duct carcinoma, ERCP, Biopsy, Cytology

ERCP

가 .

17) 1)

812) 1214) 1991 8 1996 2

40

가

61.7 (31 82) , 1.9 1 .

1

가 가 가

2)

가 (1) : ERCP 3.2 mm
(JF 200, Olympus, Japan)

가 , 가

가 .2315

1) 30

60% 20%

11)

(sclerotic type),
(papillary type) (protruded type)

X-
(FB-23K, Olym-
pus, Japan)
1 6
10%
(EST)
(2) : 28
ERCP
2 3 mL -70°C
Cytospin (Cytospin 2, Shandong)
400 g 3
, papanicolaou

Table 1. Sensitivity of Transpapillary Biopsy According to the Tumor Location, Morphology, and Number of Biopsy (N=40)

	N	Positive for malignancy	Sensitivity (%)
Total	40	26	65.0
Location			
Upper	25	17	68.0
Middle	14	9	64.3
Lower	1	0	0
Morphology			
Sclerotic	32	21	65.6
Papillary	5	3	60.0
Protruding	3	2	66.7
Number of biopsy			
1	12	8	66.7
2	15	9	60.0
3	8	6	75.0
4	4	2	50.0
> 5	1	1	100

(3) :
(percutaneous fine-needle aspiration
cytology) , 1
2
p 0.05
1)
40 61.7 ± 11.5 (31
82) 1.9 : 1
25 , 14 ,
1
, 28
17 , 11

2)
65.0%
(26/40) ,
68.0% (17/25), 64.3% (9/14),
0% (0/1) , (scler-
otic type) 65.6% (11/32), (papillary type)
60.0% (3/5), (polypoid type) 66.7% (2/3)
2 63.0%
(17/27), 3 69.2%
(Table 1).
3)
71.4%
(20/28) ,
82.4% (14/17), 54.5% (6/
11) , 80.0% (16/

Savader 10) 44%

35) 121-243641) 2842)

, Mohandas 35) 가

29% 63% 26)

70 가 ERCP

.21-243641) 가 821)

2) 가 'Geenen '가 가 가 . Kubota 8)

.27) Ferrari 4) 4

20% , Foutch 26) Rupp 43) 100%, yama 21) 88.8% . Sugi-

82% 가 60% (EST) 81%

1) 60% 가 ,

가 , 80% 가

가 ,9) 가 ,23)

가 가 가

.29) 가 가

Kuroda 13) 66.7%

Howell 29) bias,

61% Wiersema 15)

30%

Terasaki 30) PTC 가

3F 5F , Wiersema 15)

가 80 63 ,8921
 가 65% 2
 , , .
 41% , 41%, 30%
 70% 가 48%
 2) . Kurzawinski 가 96%
 47 33% , 가 가 ,
 46 69% 가 가 가
 가 가 가
 가 . Wiersema 15) 80

70% 48% 가
 (n=28) (n=40) 가
 71.4% 가 가 가 65%,
 가 가 가 28 가 가
 75%, 71.4% 가
 . , , 가 가
 ERCP 가 가

가 65% . 40 (front-biting)
 , , chi 14) (side-opening) , Magu-
 가 21) ,
 (32/40), ,
 8(FB39,
 Olympus, Japan)가 가
 (FB-23K, Olympus, Japan)

- SR: Biliary tract cytology in specimens obtained by direct cholangiographic procedures: a study of 74 cases. *Diagn Cytopathol* 14: 334, 1996
- 18) Nilsson B, Wee A, Yap I: Bile cytology: Diagnostic role in the management of biliary obstruction. *Acta Cytol* 39: 746, 1995
 - 19) Foutch PG, Kerr DM, Harlan JR, Kummet TD: A prospective, controlled analysis of endoscopic cytotechniques for diagnosis of malignant biliary strictures. *Am J Gastroenterol* 86: 577, 1991
 - 20) Harada H, Sasaki T, Yamamoto N, Tanaka J, Tomiyama Y, Hinofuji T, Mishima K, Kimura I: Assessment of endoscopic aspiration cytology and endoscopic retrograde cholangio-pancreaticography in patients with cancer of the hepato-biliary tract part II. *Gastroenterol Jpn* 12: 59, 1977
 - 21) Sugiyama M, Atomi Y, Wada N, Kuroda A, Muto T: Endoscopic transpapillary bile duct biopsy without sphincterotomy for diagnosing biliary strictures: a prospective comparative study with bile and brush cytology. *Am J Gastroenterol* 91: 465, 1996
 - 22) Osnes M, Serck-Hanssen A, Myren J: Endoscopic retrograde brush cytology (ERBC) of the biliary and pancreatic ducts. *Scand J Gastroenterol* 10: 829, 1975
 - 23) Aabakken L, Karesen R, Serck-Hanssen A, Osnes M: Transpapillary biopsies and brush cytology from the common bile duct. *Endoscopy* 18: 49, 1986
 - 24) Scudera PL, Koizumi J, Jacobson IM: Brush cytology evaluation of lesions encountered during ERCP. *Gastrointest Endosc* 36: 281, 1990
 - 25) Foutch PG, Harlan JR, Kerr D, Sanowski RA: Wire-guided brush cytology: a new endoscopic method for diagnosis of bile duct cancer. *Gastrointest Endosc* 35: 243, 1989
 - 26) Foutch PG, Kerr DM, Harlan JR, Manne RK, Kummet TD, Sanowski RA: Endoscopic retrograde wire-guided brush cytology for diagnosis of patients with malignant obstruction of the bile duct. *Am J Gastroenterol* 85: 791, 1990
 - 27) Venu RP, Geenen JE, Kini M, Hogan WJ, Payne M, Johnson GK, Schmalz M: Endoscopic retrograde brush cytology. A new technique. *Gastroenterol* 99: 1475, 1990
 - 28) Yip CKY, Leung JWC, Chan MKM, Metreweli C: Scrape biopsy of malignant biliary stricture through percutaneous transhepatic biliary drainage tracts. *Am J Roentgenol* 152: 529, 1989
 - 29) Howell DA, Beveridge RP, Bosco J, Jones M: Endoscopic needle aspiration biopsy at ERCP in the diagnosis of biliary strictures. *Gastrointest Endosc* 38: 531, 1992
 - 30) Terasaki K, Wittich GR, Lycke G, Walter R, Nowels K, Swanson D, Lucas D: Percutaneous transluminal biopsy of biliary strictures with a bioptome. *Am J Roentgenol* 156: 77, 1991
 - 31) Cobb CJ, Floyd WN: Usefulness of bile cytology in the diagnostic management of patients with biliary tract obstruction. *Acta Cytol* 29: 93, 1985
 - 32) Endo Y, Morii T, Tamura H, Okuda S: Cytodiagnosis of pancreatic malignant tumors by aspiration, under direct vision, using a duodenal fibroscope. *Gastroenterol* 67: 944, 1974
 - 33) Hatfield ARW, Smithies A, Wilkins R, Levi AJ: Assessment of endoscopic retrograde cholangiopancreaticography (ERCP) and pure pancreatic juice cytology in patients with pancreatic disease. *Gut* 17: 14, 1976
 - 34) Sawada Y, Gonda H, Hayashida Y: Combined use of brushing cytology and endoscopic retrograde pancreatography for the early detection of pancreatic cancer. *Acta Cytol* 33: 870, 1989
 - 35) Mohandas KM, Swaroop VS, Gullar SU, Dave UR, Jagannath P, DeSouza LJ: Diagnosis of malignant obstructive jaundice by bile cytology: results improved by dilating the bile duct strictures. *Gastrointest Endosc* 40: 150, 1994
 - 36) Mendez G, Russell E, Levi JU, Koolpe H, Cohen M: Percutaneous brush biopsy and internal drainage of biliary tree through endoprosthesis. *Am J Roentgenol* 134: 653, 1980
 - 37) Rabinovitz M, Zajko AB, Hassanein T, Shetty B, Bron KM, Schade RR, Gavaler JS, Block G, van Thiel DH, Dekker A: Diagnostic value of brush cytology in the diagnosis of bile duct carcinoma: A study in 65 patients with bile duct strictures. *Hepatology* 12: 747, 1990
 - 38) Ryan ME: Cytologic brushings of ductal lesions during ERCP. *Gastrointest Endosc* 37: 139, 1991
 - 39) Rupp M, Hawthorne CL, Ehya H: Brushing cytology in biliary tract obstruction. *Acta Cytol* 34: 221, 1990
 - 40) Lee JG, Leung JW, Baillie J, Layfield LJ, Cotton PB: Benign, dysplastic, or malignant-making sense of endoscopic bile duct brush cytology: Results in 149 consecutive patients. *Am J Gastroenterol* 90: 722, 1995
 - 41) Ferrari AP, Lichtenstein DR, Slivka A, Chang C,

- Carr-Locke DL: Brush cytology during ERCP for the diagnosis of biliary and pancreatic malignancies. *Gastrointest Endosc* 40: 140, 1994
- 42) Leung JWC, Sung JY, Chung SCS, Chan KM: Endoscopic scraping biopsy of malignant biliary strictures. *Gastrointest Endosc* 35: 66, 1989
- 43) Rupp M, Hawthorne CM, Ehya H: Brushing cytology in biliary tract obstruction. *Acta Cytol* 34: 221, 1990
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