EUS-guided cysto-gastrostomy

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EUS guided cyst-gastrostomy for Pancreatic Fluid Collection (PFC) is multi-step procedure requiring variety of devices. The standards steps include: Puncture of PFC, creating cysto-gastric fistula, dilation of the fistula, and placement of cysto-gastric stents. Majority of the devices used here are borrowed from ERCP armamentarium, rather than being dedicated EUS instruments.

Step 1. PFC puncture: A thorough inspection of PFC is done prior to drainage (for wall maturity, size measurement, content evaluation, differentiating 'pseudocyst' from Walled Off Pancreatic Necrosis (WOPN), estimation of solid debris, wall thickness at likely point of entry, interposing vessel). Initial puncture of PFC is made with 19G EUS FNA needle from stomach using a quick jab under EUS vision, at the thinnest region avoiding any interposing vessel. Some operators prefer to use a flexible blunt or sharp (needle knife) cystotome. Use of needle knife under EUS vision is risky. After puncture the stylet is removed, and small amount of fluid (5-10cc) is aspirated for analysis.

Step 2. Creating a cysto-gastric fistula: Through the lumen of FNA needle, a long (450cm) guidewire (0.035 or 0.025 inch) calibre with soft flexible tip is passed & coiled inside the PFC forming 1-2 loops. The needle is then withdrawn leaving guidewire inside. Using Seldinger principle, the puncture path is dilated over the guidewire under EUS vision either using an electro-surgical device (prefer cystotome, 6Fr) or mechanical dilators (stiff tapered ERCP cannula, biliary bougie dilators, or small calibre balloon with stiff nose).

Step 3. Dilation of cysto-gastric fistula: The track is dilated with over-the-wire CRE balloon to facilitate the placement of the multiple draining cysto-gastric stents. The calibre of balloon used, is based on the type of PFC (Pseudocyst or WOPN) and intended stents. For pseudocyst (non-infected), 10-12mm dilation is reasonable. For infected pseudocyst, 12-15mm dilation is preferred to allow the fluid to drain also beside the stents. For WON, with an intent of necrosectomy (primary or secondary), a large balloon dilation (15-18mm) is done. For a fully covered lumen opposing stent short metal stent, small calibre balloon dilation (6-8mm balloon) is sufficient

Step 4. Cysto-gastric stent placement: For pseudocyst usually two plastic 7Fr short length (5cm) double pigtail stents. It is desirable to place both the guidewires inside PFC before the first stent deployment. The additional guidewires can be passed inside the PFC using a wide bore hollow catheter passed over the first wire, or a multi-channel catheter. Straight plastic stents have risk of internal migration. 10Fr stent fit snuggly & pose technical challenge. Recently, fully covered self expandable metallic stent (SEMS) are increasingly being preferred to drain PFC, especially WOPN, to rapidly drain the contents, including solid debris due to their wide calibre. These stent

after complete expansion are short in length (20-30mm), are bi-flanged and have wide central calibre (12-16mm). If required, through the SEMS endoscopic necrosectomy can be performed, without the need of further or repeated track dilation.