Stenting of benign biliary and pancreatic strictures

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- Post operative strictures
- Chronic pancreatitis strictures
- Others

Biliary stents: models and methods for endoscopic stenting
European Society of Gastrointestinal Endoscopy (ESGE) Technology Review
J.-M. Dumonceau[1], A. Tringali[2], D. Blero[3], J. Devière[3], R. Laugiers[4], D. Heresbach[5], G. Costamagna[2] Endoscopy 2011

Biliary stenting: Indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline
J.-M. Dumonceau[1], D. Heresbach[2], J. Devière[3], G. Costamagna[4], U. Beilenhoff[5], A. Riphaus[6] Endoscopy 2012

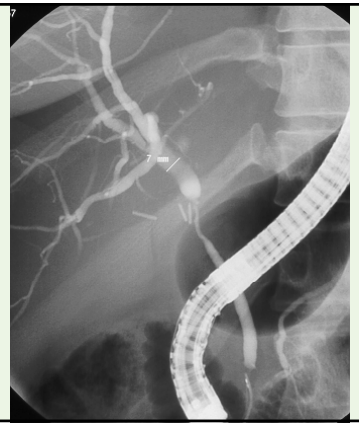
Endoscopic treatment of chronic pancreatitis: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline
J.-M. Dumonceau[1], M. Delhaye[2], A. Tringali[3], J. E. Dominguez-Munoz[4], J.-W. Poley[5], M. Arvanitaki[2], G. Costamagna[3], F. Costea[6], J. Devière[2], P. Eisendrath[7], S. Lakhtakia[8], N. Reddy[9], P. Fockens[5], T. Ponchon[10], M. Bruno[5]
Endoscopy 2012

http://www.esge.com/esge-guidelines.html

Post operative biliary strictures

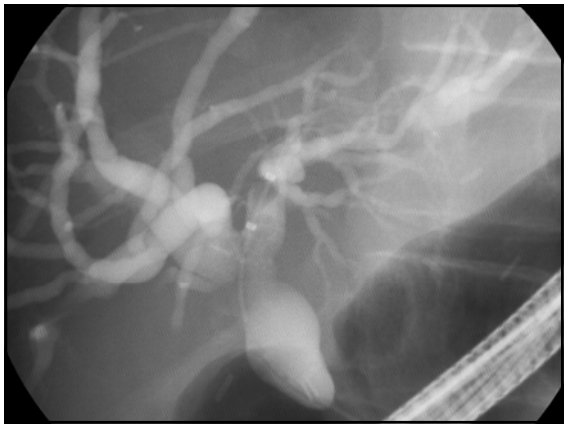
50 year old female

- 2012: iterative post prandial epigastric pain radiating to the back
- 01/2013: diagnosis of gallbladder stones by US
- 03/2013: laparoscopic cholecystectomy
- 12/2013: itching, jaundice and cholestasis. MRCP: dilated CBD above a stricture near the cystic duct remnant



73 year old male

- Cirrhosis from NASH and hepatocarcinoma
- 2/2011: liver transplantation
- 09/2013: cholestasis and itching, dilatation of intrahepatic bile ducts at MRCP
- ERCP:



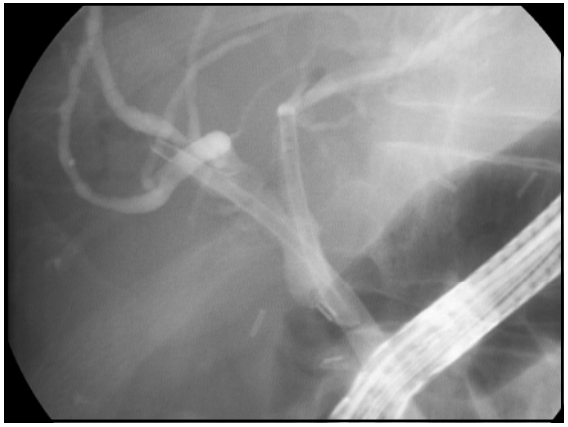
Q12. What is your proposal ?

A. Send the patient to surgeons for hepaticojejunostomy
B. Perform balloon dilatation 8 mms only
C. Dilate and insert plastic stents
D. Place a totally covered Wallflex 8 cms long

Question 12

25% 1. Answer A
25% 2. Answer B
25% 3. Answer C
25% 4. Answer D

10



Q13. What is your plan ?

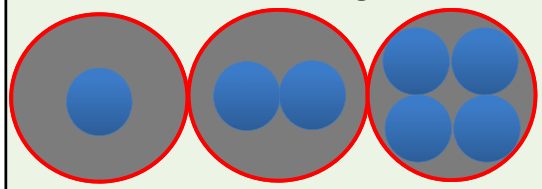
A. Replace the 2 stents in 3 months, doing this for 2 years
B. Planning 1 year stenting with replacements and increasing number of stents
C. Wait for recurrent cholangitis for stent exchange
D. Remove the stents after 6 months

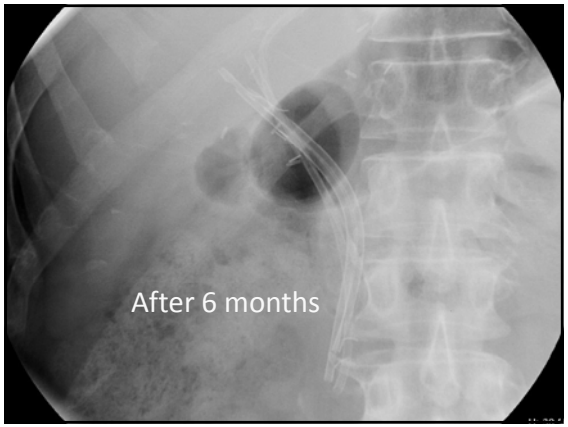
Question 13

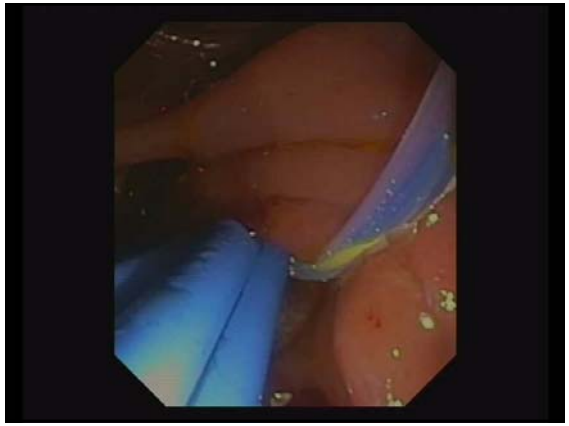
25% 1. Answer A
25% 2. Answer B
25% 3. Answer C
25% 4. Answer D

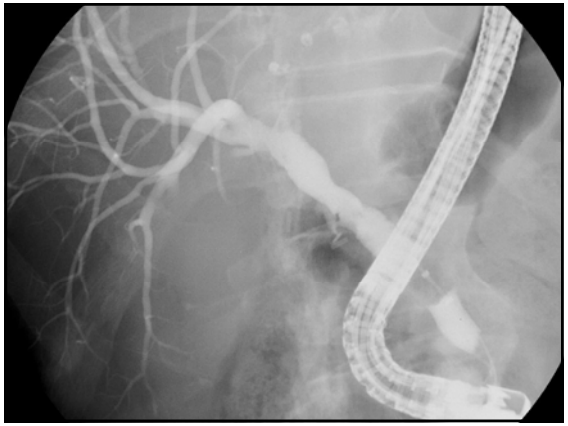
10

Benign biliary strictures: Plastic stenting









Q14. What do you tell to the patient ?

A. He(she) has a 50% chance of longterm success
B. He(she) has a 30% chance of recurrence within 1 year
C. He(she) has 10-20% chance of recurrence within 3-5 years
D. No chance of recurrence

Question 14

25% 1. Answer A
25% 2. Answer B
25% 3. Answer C
25% 4. Answer D

10

Pooled data of series (BBS)

Disease	Success at 1 yr	Longterm reccurence
Post Cholecystectomy	74 – 90 %	11 %
Post Transplantation (A)	70 – 100 %	18 %

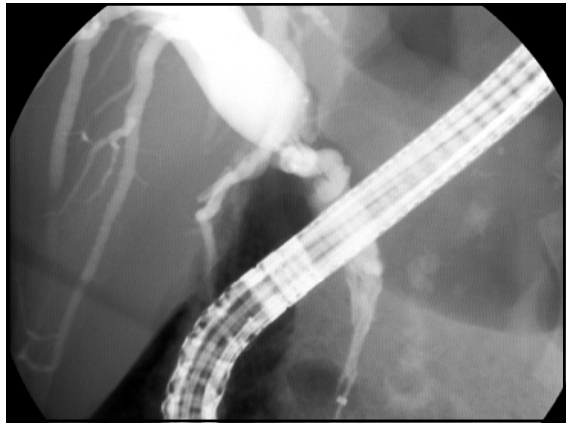
A: anastomotic

Zepeda S et al. Nat Rev Gastroenterol Hepatol. 2011;8:573
Van Boeckel et al. BMC Gastroenterology 2009;9:96
Costamagna et al. GIE 2001;54:162
Costamagna et al. GIE 2010;72:551
Draganov et al. 2002;55:680
Tabibian et al. GIE 2009;69:1236
Catalano, GIE 2004; 60: 945

Bilio-pancreatic strictures in chronic pancreatitis

55 yo male

- Chronic pancreatitis with tail pancreatectomy and splenectomy in 2006
- 12/2012: cholangitis due to CBD stricture treated by 2 plastic stents
- 10/2013: acute on chronic pancreatitis with dilated remnant pancreatic duct
- ERCP:



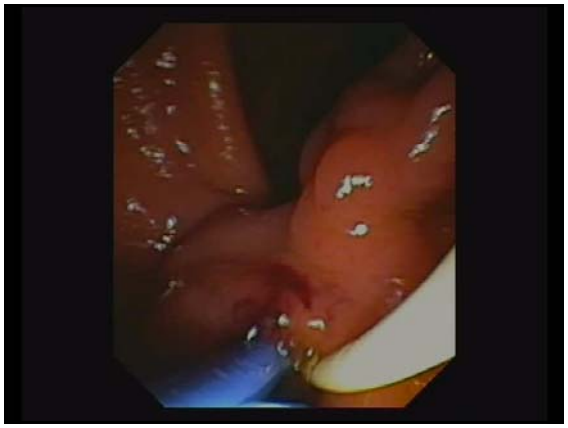
Q15. What will you do ?

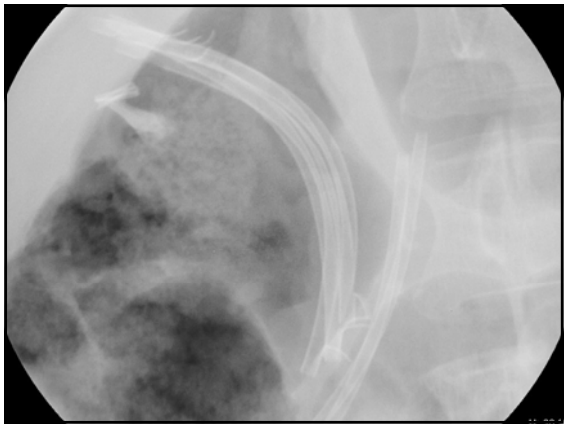
A. Place 1 plastic stent in the pancreas and a fully covered Wallflex in the bile duct
B. Send the patient to surgeons for bilio-pancreatic diversion
C. Place one stent in the pancreatic and bile duct for one year
D. Place multiple stents in the pancreatic duct and in the bile duct for one year

Question 15

25% 1. Answer A
25% 2. Answer B
25% 3. Answer C
25% 4. Answer D

10





Pooled data of series Bile Duct Strictures in CP

Disease	Success at 1 yr	Longterm reccurence
Post Cholecystectomy	74 – 90 %	11 %
Post Transplantation (A)	70 – 100 %	18 %
Chronic pancreatitis (1 stent)	12-38 %	
Chronic pancreatitis (x stents)	92 %	

A: anastomotic

Zepeda S et al. Nat Rev Gastroenterol Hepatol. 2011;8:573
Van Boeckel et al. BMC Gastroenterology 2009;9:96
Costamagna et al. GIE 2001;54:162
Costamagna et al. GIE 2010;72:551
Draganov et al. 2002;55:680
Tabibian et al. GIE 2009;69:1236
Catalano, GIE 2004; 60: 945

Pooled data of series Pancreatic Duct Strictures

Disease	Clinical Success on the long-term
Chronic pancreatitis (1 stent) for 6 months	30-50%
Chronic pancreatitis (1 stent) for 2 years	60-70%
Chronic pancreatitis (multiple stents) for 1 year	84%

1. Cremer M. et al. Endoscopy 1991;23:171-6
Ponchon T. et al. GIE 1995;
Cahen et al, NEJM 2007;
2. Eleftheriadis N. et al. Endoscopy 2005;
3. Costamagna G. et al. Endoscopy 2006;

Current Gold Standards in 2014

- Benign post operative biliary strictures:
  - Multiple plastic stenting for one year up to anatomic restoration
- Benign biliary & pancreatic strictures related to chronic pancreatitis:
  - Multiple plastic stenting for one year up to anatomic restoration

Q16. IS THERE A PLACE TODAY FOR FULLY COVERED SEMS IN DAILY PRACTICE?

1. NO
2. YES

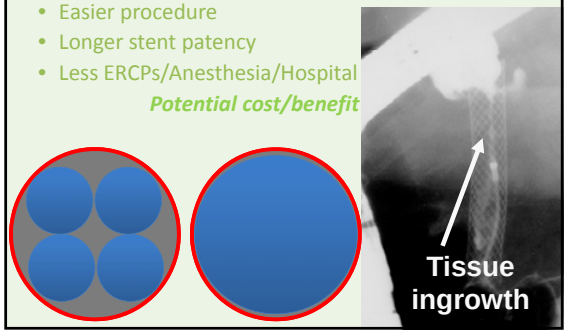
NO !

OUTSIDE OF PROSPECTIVE / RANDOMIZED TRIALS

The rationale for SEMS in benign strictures

- One step maximal dilatation (33 Fr = 10 mm)
- Easier procedure
- Longer stent patency
- Less ERCPs/Anesthesia/Hospital

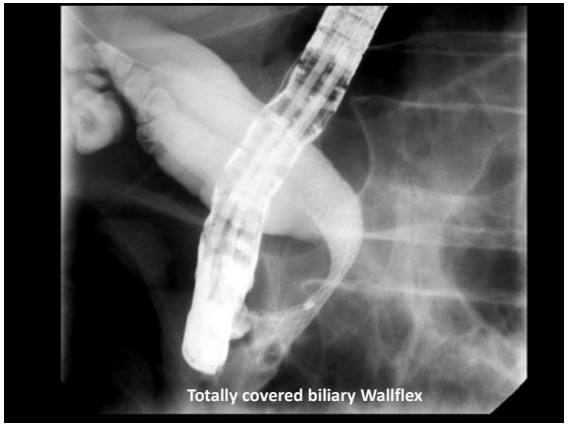
Potential cost/benefit



Role of sems in benign strictures ?
Initially for failure of plastic stenting

Type of SEMS	period	Short-term patency	Long-term patency
~~Uncovered~~	~~1990-1998 (1)~~	~~70 %~~	~~8 % (embedded)~~
~~Partially covered~~	~~2002-2006 (2)~~	~~77 %~~	~~Removal after 4 months~~
Fully covered	currently		

1.
O'Brien SM. et al. Eur J Gastroenterol Hepatol 1998;10(2):141–5.
Deviere J. et al. Gut 1994;35(1):122–6.
Van Berkel AM. et al. Endoscopy 2004;36(5): 381–4.
Eickhoff A. et al. Z Gastroenterol 2003; 41(7):649–54.
Dumonceau JM. et al. Gastrointest Endosc Clin N Am 1999;9(3):541–45.
Eisendrath P. et al. Gastrointest Endosc Clin N Am 1999;9(3):547–54.
2.
Kahaleh M. et al. Gastrointest Endosc 2004;60(4):640–4.
Shin HP. et al. Endoscopy 2006;38(12):1250–5.
Familiari P. et al. Gastrointest Endosc 2005;62(6): 903–10.
Trentino P. et al. Gastrointest Endosc 2004;59(2):321–3.
Cantu P. et al. Endoscopy 2005;37(8):735–9



FCSEMS in benign biliary strictures

1. Review paper from Kaffes et al. GIE 2013; 78: 13- (> 300 patients)
2. Large multicenter US study from Kahaleh et al. J Clin Gastroenterol 2013;47:695-
3. Large multicenter worldwide study from Devière et al. Gastroenterology 2014; May

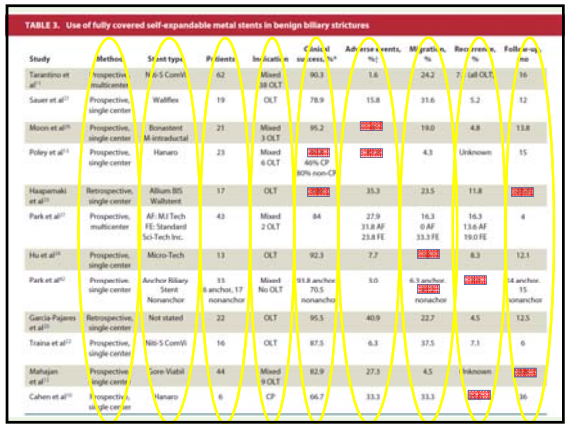


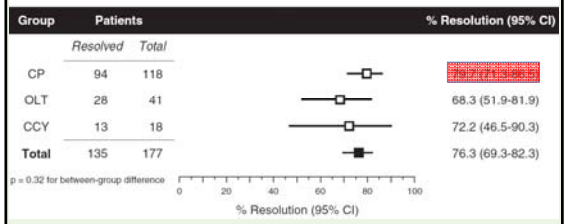
TABLE 3. Use of fully covered self-expandable metal stents in benign biliary strictures

Study	Method	Stent type	Patients	Indication	Clinical success, %*	Adverse events, %†	Migration, %	Recurrence, %	Follow-up, mo
Tarantino et al[7]	Prospective, multicenter	N 6-5 ComVi	62	Mixed 38 OLT	90.3	1.6	24.2	7 (all OLT)	16
Sauer et al[21]	Prospective, single center	Wallflex	19	OLT	78.9	15.8	31.6	5.2	12
Moon et al[20]	Prospective, single center	Bonastent M intraductal	21	Mixed 3 OLT	95.2	[redacted]	19.0	4.8	13.8
Poley et al[13]	Prospective, single center	Hanaro	23	Mixed 6 OLT	[redacted] 60% CP 80% non-CP	[redacted]	4.3	Unknown	15
Haapamaki et al[19]	Retrospective, single center	Allium BIS Wallstent	17	OLT	[redacted]	35.3	23.5	11.8	[redacted]
Park et al[17]	Prospective, multicenter	AF: M.I.Tech FE: Standard Sci-Tech Inc.	43	Mixed 2 OLT	84	27.9 31.8 AF 23.8 FE	16.3 0 AF 33.3 FE	16.3 13.6 AF 19.0 FE	4
Hu et al[18]	Prospective, single center	Micro-Tech	13	OLT	92.3	7.7	[redacted]	8.3	12.1
Park et al[22]	Prospective, single center	Anchor Biliary Stent Nonanchor	35 6 anchor, 17 nonanchor	Mixed No OLT	91.8 anchor 70.5 nonanchor	5.0	6.3 anchor, [redacted] nonanchor	[redacted]	14 anchor, 15 nonanchor
Garcia-Pajares et al[23]	Retrospective, single center	Not stated	22	OLT	95.5	40.9	22.7	4.5	12.5
Traina et al[12]	Prospective, single center	Niti-S ComVi	16	OLT	87.5	6.3	37.5	7.1	6
Mahajan et al[11]	Prospective, single center	Sore-Viabil	44	Mixed 9 OLT	82.9	27.3	4.5	Unknown	[redacted]
Cahen et al[10]	Prospective, single center	Hanaro	6	CP	66.7	33.3	33.3	[redacted]	36

Successful Management of Benign Biliary Strictures With Fully Covered Self-Expanding Metal Stents

Deviere et al. Gastroenterology. 2014 Aug;147(2):385-95

187 patients; stent indwell for 6-12 months; FUP: 20 months



Successful Management of Benign Biliary Strictures With Fully Covered Self-Expanding Metal Stents

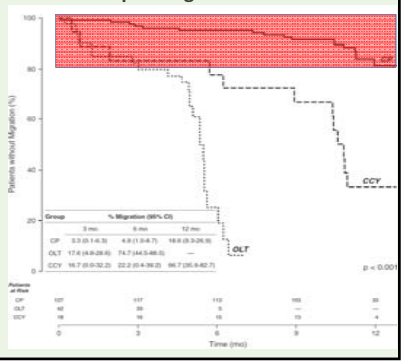
Deviere et al. Gastroenterology. 2014 Aug;147(2):385-95

187 patients; stent indwell for 6 (OLT)-12 (Others) months; FUP: 20 months

Complications	
Stent migration	29,4%
Cholangitis/fever	13,9%
Abdominal pain	5,3%
Removal failure (1st attempt)	4%
Cholecystitis	3,0%
Pancreatitis	2,7%

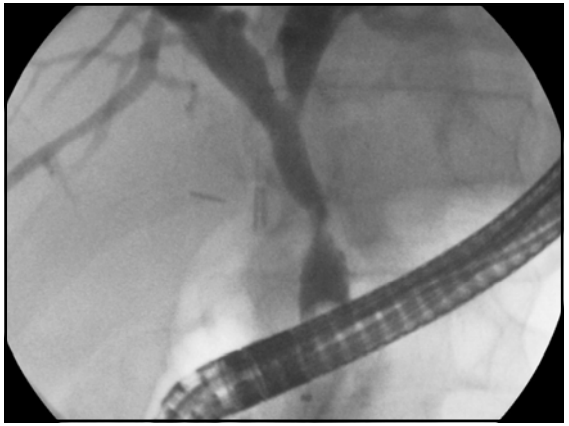
Successful Management of Benign Biliary Strictures With Fully Covered Self-Expanding Metal Stents

Migration rate according to the etiology of BBS



Summary for fcsems in bile ducts

- FCSEMS are removable even after 12 months indwell (96% at the first attempt)
- FCSEMS have the propencity to migrate (10-30%)
  - Migration dramatically reduces the success of stricture resolution
  - Migration rate depends on underlying disease/stricture location/stent properties
  - Migration rate decreases the foreseen cost effectiveness
- FCSEMS compare favorably with plastic stents **only** in CP related BBS
- Complications with indwell of more than 12 months are unknown



Take home messages

- Multiple plastic stenting is the gold standard for calibration of benign biliary and pancreatic strictures
- Fully covered SEMS are **not** an alternative and should not be used in these indications outside of well designed clinical trials