




Case Report

Malignant Gastric Outlet Obstruction Caused by Duodenal Cervix Metastasis in a Young Woman: Rendezvous Technique

Ester Marra ¹, Pasquale Quassone ², Pasquale Tammaro ³, Cinzia Cardalesi ⁴, Raffaele D'Avino ³, Fabio Cipolletta ⁵, Anna Del Prete ⁵, Angela Travaglino ³, Stefania Tamburrini ^{6,*}, Giovanni Ferrandino ⁶, Giuseppe Sarti ⁶, Michele Iannuzzi ⁷, Pietro Maida ³ and Gianpaolo Santini ⁶

- ¹ Department of Surgery, University of Naples Federico II, 80138 Naples, Italy; estermarra9@gmail.com
² Department of Radiology, Università degli Studi della Campania Luigi Vanvitelli, 80138 Naples, Italy; pasquale.quassone@gmail.com
³ Department of Surgery, Ospedale del Mare, ASL NA1 Centro, 80147 Naples, Italy; pasqualetammaro81@gmail.com (P.T.); raffaele.davino80@gmail.com (R.D.); angelatravaglino@gmail.com (A.T.); p.maida@libero.it (P.M.)
⁴ Department of Oncology, Ospedale del Mare, ASL NA1 Centro, 80147 Naples, Italy; cinzia.cardalesi@gmail.com
⁵ Department of Gastroenterology, Ospedale del Mare, ASL NA1 Centro, 80147 Naples, Italy; cipolletta.f@gmail.com (F.C.); annadelprete84@libero.it (A.D.P.)
⁶ Department of Radiology, Ospedale del Mare, ASL NA1 Centro, 80147 Naples, Italy; gianni.ferrandino90@gmail.com (G.F.); sartigiuseppe@gmail.com (G.S.); santinigianpaolo@libero.it (G.S.)
⁷ Department of Anesthesiology and Intensive Care, Ospedale del Mare, ASL NA1 Centro, 80127 Naples, Italy; michele.iannuzzi74@gmail.com
* Correspondence: tamburrinistefania@gmail.com



Citation: Marra, E.; Quassone, P.; Tammaro, P.; Cardalesi, C.; D'Avino, R.; Cipolletta, F.; Del Prete, A.; Travaglino, A.; Tamburrini, S.; Ferrandino, G.; et al. Malignant Gastric Outlet Obstruction Caused by Duodenal Cervix Metastasis in a Young Woman: Rendezvous Technique. *Medicina* **2021**, *57*, 765. <https://doi.org/10.3390/medicina57080765>

Academic Editors: Matthias Barral and François Cornelis

Received: 2 June 2021
Accepted: 26 July 2021
Published: 28 July 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract: *Background:* Malignant gastric outlet obstruction (MGOD) is an extremely rare expression of advanced extra-gastrointestinal cancer, such as squamous cell carcinoma (SCC) of the cervix, and only six cases are described in the literature. Because of the short life expectancy and the high surgical risk involving these patients, less invasive approaches have been developed over time, such as the use of an enteral stent or less invasive surgical techniques (i.e., laparoscopic gastrojejunostomy). However, MGOB could make it difficult to perform an endoscopic retrograde cholangio-pancreatography (ERCP) for standard endoscopic drainage, so in this case a combined endoscopic-percutaneous technique may be performed. This article, therefore, aims to highlight the presence in the doctor's armamentarium of the "rendezvous technique", few case reports of which are described in the literature, and, moreover, this article aims to underline the technique's feasibility. *Case Presentation:* The case is that of a 38-year-old woman who presented with MGOB three years after the diagnosis of SCC of the cervix, who successfully underwent the rendezvous technique with the resolution of duodenal obstruction. Endoscopic enteral stenting treatment with the placement of a metal stent (SEMSs) represents the mainstay of MGOB treatment compared with surgery due to its lower morbidity, mortality, shorter hospitalization and earlier symptom relief. However, in patients with both duodenal and biliary obstruction, a combined endoscopic-percutaneous approach may be necessary because of the difficulty in passing the duodenal stricture or in accessing the papilla through the mesh of the duodenal SEMS. *Conclusion:* The rendezvous procedure is a technically feasible and minimally invasive approach to the double stenting of biliary and duodenal strictures. It achieves the desired therapeutic result while avoiding the need to perform more invasive procedures that could have a negative impact on the patient's prognosis.

Keywords: duodenal obstruction; SEMSs; rendezvous procedure

1. Introduction

Malignant gastric outlet obstruction (MGOD) refers to a mechanical obstruction of the pylorus or the duodenum due to compression/infiltration from advanced loco-regional ma-

lignancies [1,2]. Less common causes of MGOD are extra-gastrointestinal cancer metastasis, such as melanoma or squamous cell carcinoma (SCC) of the cervix [1,3]. Gastrointestinal involvement caused by cervical cancer metastasis occurs in approximately 8% of patients in the recto-sigmoid tract as a result of local extension; gastric metastatic lesions are identified in fewer than 2% of patients, and isolated metastases to the small bowel are exceedingly rare [4].

Patients typically present with nausea and vomiting, and they are often unable to take liquids or solid food with consequent malnutrition, dehydration and weight loss. Endoscopic enteral stenting treatment with placement of a metal stent (SEMSs) represents the mainstay of treatment compared with surgery due to its lower morbidity, mortality, shorter hospitalization and earlier symptom relief [5–8]. However, a stent's occlusion due to food impaction or tumor progression and its growth through the stent's mesh can cause the recurrence of gastric obstruction symptoms and the need for endoscopic re-intervention. In the case of re-intervention and the failure to pass through the duodenal stricture or to access the papilla through the mesh of the duodenal SEMS, a percutaneous approach may be necessary to overcome the obstruction [8,9]. According to SCARE guidelines (Surgical Case Report guidelines) [10], here is presented the case of a 38-year-old woman with a medical history of cervical carcinoma who was referred to hospital for serrated duodenal stricture caused by a cervical metastasis managed with a combined endoscopic–percutaneous rendezvous technique.

2. Case Discussion

A 38-year-old woman was referred to hospital to resolve a serrated duodenal stricture caused by a SCC cervical metastasis. She underwent hysterectomy, adjuvant chemotherapy (bevacizumab + taxolol + cisplatin) and radiotherapy. Because of the advanced stage of the disease (stage IV) (Figure 1), an endoscopic retrograde cholangio-pancreatography (ERCP) was performed in order to place an uncovered self-expandable metallic stent (SEMS) (12 cm length, 22 diameter) to resolve the obstruction. The post-procedure course was complicated by pancreatitis, severe jaundice and cholestasis, with an increase of pancreatic enzymes (amylase 550 U/L and lipase 370 U/L), alteration of liver function tests (total bilirubin 4.44 mg/dL, AST 578 mg/dL and ALT 938 mg/dL) and associated severe abdominal pain. Abdominal computed tomography (CT) with intravenous contrast was performed, and at CT, a severe dilation of the common biliary duct was detected. The common biliary tract was grossly interrupted at the terminal end by compression of the papillary area due to the neoplastic infiltration of the stent mesh (Figure 2A). After multidisciplinary consultation, because of the impossibility of reaching the papilla endoscopically due to tumor growth through duodenal stent's mesh (Figure 3), an endoscopic–radiological rendezvous approach was proposed. A percutaneous transhepatic cholangiography (PTC) was performed and a hydrophilic guidewire (0.035", 260 cm, Merit Medical, South Jordan, UT, USA) was introduced through a catheter (MPA, Beacon Tip, 5F, Cook Medical, Bloomington, IN, USA) into the main biliary branch in order to reach the major papilla, but it was not possible due to neoplastic infiltration of the metal mesh of the stent and the presence of contextual fibrosis (Figure 4). A Teflon-coated guide (V18 Controlwire, 0.018", 182 cm, Boston Scientific, Marlborough, MA, USA) was introduced and it was possible to penetrate between the stent mesh and reach the duodenal lumen (Figure 5). Subsequently, a wire-guided sphincterotome (Clevercut 3V, Olympus, Tokyo, Japan) was pushed up into the papilla and 0.035" guidewire (Visiglide, Olympus, Tokyo, Japan) was inserted through the sphincterotome into the common bile duct; the guidewire was promptly engaged by a retrieval device (One-snare, 5F, Merit Medical, South Jordan, UT, USA) inserted into a percutaneous catheter and pulled outside through it (Figure 6). A balloon (WANTY, 5 × 80 mm, Barty Medical, Hangzhou, China) was loaded onto the 0.035" guidewire and positioned between the stent mesh and the major papilla: it was inflated to create a "crash stent action", performed to facilitate the passage of the stent in the main biliary tract (Figures 7 and 8). Using the same percutaneous access, a plastic biliary prosthesis was inserted (9 cm, 10 Fr,

Cotton-Huibregtse plastic biliary stent, Cook Medical, Limerick, Ireland), resolving both bile duct and duodenal obstructions (Figure 9). The two interventions were performed under general anesthesia in the same session in order to ensure stable conditions. Clinical symptoms rapidly improved, and the patient was able to take solid food with the resolution of symptoms. Unenhanced CT was performed in order to assess the correct positioning of the stent (Figure 2B). She was discharged 2 days after the procedure.

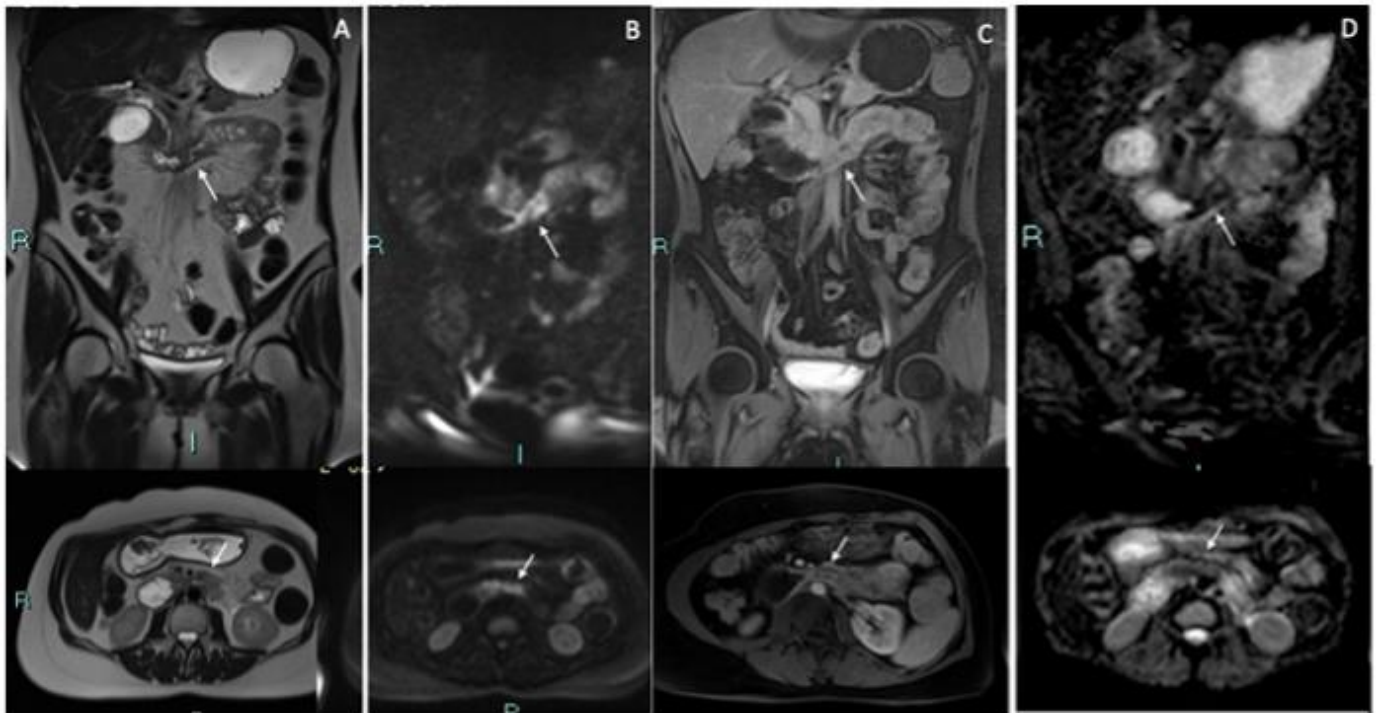


Figure 1. Pre-operative MRI (Magnetic Resonance Imaging) examination was per Figure 2. w-haste images and axial T2w-haste images showed severe stenosis of the third duodenal portion. (B,C) DWI (Diffusion Weighted Imaging) (A) and ADC (Apparent Diffusion Coefficient) (B) sequences coronal and axial images showed an evident restriction of diffusivity due to the marked increase in cellularity in the neoplastic tissue (D). Coronal and axial T1 and post-contrast (gadolinium) images showed marked contrast impregnation of the wall. There was no significant biliary dilatation.



Figure 2. (A) Oblique MPR (Multi Planar Reconstruction) CT (Computed Tomography) image after duodenal stent placement, showing a severe dilation of the biliary tree, not present in the previous MRI exam, involving the common biliary duct. The course of the common biliary tract was grossly interrupted at the terminal end by compression of the papillary area due to the neoplastic infiltration of the stent mesh. (B) Oblique MPR CT image after biliary stent placement with the rendezvous approach due to the impossibility of reaching the papilla endoscopically due to tumor growth through duodenal stent’s mesh. Resolution of biliary dilatation is documented.

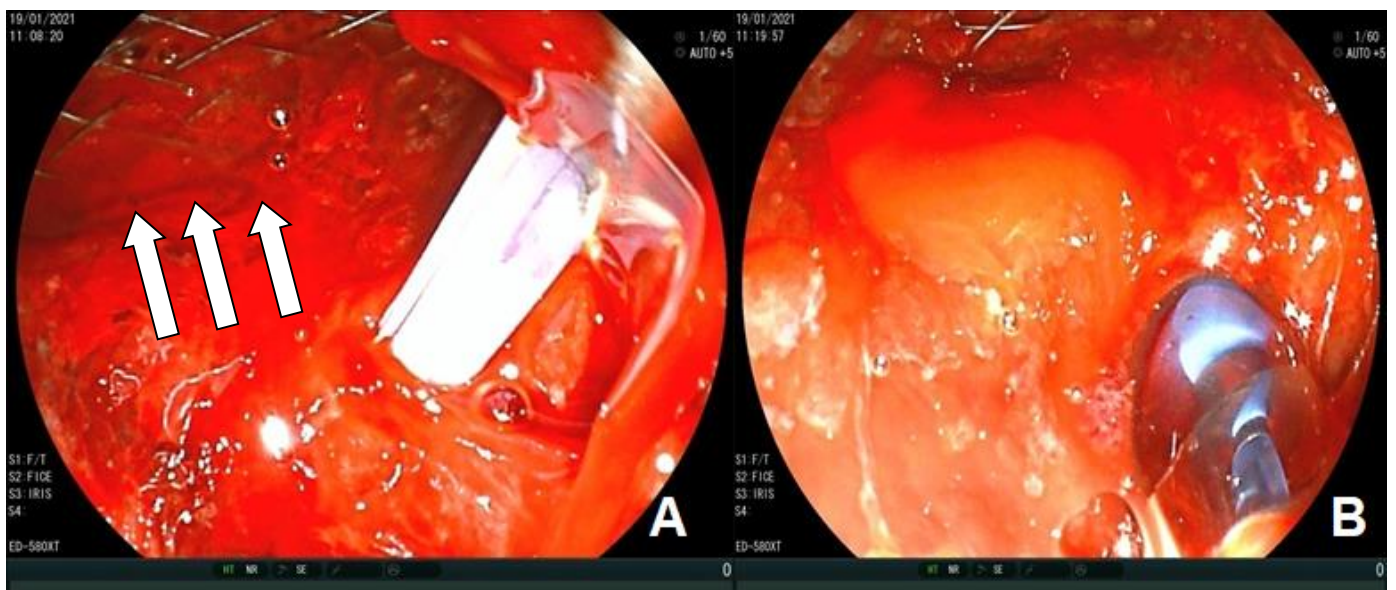


Figure 3. (A,B) ERCP (Endoscopic Retrograde Cholangio-Pancreatography)examination. Neoplastic infiltration (arrows) through duodenal mesh with consequent detection of stent obstruction.

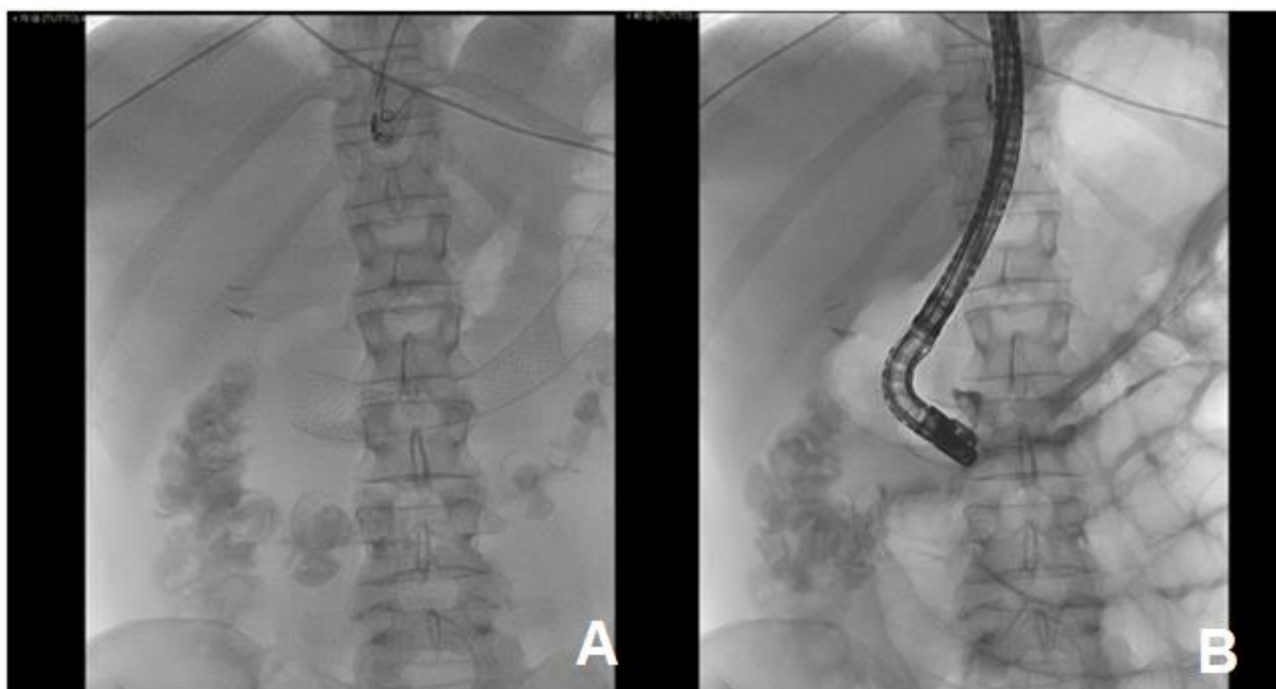


Figure 4. PTC (percutaneous transhepatic cholangiography). (A) On the left, imaging of the upper abdomen with evidence of a stent in duodenum; (B) on the right, the sphincterotome reaches the duodenal papilla, which appears impassable.

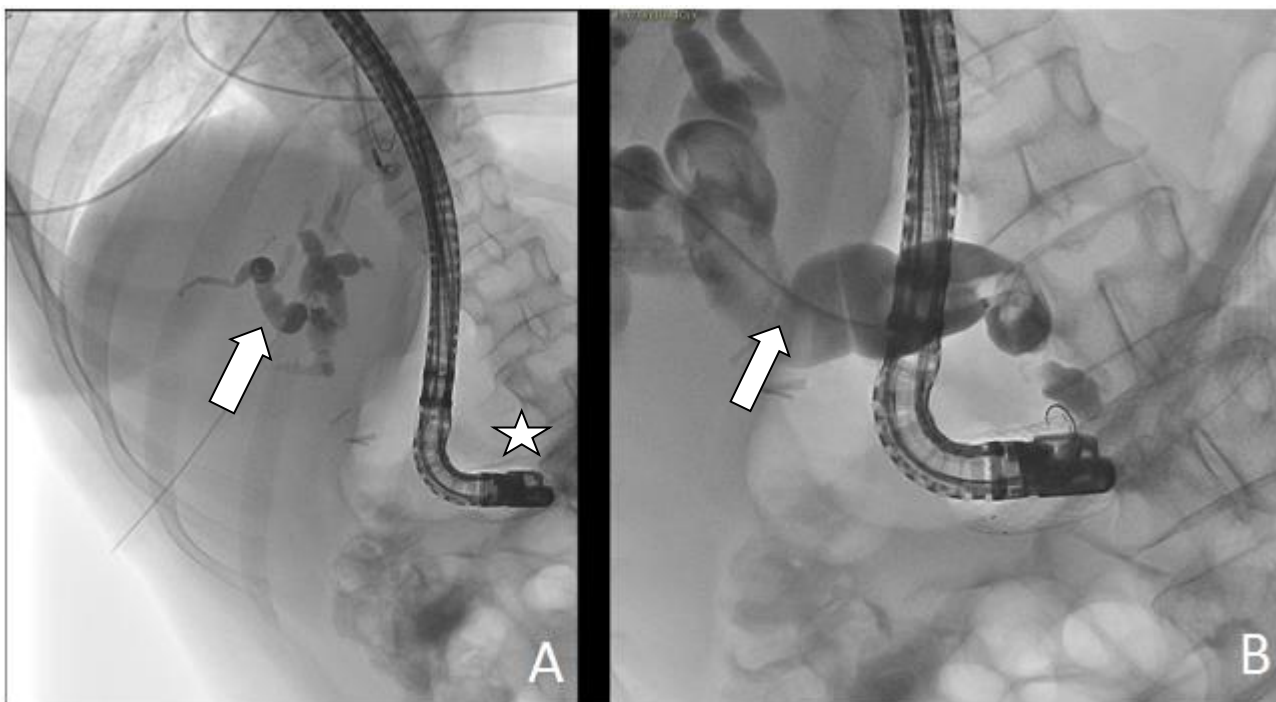


Figure 5. PTC. (A) On the left, the image shows the execution of a PTC (percutaneous transhepatic cholangiography) showing some biliary branches (arrow), while the sphincterotome is stationary at the level of major papilla (star). (B) On the right, the catheter (arrow) was inserted through percutaneous access and reached the major papilla.

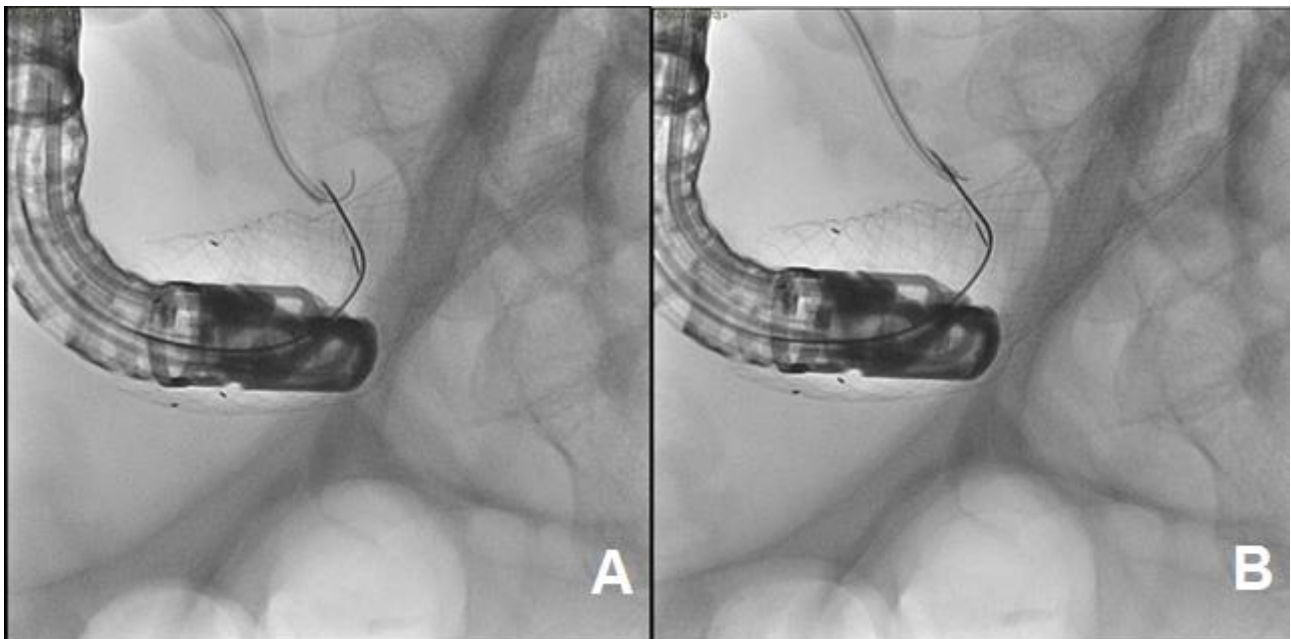


Figure 6. PTC. (A) On the left, the Teflon-coated guidewire that goes beyond the major papilla. (B) On the right, a guidewire was inserted through the sphincterotome and reached the main bile duct, overcoming the major papilla.

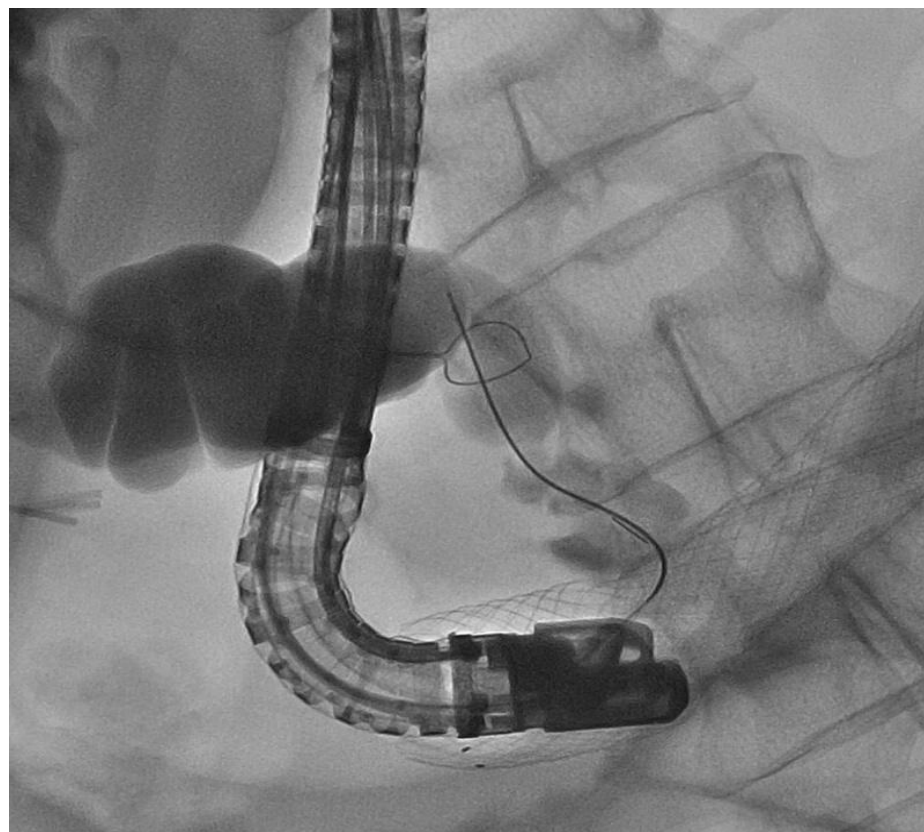


Figure 7. In this PTC image, the guidewire of the sphincterotome in the main bile duct is appreciable, while the One-Snare retrieval device, through the already present percutaneous catheter, was brought up to the guidewire itself and hooked it.

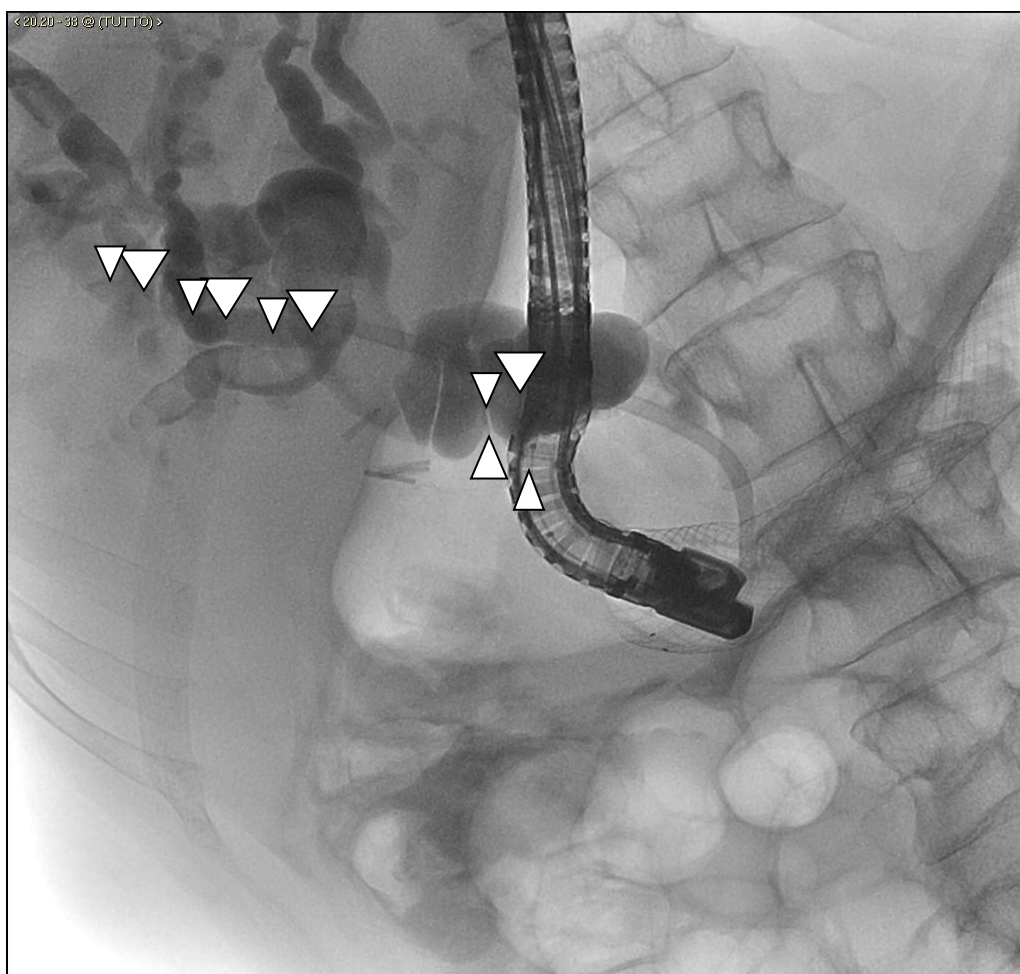


Figure 8. An angioplasty balloon (arrows) is mounted on the guidewire previously brought out by percutaneous retrograde (through the One-Snare device), which here appears already inflated, capable of breaking the stent links and widening the greater papilla-inflated balloon through the biliary duct and the major papilla.

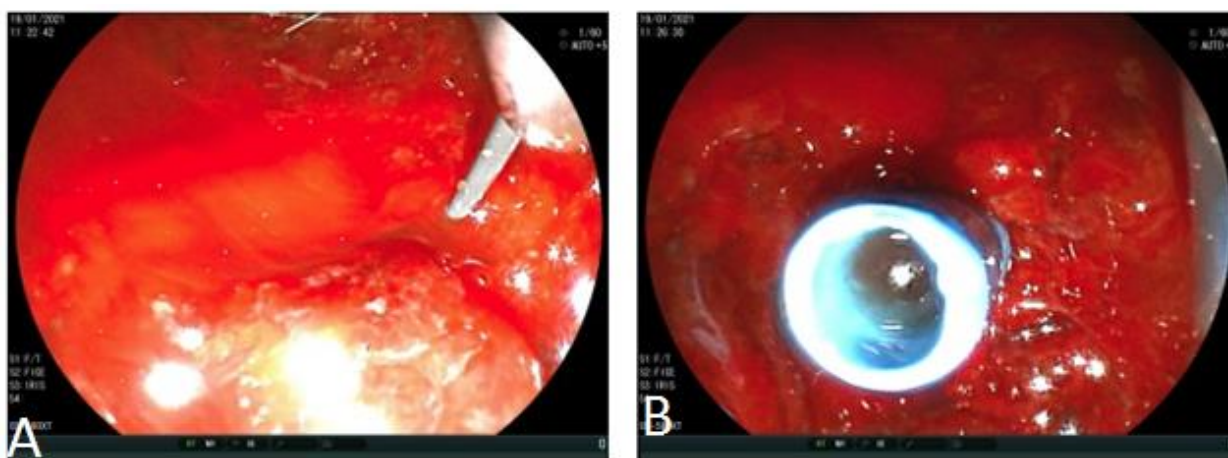


Figure 9. ERCP (A,B). insertion of a plastic biliary prosthesis 9 cm 10 Fr through metallic duodenal mesh with resolution of obstruction.

3. Discussion

Duodenal metastases by cervical cancer are extremely uncommon; only six cases are described in the literature [1,2,11,12]. The prognosis is poor, and patients often present an impaired performance status, accompanied by substantial weight loss and a state of malnutrition that can contribute to morbidity related to the disease and to the ability to undergo therapeutic intervention. In this setting, symptom palliation and maintenance of an acceptable quality of life are of crucial importance. The surgical approach of gastro-jejunostomy has been considered the gold standard for palliation, but in the last decade, endoscopic stenting with self-expandable metallic stents (SEMSs) has emerged as a mainstay treatment compared with surgery [5,7,13–17]. Dormian et al. [18] reported that SEMSs is technically successful in 97% of cases and clinically successful, measured as the ability of a patient to tolerate oral intake, in 87%. However, SEMSs are associated in the long term with a high risk of stent occlusion and migration; other complications reported are duodenal bleeding and perforation [19]. SEMSs should probably be considered the best option in patients with poor general condition and a theoretically short life expectancy; meanwhile, surgery still represents a first option for patients with a longer life expectancy. Here, a plastic biliary prosthesis was placed because of the shorter life expectancy; in fact, the patient died 3 months after the procedure. The combined biliary and gastric outlet obstruction was described by the Mutignani et al. classification system [20], based on the anatomical location of the duodenal stricture in relation to the papilla. According to the classification system, this case was a type II stenosis because of the involvement of the second part of the duodenum and papilla. In this case, an endoscopic procedure alone would have been difficult, so a biliary stenting through the mesh of the duodenal SEMS was used to resolve the double strictures using a procedure known as the rendezvous technique, an intervention that combines both endoscopic and percutaneous approaches [18,19].

4. Conclusions

The presented rendezvous technique offers a minimally invasive alternative to surgery in patients with both biliary and duodenal obstruction and short life expectancy, resulting in symptom relief and improved quality of life, although this procedure must not be considered curative.

Author Contributions: Conceptualization, E.M., P.T., G.S. (Gianpaolo Santini), P.Q., E.M., F.C., A.D.P., G.F., M.I. and C.C.; methodology, E.M., A.T., R.D., P.M., G.S. (Gianpaolo Santini), M.I. and C.C.; software, E.M., S.T. and G.F.; validation, E.M., C.C., R.D., A.T., M.I. and A.D.P.; formal analysis, E.M., M.I., P.T., P.M. and G.S. (Giuseppe Sarti); investigation, E.M., S.T., M.I., G.S. (Giuseppe Sarti), P.Q. and G.F.; resources, F.C., P.M. and G.S. (Giuseppe Sarti); data curation, E.M., P.Q., P.T., G.S. (Giuseppe Sarti), M.I. and S.T.; writing—original draft preparation, E.M., F.C., P.Q., S.T., P.T. and G.S. (Giuseppe Sarti); writing—review and editing, E.M., S.T., P.Q., P.T. and M.I.; visualization, E.M. and S.T.; supervision, P.M. and G.S. (Gianpaolo Santini); project administration, E.M. and P.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by Ethics Committee of Ospedale del Mare. Consent has been obtained from the patient to publish this paper.

Informed Consent Statement: Patient informed consent was obtained.

Data Availability Statement: This article did not report any data, apart from those reported here.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Kanthan, R.; Senger, J.L.; Diudea, D.; Kanthan, S. A review of duodenal metastases from squamous cell carcinoma of the cervix presenting as an upper gastrointestinal bleed. *World J. Surg. Oncol.* **2011**. [[CrossRef](#)] [[PubMed](#)]
2. Troncone, E.; Fugazza, A.; Cappello, A.; Blanco, G.D.V.; Monteleone, G.; Repici, A.; Teoh, A.Y.B.; Anderloni, A. Malignant gastric outlet obstruction: Which is the best therapeutic option? *World J. Gastroenterol.* **2020**. [[CrossRef](#)] [[PubMed](#)]
3. Marra, E.; Mercogliano, G.; Tammaro, P.; Tamburrini, S.; Militerno, G.; Pesce, A.; Iannacci, G.; D'Aponte, M.L. A surprising finding of ileal intussusception caused by pleural mesothelioma metastases. *J. Surg. Case Rep.* **2020**, *3*, 3. [[CrossRef](#)]
4. Gurian, L.; Ireland, K.; Petty, W.; Katon, R. Carcinoma of the Cervix Involving the Duodenum: Case Report and Review of the Literature. *J. Clin. Gastroenterol.* **1981**, *3*, 291–294. [[CrossRef](#)] [[PubMed](#)]
5. Boškoski, I.; Tringali, A.; Familiari, P.; Mutignani, M.; Costamagna, G. Self-expandable metallic stents for malignant gastric outlet obstruction. *Adv. Ther.* **2010**. [[CrossRef](#)] [[PubMed](#)]
6. Jeurnink, S.M.; Steyerberg, E.W.; van Hooft, J.E.; van Eijck, C.H.; Schwartz, M.P.; Vleggaar, F.P.; Kuipers, E.J.; Siersema, P.D. Surgical gastrojejunostomy or endoscopic stent placement for the palliation of malignant gastric outlet obstruction (SUSTENT study): A multicenter randomized trial. *Gastrointest. Endosc.* **2010**. [[CrossRef](#)] [[PubMed](#)]
7. Sasaki, R.; Sakai, Y.; Tsuyuguchi, T.; Nishikawa, T.; Fujimoto, T.; Mikami, S.; Sugiyama, H.; Yokosuka, O. Endoscopic management of unresectable malignant gastroduodenal obstruction with a nitinol uncovered metal stent: A prospective Japanese multicenter study. *World J. Gastroenterol.* **2016**. [[CrossRef](#)] [[PubMed](#)]
8. Graber, I.; Dumas, R.; Filoche, B.; Boyer, J.; Coumaros, D.; Lamouliatte, H.; Legoux, J.L.; Napoléon, B.; Ponchon, T. The efficacy and safety of duodenal stenting: A prospective multicenter study. *Endoscopy* **2007**. [[CrossRef](#)] [[PubMed](#)]
9. Foco, A.; Garbarini, A.; Goi, M.; Salto, C.; Ghisotti, E.; Lamarca, S.; Farinella, M.; Spinoglio, G.; Iacovoni, P.; Cavallero, G. Use of the rendez-vous technique in endoscopic insertion of biliary prosthesis in malignant obstructive jaundice. *Minerva Gastroenterol. e Dietol.* **1991**, *39*, 151–155.
10. Agha, R.A.; Franchi, T.; Sohrabi, C.; Mathew, G.; Kerwan, A. The SCARE 2020 guideline: Updating consensus Surgical Case Report (SCARE) guidelines. *Int. J. Surg.* **2020**, *86*, 226–230. [[CrossRef](#)]
11. Mathur, S.K.; Pandya, G.P. Solitary metastatic malignant stricture of the ileum: A rare cause of small bowel obstruction (a case report). *J. Postgr. Med.* **1984**, *30*, 186.
12. Lee, T.H.; Park, S.H.; Lee, C.K.; Lee, S.H.; Chung, I.K.; Kim, S.J.; Kim, S.W. Ampulla of Vater Metastasis from Recurrent Uterine Cervix Carcinoma Presenting as Groove Pancreatitis. *Gastrointest. Endosc.* **2011**, *73*, 362–363. [[CrossRef](#)] [[PubMed](#)]
13. Park, S.W.; Lee, S.S. Which are the most suitable stents for interventional endoscopic ultrasound? *J. Clin. Med.* **2020**, *9*, 3595. [[CrossRef](#)]
14. Fiori, A.; Crocetti, E.; Sapienza, D.; Cirocchi, P.; Sterpetti, R.; Miccini, A.V.; Accordino, M.; Costi, M.; Lapolla, S.; Mingoli, P.; et al. Palliative surgery or metallic stent positioning for advanced gastric cancer: Differences in QOL. *Medicina* **2021**, *57*, 428. [[CrossRef](#)] [[PubMed](#)]
15. Maetani, I.; Tada, T.; Ukita, T.; Inoue, H.; Sakai, Y.; Nagao, J. Comparison of duodenal stent placement with surgical gastrojejunostomy for palliation in patients with duodenal obstructions caused by pancreaticobiliary malignancies. *Endoscopy* **2004**. [[CrossRef](#)]
16. Del Piano, M.; Ballarè, M.; Montino, F.; Todesco, A.; Orsello, M.; Magnani, C.; Garello, E. Endoscopy or surgery for malignant GI outlet obstruction? *Gastrointest. Endosc.* **2005**. [[CrossRef](#)]
17. Espinel, J.; Sanz, O.; Vivas, S.; Jorquera, F.; Muñoz, F.; Olcoz, J.L.; Pinedo, E. Malignant gastrointestinal obstruction: Endoscopic stenting versus surgical palliation. *Surg. Endosc. Other Interv. Tech.* **2006**. [[CrossRef](#)] [[PubMed](#)]
18. Dormann, A.J.; Meisner, S.; Verin, N.; Lang, A.W. Self-expanding metal stents for gastroduodenal malignancies: Systematic review of their clinical effectiveness. *Endoscopy* **2004**. [[CrossRef](#)] [[PubMed](#)]
19. Wu, C.H.; Lee, M.H.; Tsou, Y.K.; Teng, W.; Lin, C.H.; Sung, K.F.; Liu, N.J. Efficacy and adverse effects of self-expandable metal stent placement for malignant duodenal obstruction: The papilla of vater as a landmark. *Cancer Manag. Res.* **2020**. [[CrossRef](#)] [[PubMed](#)]
20. Mutignani, M.; Tringali, A.; Shah, S.G.; Perri, V.; Familiari, P.; Iacopini, F.; Spada, C.; Costamagna, G. Combined endoscopic stent insertion in malignant biliary and duodenal obstruction. *Endoscopy* **2007**. [[CrossRef](#)] [[PubMed](#)]