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Endoscopic management of pancreatic fluid collections

Vazquez-Sequeiros E, Baron TH, Pérez-Miranda M, Sánchez-Yagüe A, Gornals J, Gonzalez-Huix F, *et al.* Spanish Group for FCSEMS in pancreas collections. Evaluation of short-and long-term effectiveness and safety of fully covered self-expandable metal stents for drainage of pancreatic fluid collections: Results of the Spanish nationwide registry.

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This retrospective study from Spain reports findings from a nationwide database of patients undergoing endoscopic ultrasound (EUS)-guided drainage of pancreatic fluid collections (PFC). All patients undergoing EUS-PFC drainage over a period of more than 5 years were included. The study included 211 patients from 26 hospitals who underwent EUS-guided drainage with covered metallic stents. Two types of metallic stents were used depending on treating physician's discretion: Either a lumen apposing covered metallic stent with flanges (LAMS: AXIOS) or straight biliary covered metallic stents without flanges (SBSEMS). Almost half (49%) of the patients had PFC consequent to acute gallstone pancreatitis, and 47% had necrotizing pancreatitis resulting in the formation of walled off necrosis (WON). The mean size of PFC was 9.3 cm. While SBSEMS were used in two-third of cases, LAMS was used in the remaining one-third of cases. In addition, half of the patients also underwent coaxial plastic stent placement (to prevent stent migration) whereas one-third patients underwent nasocystic drain placement for the purpose of lavage of the collection. Moreover, one-third of the patients with WON also underwent necrosectomy using thin endoscope. While technical success was achieved in 97% cases, short-term clinical success was achieved in 94% and long-term clinical success was achieved in 85% patients. Thirteen patients failed to achieve short-term success due to technical failure at stent placement (six patients), delayed perforation/pneumoperitoneum (three patients), persistent infection (three patients), and bleeding (one patient). Fifteen percent patients required additional measures to achieve long-term clinical success like percutaneous or surgical drainage. Seven percent of the patients required rescue surgery. On univariate analysis, the age of the patient, PFC size, prior failed drainage, and duration since diagnosis were associated with success rates, short-and long-term effectiveness, complications, and need for rescue surgery. Complications were observed in 21% of cases with infection (11%), bleeding (7%), and stent migration and/or perforation (3%) being the important complications. On multivariate analysis, authors found that patient age (>58 years) and prior failed drainage were the most important factors associated with negative outcome. The authors concluded that fully covered self-expandable metal stents are safe and effective for drainage of PFCs with older patients having prior failed drainage more likely to fail endoscopic treatment. Moreover, the type of stent was not found to appear to influence patient outcome.

Commentary

The treatment of PFC involves a complex decision making by a team of gastroenterologists, radiologists, and surgeons who work in tandem. Drainage of PFCs is indicated in cases of infection, or abdominal pain or obstructive symptoms causing gastric outlet obstruction or biliary obstruction.[1] Drainage is best done endoscopically as this creates an internal drainage and abolishes the risk of external fistula.[1] The drainage of predominantly fluid collections is easy and requires a single time procedure with a single plastic stent. With increasing degree of solid necrotic contents in the collection, drainage procedures become more demanding and aggressive with the requirement of wider transluminal tract, more number of plastic stents, and number of procedures being required to achieve adequate drainage.[2-4] In difficult to treat patients, pancreatic endoscopic necrosectomy may also be required to remove the solid debris. Other options for better drainage include the creation of multiple drainage tracts or use of SEMS.[5,6] Placing an SEMS is helpful in creating a route for accessing the cavity and providing a larger drainage route. Data for the use of SEMS for the treatment of PFCs are emerging and moreover, data on treatment of necrotic collections (WON) are limited.[1,7] It is in the clinical management of WON where one expects SEMS to be a game changer as predominantly fluid pseudocysts are anyway responsive to drainage with much cheaper plastic stents. In WON, solid debris may occlude plastic stents and therefore the need for a wider diameter as provided by SEMS. The reported study is important in this respect as it provides a real world data on the therapeutic response of SEMS in various PFCs with almost half of patients having WON. Moreover, the study suggests that the type of stent (LAMS or SBSEMS) did not impact the outcome, bleeding, or migration risk. Strangely the type of fluid collection, i.e., pseudocyst or WON, did not seem to affect the outcome. The authors have not stated the reason for this observation. The study does not mention the amount of solid debris in WON and the mean duration after the onset of pancreatitis when drainage was done in either of the groups and these two factors have been shown to be important factors that determine the outcome of endoscopic drainage of WON. Such comparable outcomes suggest that either the WON in the study had only small amount of solid debris or

that use of SEMS makes the presence of solid necrotic debris inconsequential. The answer to this question will come only with a prospective randomized study comparing SEMS and plastic stents which quantify the amount of solid debris and then compare the outcome of endoscopic drainage. The study also provides important data on complications of using SEMS for PFC drainage with infection and bleeding being important complications. The risk of bleeding in acute pancreatitis is known to increase with intervention and therefore the endoscopist should be prepared to deal with this complication during and after the procedure.[8]

Guo J, Feng L, Sun S, Ge N, Liu X, Wang S, Wang G, Sun B. Risk factors for infection after endoscopic ultrasonography–guided drainage of specific types of pancreatic and peripancreatic fluid collections (with video).

Surg Endosc 2016 Jan 22. DOI 10.1007/s00464-015-4557-3.

This paper from a Chinese center focuses on infections related to EUS-guided drainage of PFCs. The study is about 83 patients who underwent EUS-guided PFC drainage. The infections developing within 30 days of the procedure were recorded. The procedure was done in a standard manner, and drainage was achieved using plastic pigtail stents. However, if features of infection developed after the procedure, the tract was dilated and multiple pigtail stents and/or a nasocystic drainage catheter were placed. The cavities were then drained using saline lavage. If the amount of necrotic debris was high, metallic stents (10 mm diameter) were placed in the hope of achieving adequate drainage. This was followed by direct endoscopic necrosectomy. Plastic stents were removed in patients who became asymptomatic for a period of at least 4 weeks, and the cyst cavity was absent on computed tomography (CT).

Of the 83 patients with PFCs, 45 were males, 48% had underlying acute pancreatitis, and 23 patients had multiple cysts. Eleven patients had left-sided portal hypertension and 76 patients underwent transgastric drainage. Median time to resolution of symptoms was 2 days, and 17 patients had a fever after EUS drainage of PFCs. Ten of these patients had a resolution within 2 days of broad spectrum antibiotics. Rest seven patients were diagnosed to definitively have an infection. All of these patients had underlying acute pancreatitis and cyst diameter of more than 15 cm. Other features such as route of drainage (transgastric or transduodenal), stent size, cyst location, presence of multiple cysts, gender and age of the patient, and presence of diabetes did not affect the chances of infection. On a multivariate analysis, only cyst diameter was found to have increased the risk of infection after PFC drainage. The authors concluded that as cyst diameter was an independent risk factor for infection, larger cysts with a diameter >15 cm may be drained initially more aggressively with multiple pigtails or a larger diameter self-expandable metal stents to try to avoid infection.

Commentary

PFCs may develop after acute of chronic pancreatitis or may be related to pancreatic surgery or trauma.[9] The importance of underlying etiology is in the manner in which it determines the nature of PFC. While collections associated with chronic pancreatitis, pancreatic surgery, and trauma are usually pseudocysts as they lack necrotic debris, the pancreatic collections complicated by acute necrotizing pancreatitis have associated necrotic debris and are termed as WON.[10] It is now accepted that drainage of WON is more tedious requiring multiple drainage sessions and more prone to get complicated by infection. While infection of the PFC is one of the indications for the drainage of PFC, many patients with PFCs develop an infection after drainage procedures.[1,4] This may be related to inadequate drainage, especially when the amount of solid debris is high or when a small number of small caliber stents are used which may be blocked by the necrotic debris. To this end, the findings of this study that the larger size of the collection appears to determine the occurrence of infection are not surprising.

There are important lessons from these two studies for the practicing gastroenterologists. It is important to determine the size as well as the amount of solid debris a PFC harbors before planning endoscopic drainage. This can be accomplished by simple investigation like transabdominal ultrasound also.[11] Once it is clear that the collection contains solid debris, the procedure should entail accomplishing adequate drainage and a single plastic stent is unlikely to serve the purpose. Multiple plastic stents or a larger SEMS may be preferable drainage option. At our institution, we follow an algorithm based on amount of solid debris: For PFCs with <10% debris a single plastic stent suffices, for 10–40% debris usually multiple plastic stents are helpful, and for collections with >40% solid debris endoscopic necrosectomy is usually needed and therefore multiple drainage sites or metallic stent should be considered.[1,12] The key to success in the treatment of PFC, after all, is exhaustive planning to avoid failure.

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