

## Tangled plastic biliary stents removed using a rendezvous method

Seon Yong Choi<sup>1</sup>, Han Myun Kim<sup>2</sup>, and Sung Ill Jang<sup>3</sup>

1. Department of Internal Medicine, Kangnam Sacred Heart Hospital, Hallym University College of Medicine, Seoul, South Korea
2. Department of Radiology, Kangnam Sacred Heart Hospital, Hallym University College of Medicine, Seoul, South Korea
3. Department of Internal Medicine, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea

### CASE STUDY

Please cite this paper as: Choi SY, Kim HM, Jang SI. Tangled plastic biliary stents removed using a rendezvous method. AMJ 2018;11(5):261–263.

<https://doi.org/10.21767/AMJ.2017.3037>

#### Corresponding Author:

Sung Ill Jang  
Department of Internal Medicine  
Institute of Gastroenterology  
Gangnam Severance Hospital  
Yonsei University College of Medicine  
211 Eonjuro, Gangnam-gu, Seoul, 135-720 South Korea  
Email: [aerojsi88@gmail.com](mailto:aerojsi88@gmail.com)  
Tel: +82-2-829-5107  
Fax: +82-2-846-4669

### ABSTRACT

Biliary stents are used to facilitate the drainage of bile into the digestive tract, most often in the palliation of malignant biliary obstruction, but also in benign conditions such as biliary fistulas or benign biliary strictures. Temporary multiple double-pigtail biliary stenting is a safe method for treating large, difficult common bile duct (CBD) stones in elderly patients; it helps reduce stone size and facilitates successful duct clearance. We report a new technique for retrieving two tangled plastic biliary stents using rendezvous endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic biliary drainage.

#### Key Words

Plastic biliary stent, ERCP, PTBD

### Implications for Practice:

#### 1. What is known about this subject?

Failure to remove tangled two biliary stents by retrograde cholangiopancreatography (ERCP) needs new technique.

#### 2. What new information is offered in this report?

A new technique for retrieving two tangled plastic biliary stents using, rendezvous endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic biliary drainage.

#### 3. What are the implications for research, policy, or practice?

Failure to remove tangled two biliary stents by retrograde cholangiopancreatography (ERCP) can be solved by using rendezvous endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic biliary drainage.

### Background

Biliary stents are used to facilitate the drainage of bile into the digestive tract, most often in the palliation of malignant biliary obstruction, but also in benign conditions such as biliary fistulas or benign biliary strictures.<sup>1</sup> Temporary multiple double-pigtail biliary stenting is a safe method for treating large, difficult common bile duct (CBD) stones in elderly patients; it helps reduce stone size and facilitates successful duct clearance.<sup>2</sup> We report a new technique for retrieving two tangled plastic biliary stents using rendezvous endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic biliary drainage.

### Case details

A 62-year-old man was admitted with epigastric pain and computed tomography suggested a CBD stone. It proved impossible to remove the large stone, so two double-pigtail biliary stents (Zimmon; Cook Medical, IN, USA) were

inserted via ERCP, and ursodeoxycholic acid was used to dissolve the CBD stone. We failed to remove the stents using a basket or biopsy forceps two months after the initial ERCP, because they were tangled proximally (Figure 1). After making a percutaneous transhepatic biliary tract, an 8Fr spring sheath and snare catheter (15mm) were inserted. After grasping the upper end of one stent with the snare catheter (Figure 2a,b), the lower end of the other stent was captured with endoscope forceps and the two stents were separated (Figure 2c). The stents were removed sequentially using a basket (Figure 2d,e). The remnant CBD stone was removed via the percutaneous tract (Figure 2f).

Four different techniques for biliary stent retrieval have been described: indirect traction with an inflating extraction or dilation balloon catheter; direct traction on the stent using various devices; retrieval after cannulating the stent lumen; and through-the-scope technique. We report an effective new technique for removing tangled plastic biliary stents using a rendezvous method.<sup>3-5</sup>

## Discussion

There are reports how to remove the esophagus of a self-expandable metal stent that shrivelled up into a tangle of metal wire, and how to manage of an accessory bile duct leak following pancreaticoduodenectomy by percutaneous and endoscopic rendezvous.<sup>6,7</sup>

However, research on how to solve tangled two biliary stents are not enough. We report an effective and safety new technique for removing tangled plastic biliary stents.

## Conclusion

We report a new technique for retrieving two tangled plastic biliary stents using rendezvous endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic biliary drainage.

---

## References

1. Dumonceau JM, Heresbach D, Deviere J, et al. Biliary stents: models and methods for endoscopic stenting. *Endoscopy*. 2011;43:617–626.
2. Lee TH, Han JH, Kim HJ, et al. Is the addition of choleric agents in multiple double-pigtail biliary stents effective for difficult common bile duct stones in elderly patients? A prospective, multicenter study. *Gastrointest Endosc*. 2011;74:96–102.
3. Lahoti S, Catalano MF, Geenen JE, et al. Endoscopic retrieval of proximally migrated biliary and pancreatic stents: experience of a large referral center. *Gastrointest Endosc*. 1998;47:486–491.
4. Tarnasky PR, Cotton PB, Baillie J, et al. Proximal migration of biliary stents: attempted endoscopic retrieval in forty-one patients. *Gastrointest Endosc*. 1995;42:513–520.
5. Zimmer V, Lammert F. Novel through-the-scope technique for biliary plastic stent removal/exchange. *Dig Liver Dis*. 2017;49:574
6. Donatelli G, Dhumane P, Vergeau BM, et al. Successful removal from the esophagus of a self-expandable metal stent that had shrivelled up into a tangled ball. *Endoscopy*. 2013;45:410–411.
7. Rapp GA, Nelson KJ, Imagawa DK, et al. Management of an accessory bile duct leak following pancreaticoduodenectomy: A novel approach utilizing a percutaneous and endoscopic rendezvous. *ACG Case Rep J*. 2017;4:e2.

## PEER REVIEW

Not commissioned. Externally peer reviewed.

## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

## FUNDING

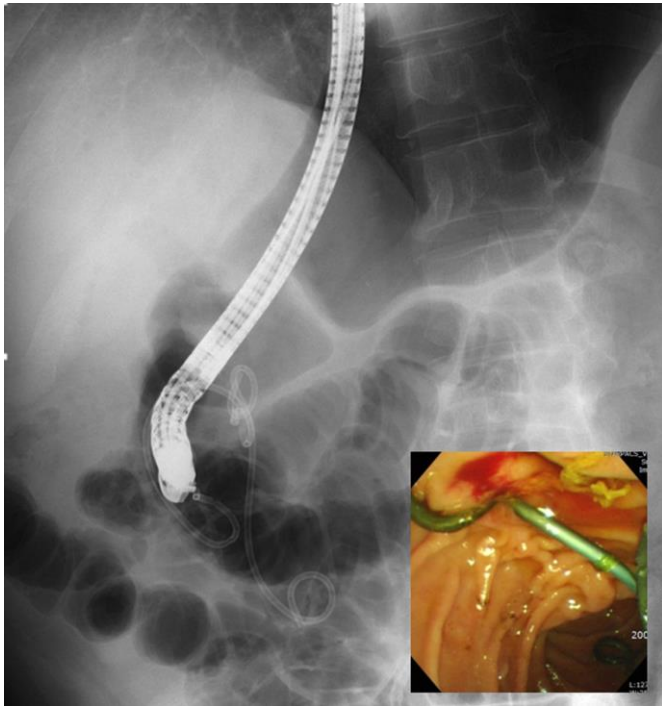
None

## PATIENT CONSENT

The authors, *Seon Yong Choi, Han Myun Kim, Sung Ill Jang*, declare that:

1. They have obtained written, informed consent for the publication of the details relating to the patient(s) in this report.
2. All possible steps have been taken to safeguard the identity of the patient(s).
3. This submission is compliant with the requirements of local research ethics committees.

**Figure 1: Endoscopic retrograde cholangiopancreatography image showing the two tangled plastic biliary stents and failure to remove the stents using a basket**



**Figure 2: Radiological view of the process used to remove the tangled plastic biliary stents.; a, b After percutaneous transhepatic biliary drainage, a snare catheter was used to grasp the upper end of one stent.; c Endoscope forceps captured the lower end of the other plastic stent.; d, e The stents were separated and removed sequentially using a basket.; f Removal of the remnant common bile duct stones**

