

가
 :
 : 14
 10 mm
 12 6.3 F
 ,
 8.5
 F
 , 2 3
 ,
 :
 13 (93%)
 (n=3), (n=1), (n=5)
 . 5 8 (7 , 1) 가
 가
 1
 :
 가
 가

가 (1 - 12).
 , 가 (13 -
 , 15), ,
 (16 - 19) 0 - 37%
 , paclitaxel
 (1 - 12).
 , (20, 21).
 가
 ,
 가
 가 20%

:
 20 mm, 10 mm, 6
 가 (S&G Biotech, ,)
 65 cm, 8 F polytetrafluoroethyl - 6 mm (Medi - Tech)
 ene
 , 1.0 mm, 2.16 mm 8 F
 24.4 mm, 11.4 mm Vital - Port (Cook,
 Bjaeverskov, Denmark)
 3 - 4 cm
 12 - 15 Kg (, 13 Kg)
 24
 , 30 ketamine 8.5 F (Cook)
 hydrochloride (15 mg/Kg, , ,) atropine
 sulfate (0.5 mg, , ,)
 pentobarbital sodium (15 mg/Kg, , , (3 mg/Kg) 1
) 500 ml 60
 X - (Integris Allula; Philips, Best,
 The Netherlands) 5
 10%
 (HDI 3000; ATL,
 Bothell, WA, U.S.A.)
 5 mm 1 20 G non -
 T - coring needle (Cook) 20 ml
 fastener가 17 G Cope needle (Cook, Bloomington, IN,
 U.S.A.) 3
 18 G Brown - Mueller needle (Medi - Tech,
 Watertown, MN, U.S.A.) 가
 (Visipaque TM; Nycomed, Cork,
 Ireland) 3 - 4 cm
 0.035 - inch
 가 0.035 -
 inch COR - FLEXTM (Cook) 7F
 T - fastener가 T -
 fastener T -
 fastener T - fasten -
 er 가
 metal introducer set (Neff percutaneous
 access sets; Cook) 5 F pentobarbital sodium
 3 - 5 ml
 0.035 - inch stiff - type RADIOFO - , 가
 CUS (Terumo , Tokyo, Japan)
 5 F (Cook)
 가
 T - fastener가 17 G 18 G
 8 F (Cook) 1 - 3 (, 2)
 가 8 F 가 14 13

(93%)

. 1

8 F

가

(Fig. 1), 2

가

13

11

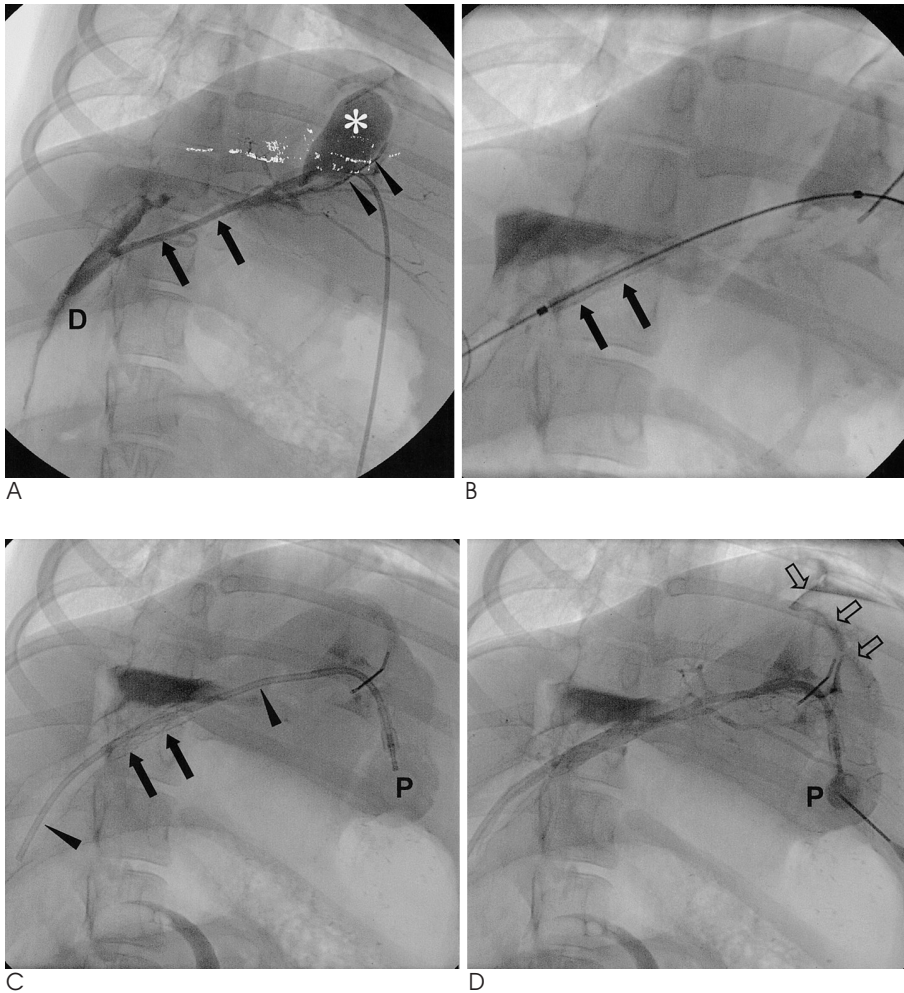


Fig. 1. A case of a biliary stent and an implantable port catheter placement.

A. Cholangiogram taken by injection of contrast media into the gall bladder (*) after the insertion of a 5 F catheter shows a passage of contrast media into the duodenum (D) via the common bile duct (arrows). Note a T-fastener (arrowheads) in the gall bladder.

B. After advance of an 8F stent introducer over a guide wire, a stent (arrows) is placed in the common bile duct.

C. An implantable port catheter (arrowheads) is placed in the common bile duct through the gall bladder and the stent (arrows). A port (P) was secured in the subcutaneous pocket.

D. Cholangiogram taken by injection of contrast media into the port (P) just after placement of the stent and the port catheter shows some contrast media leakage (open arrows) into the peritoneum.

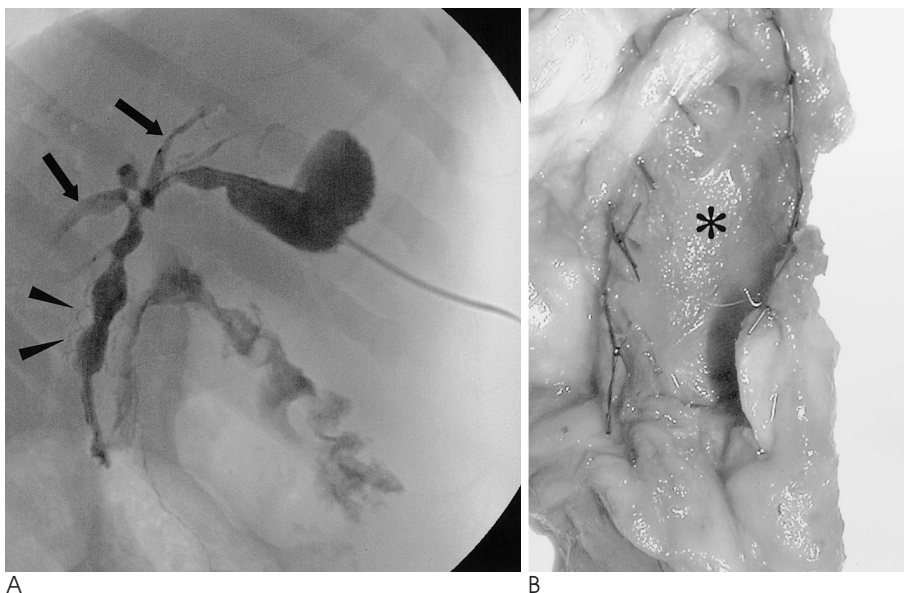


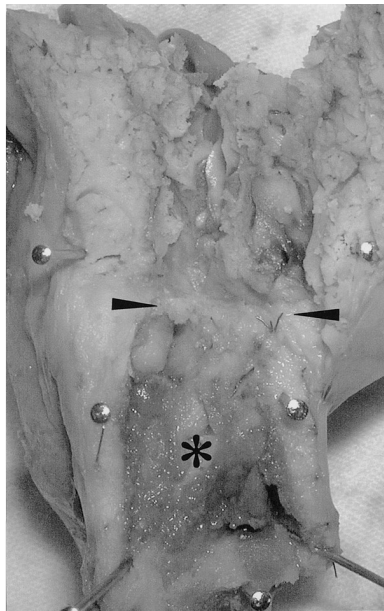
Fig. 2. A case of a biliary stent and an implantable port catheter placement.

A. Cholangiogram obtained 5 weeks after stent placement shows a good passage of contrast media through the stent and the port catheter. Note mild to moderate dilated intrahepatic bile ducts (arrows) and filling defects (arrowheads) in the lumen of the stent.

B. Gross specimen of the common bile duct opened longitudinally shows granulation tissue (*) at the stented bile duct.



A



B

Fig. 3. A case of a biliary stent placement without an implantable port catheter.

A. Five-week follow-up cholangiogram taken by injection of contrast media into the gall bladder shows a fully expanded stent (arrows) and the dilated intrahepatic bile ducts (open arrows). Note a focal stenosis (arrowhead) at the proximal bile duct adjacent to the biliary stent.

B. Gross specimen of the common duct opened longitudinally shows granulation tissue (*) at the stented bile duct and a dense fibrotic stricture (arrowheads) at the junction of the stent and a proximal bile duct.

1

8F
가

가 3

가

(Fig. 3).

8

10

가

가
가
가

가

1

가

가

, Boguth (3)

5

가

8

(incrustation) 가

가 1

가 7 ,

2

,

7

가

. Friedrich (22)

8

8

3

7

(biofilm)

(19, 23 - 25).

(Fig. 2).

1

(26 - 28), Ledinghen (29)

T - fastener

가 , 5

4 가 ,

가 2 - 4

가 , 3

가

가 ,

가 1 - 2 가

가

가 가

가

가

가

1 가 7

가

2 가 3

Friedrich (22)

5

가

가

가

가

(30), 3

가

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Placement of an Implantable Port Catheter in the Biliary Stent: An Experimental Study in Dogs¹

Gi-Young Ko, M.D., Im Sick Lee, B.S., Won-Chan Choi, B.S.

¹Department of Radiology, Asan Medical Center, University of Ulsan College of Medicine

Purpose: To investigate the feasibility of port catheter placement following a biliary stent placement.

Materials and Methods: We employed 14 mongrel dogs as test subject. and after the puncture of their gall bladders using sonographic guidance, a 10-mm in diameter metallic stent was placed at the common duct. In 12 dogs, a 6.3 F port catheter was placed into the duodenum through the common duct and a port was secured at the subcutaneous space following stent placement. As a control group, an 8.5 F drain tube was placed into the gallbladder without port catheter placement in the remaining two dogs. Irrigation of the bile duct was performed every week by injection of saline into the port, and the port catheter was replaced three weeks later in two dogs. Information relating to the success of the procedure, complications and the five-week follow-up cholangiographic findings were obtained.

Results: Placement of a biliary stent and a port catheter was technically successful in 13 (93%) dogs, while stent migration ($n=3$), gallbladder rupture ($n=1$) and death ($n=5$) due to subcutaneous abscess and peritonitis also occurred. The follow-up was achieved in eight dogs (seven dogs with a port catheter placement and one dog with a drain tube placement). Irrigation of the bile duct and port catheter replacement were successfully achieved without any complications. Cholangiograms obtained five weeks after stent placement showed diffuse biliary dilation with granulation tissue formation. However, focal biliary stricture was seen in one dog with stent placement alone.

Conclusion: Placement of a port catheter following biliary stent placement seems to be feasible. However, further investigation is necessary to reduce the current complications.

Index words : Animals

Bile ducts, interventional procedure

Stents and prostheses

Address reprint requests to : Gi-Young Ko, M.D., Department of Radiology, Asan Medical Center, University of Ulsan College of Medicine, 388-1 Poongnap-2-dong, Songpa-gu, Seoul 138-736, Korea.
Tel. 82-2-3010-4438 Fax. 82-2-476-0090 E-mail: kogy@amc.seoul.kr