

X

1

. . . .

:

X -

:

6

5 ,

1

1)

X -

, 2)

, 3)

X -

. 5

, 1

Wallstent

:

가

, 2

가

. 2

1

, 1

. 1

, 3

. 5

1

가

X -

:

,

.

(common hepatic duct)

(segmental

intrahepatic bile ducts)

가

98 2

99 2

(percutaneous transhepatic biliary drainage;
(stent)

PTBD)

(Bismuth type

가

IV) 6

. 6

, Y , T

57 - 60 (58)

CT

(parallel)

(1 -

3).

,

5

가

,

1

. 3

3 - 5

PTBD

. 5

(Balloon Dilatation)

preloading

8 mm

6 mm

(Hanaro Spiral Stent, Solco Intermed, Seoul,

Korea)

2

, 1

10 mm

Wallstent

(Schneider, Buelach, Swit -

zerland)

2

.

: X

X-

. X-

PTBD

X-

(Fig. 1).

(lateral segment)

가

(yellow sheath)

X- 0.035 "J
Terumo, Tokyo, Japan)

(Angled Guide Wire,

X-

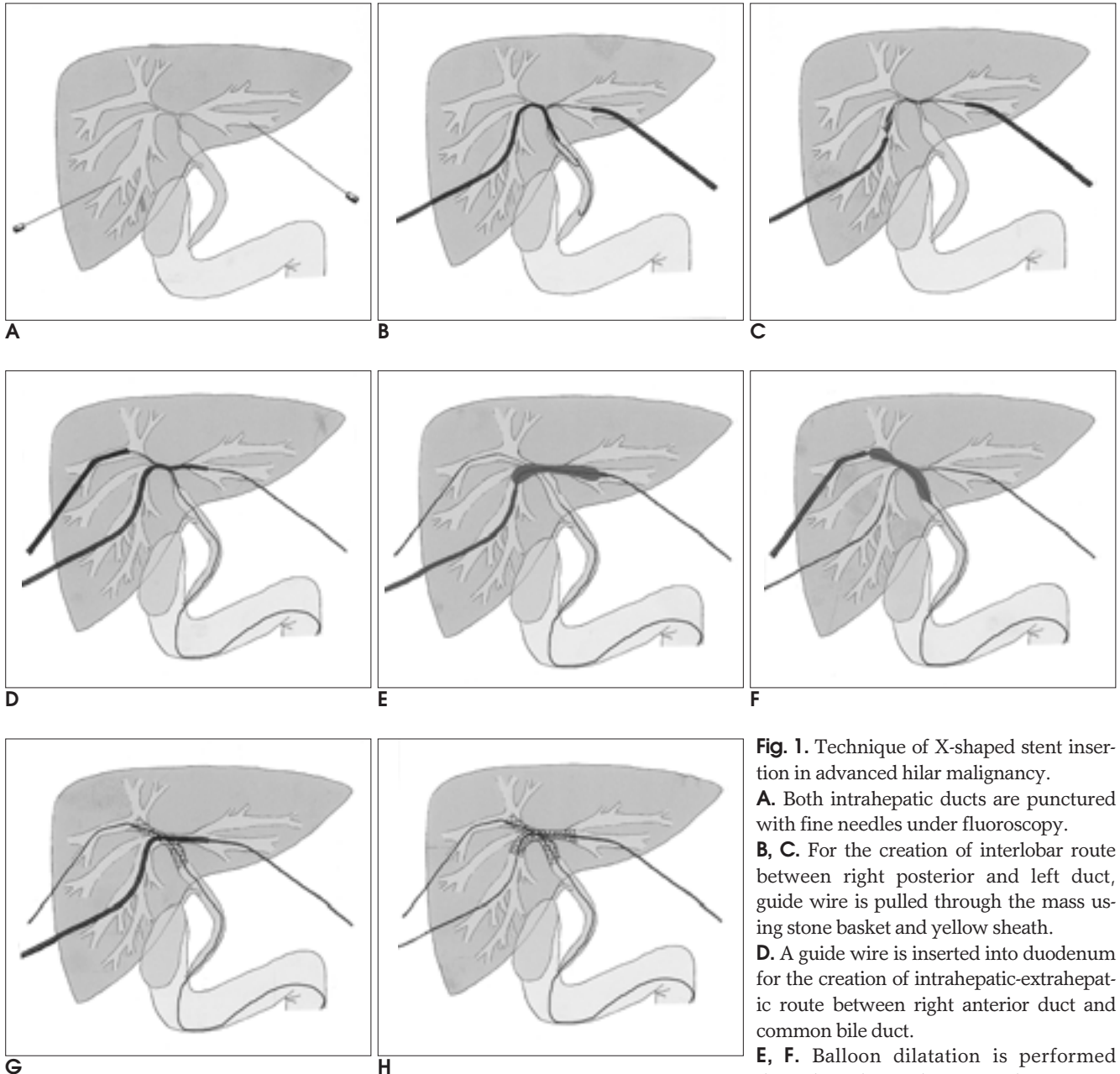


Fig. 1. Technique of X-shaped stent insertion in advanced hilar malignancy.

A. Both intrahepatic ducts are punctured with fine needles under fluoroscopy.

B, C. For the creation of interlobar route between right posterior and left duct, guide wire is pulled through the mass using stone basket and yellow sheath.

D. A guide wire is inserted into duodenum for the creation of intrahepatic-extrahepatic route between right anterior duct and common bile duct.

E, F. Balloon dilatation is performed through guiding catheter introducer.

G. An intrahepatic-extrahepatic stent is inserted.

H. Using the pull-through technique, an interlobar stent is inserted finally.

(stone removal basket)

cm

X -

Oddi

introducer]

[dilator])

[guiding catheter

deploy

J

5 - 10 cm

(over - growth)

overstenting)

(overstenting;
(shortening)

X -

8F

(Argon, Athens,

Texas)

(Fig. 2),

, DSA

3 - 4 cc

Demerol

8 mm, 4 cm

(Balloon Dilatation Catheter, Medi - tech,

Watertown, MA)

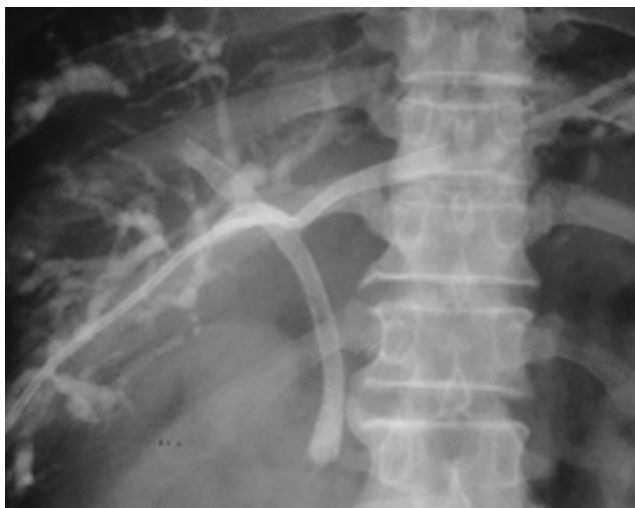


Fig. 2. A cholangiogram obtained immediately after X-shaped stent insertion.

This cholangiogram shows two stents of X-configuration and a drainage catheter in right lower posterior hepatic duct. Notice the V-shaped curve of the interlobar stent in the crossing portion.

가

가 3

X -

가

deploy

(Fig. 2),

, DSA

가

2

가 2

1

3

가

(internal drainage)

1

가

V

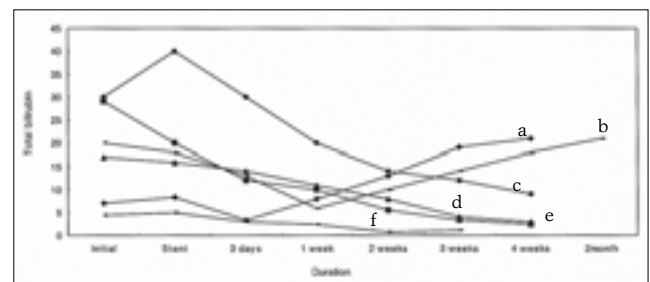


Table 1. The change of serum bilirubin level after X-shaped stent insertion.

a) In this case died of sepsis after 1 month, bile juice was extracted from malignant ascites. b) In this case with occlusion of left interlobar stent, serum bilirubin level was increased after 1 week, and additional left PTBD was performed after 3 months. c, d, e, & f) After stent insertion, serum bilirubin levels were decreased gradually.

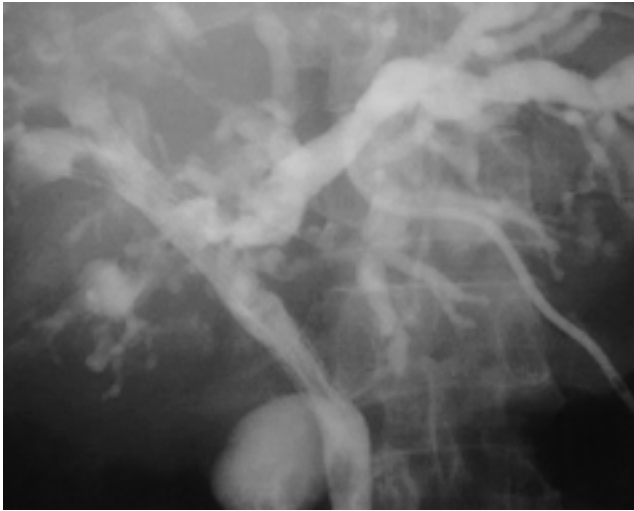


Fig. 3. Partial occlusion of the interlobar stent in left duct because of poor overstenting. A cholangiogram after 3 months shows two biliary stents with loss of X configuration. PTBD catheter is in left duct.

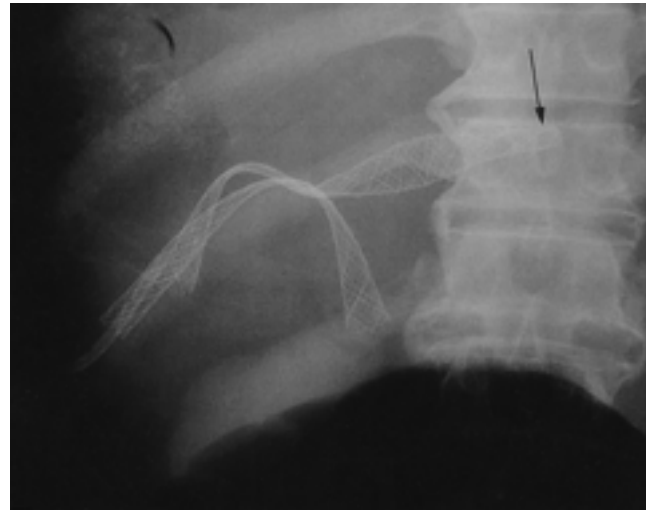


Fig. 4. Poor expansion of stents without balloon dilatation. Simple radiograph shows poor self-expansion of X-shaped stents in the crossing portion within the mass. The interlobar stent is partly dwelling in left lobe of liver along insertion route (black arrow).

가 , 3 , PTBD
(Fig. 3).
X -
5 (hemobilia) , 3 5
,
5
Wallstent 2
2 가 가
2 가
(Fig. 4).
DSA
가 5 3 , 가
2 .
X -
2 X -
T Y
(4 - 8).
, 2 T Y
(1, 3, 8 - 10).
가
Wallstent X -
(2),
Bismuth type III
가 ,
, Bismuth type IV, T
Y
X
, 가
(Hepatic Duct Confluence)
, Couinaud 6가
가 , 가 가 (11, 12).
가 가 V
가 ,
X -
2 X -
T Y

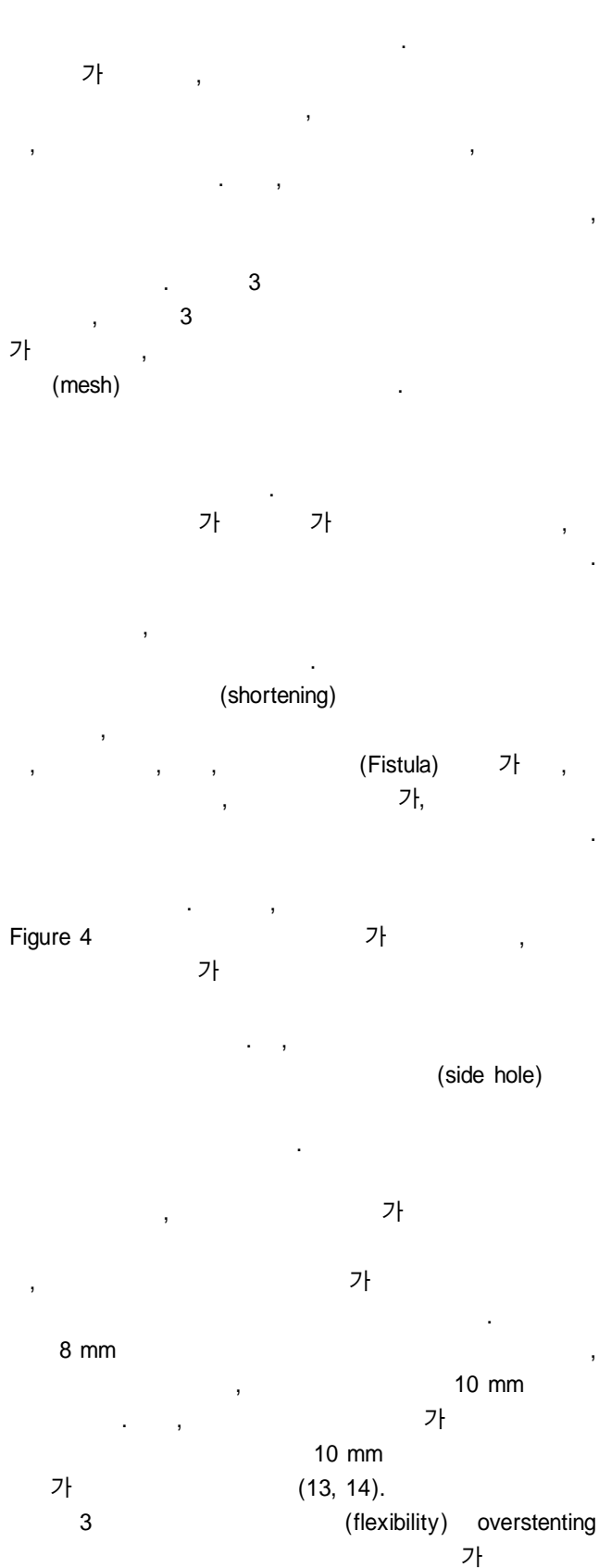


Figure 4

overstenting

(4) (bypass surgery)

가 X -

PTBD

X -

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Management of Advanced Hilar Biliary Malignancy with X-shaped Stenting Technique¹

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Purpose: To report X-shaped stent insertion and its result in the patients with advanced hilar malignancy.

Materials and Methods: X-shaped stents were inserted in six patients with advanced hilar malignancy involving segmental branches of both intrahepatic bile ducts (IHD). The causes were cholangiocarcinomas in five patients and recurrent GB cancer in one. The procedure includes three steps: 1) the insertion of two wires through three IHDs in an X configuration, using a stone basket; 2) balloon dilatation of lesions, and 3) the insertion of two stents in an as X configuration. Stents were inserted after balloon dilatation in five patients, and without balloon dilatation in one. Changes in serum bilirubin levels and procedure-related problems were reviewed.

Results: In all patients, serum bilirubin levels gradually decreased, but in two, they increased again.

One of these two died of sepsis after 1 month. There was bile leakage through the puncture and bile was extracted from malignant ascites. In the other patient, occlusion of the left stent tip occurred, and additional left PTBD was performed 3 months later. Hemobilia developed in all five patients with balloon dilatation, these all experienced pain during dilatation, but afterwards this disappeared. One stent without pre-balloon dilation showed incomplete self-expansion at the crossing part and supplementary balloon dilatations were performed.

Conclusion: In patients with advanced hilar malignancy, X-shaped stent insertion is a new palliation. Problems such as hemobilia, pain, and intraperitoneal bile leakage may, however, occur.

Index words : Bile ducts, neoplasms
Bile ducts, stenosis or obstruction
Bile ducts, interventional procedure
Bile ducts, stents and prostheses
Stents and prostheses

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