

1

2

3

3

: 가

: 1996 4 1998 7 39
 48 (18),
 (8), (5), (5), (1), (2)
 Kaplan-Meier method

: 25 50
 50% 11% 25 50 42%, 11%
 25 51% 18%

:

가 (Hanaro spiral stent, Solco Intermed,
 가 (1). Seoul, Korea)

3-4

1996 4 1998 7

(2-5).

39

가

(6-9).

가

가

가

Bismuth type

가

가

(9).

24 , 15
 48-92 (64)
 18 , (8), (5), (5),
 (1), (1), 1

1
 2
 3

1999 3 8

1999 5 27

(PTC)

(30) (9) 19 가
 (biliary-enteric anastomosis)
 (2)
 (Fig. 1)
 (bent) (bend : 6 mm,
 zigzag bend : 8) 가
 가
 PTBD 3-7
 가
 가
 가
 8-10 mm, 30-100 mm 48
 9 (linear con-

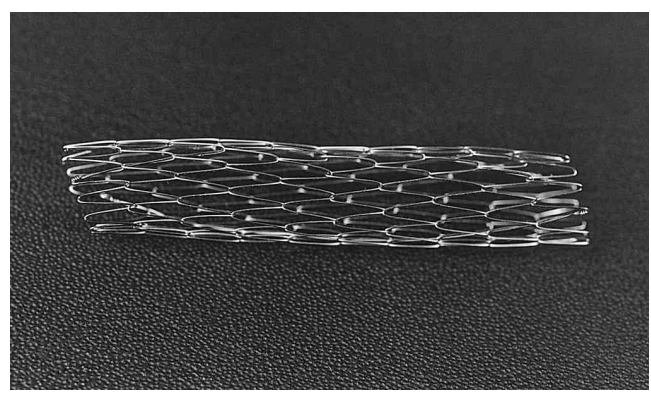


Fig. 1. Hanaro spiral stent made of a 0.25-mm stainless steel wire bent in a zigzag pattern with alternating leg length.

figuration), Y , T 2 가
 2
 가 (Fig. 2).

CT, PTC
 (data censoring)
 Kaplan-Meier method
 log-rank test

1 가
 (Table 1).
 2 가 2

Table 1. Complications in Palliation of Malignant Biliary Obstruction with Hanaro Spiral Stents

Early complications	No. of pts	Late complications	No. of pts
Stent migration	1/39	Tumor ingrowth / bile sludge	13/32
Abdominal pain & fever	1/39	Tumor overgrowth	3/32
Hemobilia	5/39	Stent bending	1/32
Cholangitis	2/39		



Fig. 2. A 48-year-old female patient with hilar cholangiocarcinoma.
 A. Percutaneous transhepatic cholangiogram (PTC) shows tumor involvement of both right and left intrahepatic ducts.
 B. PTC immediately after insertion of 2 spiral stents with Y-configuration shows good passage of contrast material to distal CBD.

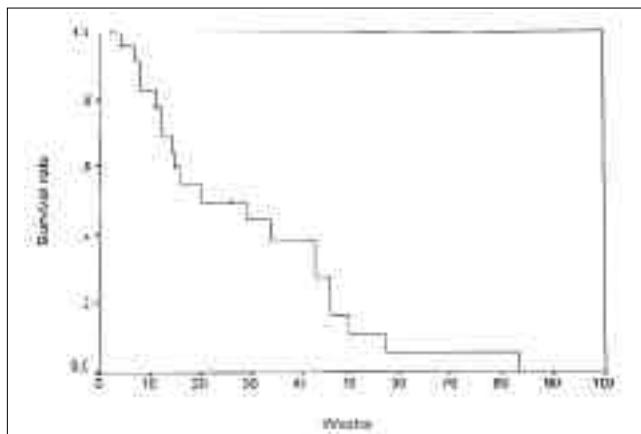


Fig. 3. Kaplan-Meier estimation of survival of the patients (7 of 39 patients were lost to follow-up).

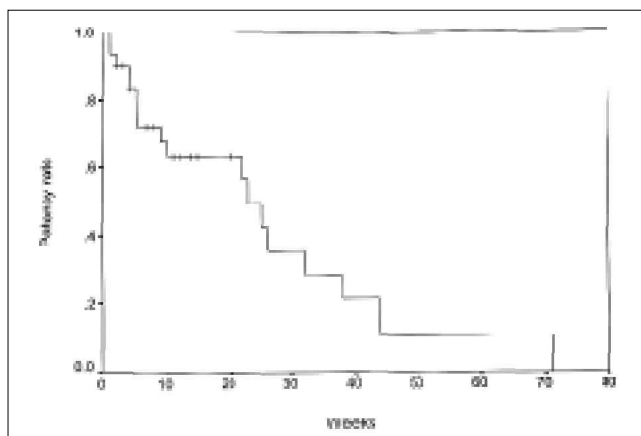


Fig. 4. Kaplan-Meier estimation of overall patency rates of Hanaro spiral stents.

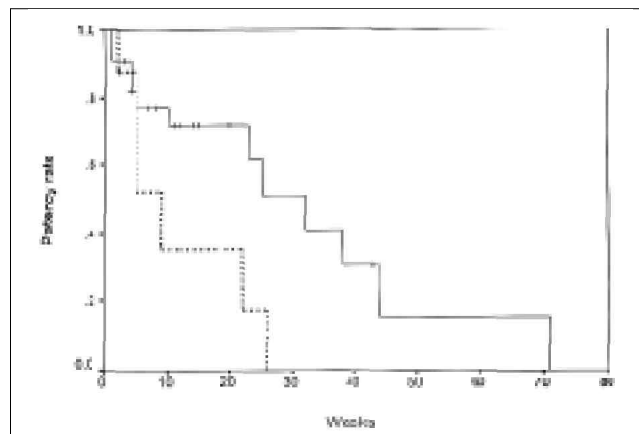


Fig. 5. Kaplan-Meier estimation of patency rates of Hanaro spiral stents with regard to the level of obstruction. Patency rates of stents placed at the hilar confluence and at the level of biliary-enteric anastomosis (dotted line) was lower than that of stents placed in the CBD.

42% 11% (Fig. 4). 30
35%
25 51% 18%
(p < 0.05) (Fig. 5).

PTBD

(9, 11).

(6, 9, 11),

가
가 1 1
가 (Table 1).
39 7 32

가 8

가 가

가

Kaplan-Meier method

가 (6, 9)

가

Rossi (6)

25

50 42% 16% (9)

62% 25% . 25 50

50% 11% Rossi (6)

(9)

Kaplan-Meier method

가

가

가
가 1 1
가 (Table 1).
39 7 32
(166
, 50-583).
50 50% 11% (Fig. 3).
32 21
17
4
(tumor overgrowth) 3 가 가
1 13 CT, USG PTC
(tumor ingrowth) (bile sludge)
(Table 1).
26 25 50

:
 6-20% 가 , Rossi
 3-6% (6)
 (5, 7, 12, 13).
 Hausegger (16)
 Rossi (6)
 1% 가 .
 48 1 가
 (20-36%) (3%) 가 가
 (6), 가 가
 2 (2/39, 5%) 가 Lameris (8) 69 Wallstent 7
 PTBD “overstenting”
 (6, 14, 15). 가 3
 PTBD 가
 가 Kaufman (18)
 . Rossi (6)
 25 50 42% 16% , Laberge (21)
 nitinol Strecker stent(self-ex-
 pandable, made of Elastalloy, anickel and titanium
 alloy)(Medi-tech/Boston scientific, Watertown, Mass)가 25
 50 78% 68% Wallstent(Schneider,
 Zurich, Switzerland) 67% 51%
 Z stent(Cook, Bloomington, Ind) tantalum
 Strecker stent(balloon-expandable)(Medi-tech/Boston Scientific)
 25 30% 20% 75% 62% 6
 88% , Rossi (6) 74%
 nitinol Strecker stent Wallstent (9) (9) 75% 89%
 “overstenting”
 25 246 360 62% 25% 81% 53% T Y 2
 30 (9, 20, 21).
 26 25 50 25 51%
 50% 11% 42% 18%
 11% 32 가 9 3
 17 (46%) 가 13 가 2 가
 3 , 가 가
 가 1 (9)

가

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Z- :
1993; 29:448-452
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Intervention of Malignant Biliary Obstruction with Hanaro Spiral Stent¹

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Purpose : To evaluate the long-term patency of the Hanaro spiral stent (Solco Intermed, Seoul, Korea) when used as a palliative in patients with inoperable malignant biliary obstruction.

Materials and Methods : Between April 1996 and July 1998, 39 patients with malignant biliary obstruction underwent percutaneous placement of 48 Hanaro spiral stents. The causes of obstruction were bile duct carcinoma (n= 18), pancreatic carcinoma (n= 8), metastatic lymphadenopathy (n= 5), gallbladder carcinoma (n= 5), hepatocellular carcinoma (n= 1) and other tumors (n= 2). Using the kaplan-Meier method, patient survival and stent patency rates were estimated with regard to level of obstruction.

Results : As regards stent insertion, there was no technical failure. Overall 25- and 50-week survival rates for the entire patient group were 50 % and 11 %, respectively, while overall stent patency rates at 25 and 50 weeks were 42 % and 11 %, respectively. Twenty-five-week stent patency rates in patients with common bile duct (CBD) and hilar obstruction were 51 % and 18 %, respectively. The stent patency rates in the CBD obstruction group was significantly higher than that in the hilar obstruction group ($p < 0.05$).

Conclusion : In patients with CBD obstruction, the clinical efficacy of Hanaro spiral stent was superior to that in patients with hilar obstruction. However, Hanaro spiral stents showed a lower patency rate with regard to patient survival, and further investigation is required.

Index words : Bile ducts, stenosis or obstruction

Bile duct, interventional procedure

Bile duct, stents and prostheses

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