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## HBP+GC

### SYMPOSIUM: SHARE COMMON CONCERNS BETWEEN UGI AND HBP SURGEONS

# How to Minimize Delayed Gastric Emptying after Pylorus Preserving Gastrectomy (PPG)

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## HBP+GC

### SYMPOSIUM: SHARE COMMON CONCERNS BETWEEN UGI AND HBP SURGEONS

# How to Minimize Delayed Gastric Emptying Issues with PPPD

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DGE after PD is one of the most frequently described specific complications with reported incidences between 20 and 40%. It significantly affects the quality of life, especially in pancreatic head cancer patients in whom PD is most commonly done, where their short survival is compounded with such a debilitating complication, hence the need to minimize its incidence. The mechanism of DGE is still unclear but has been suggested to be predisposed by variable factors as the extent of gastric resection, loss of the pylorus, interrupted gastrointestinal neural connections, diabetes, local ischemia, loss of gastrointestinal hormonal production, or with some postoperative complications as pancreatic fistula and intraabdominal abscesses. Among various factors affecting DGE, this lecture will focus on the factors correctable including surgical technique to minimize DGE.

ISGPS definition of DGE has been used in majority of studies published after 2010. A meta-analysis by Hanna et al. in 2016 reported that the incidence of DGE was lower in antecolic compared with retrocolic gastrojejunostomy (RR= 0.260, 95% CI 0.157- 0.431; P < 0.001), and in PRPD (SSPPD) compared with PPPD (RR= 0.527, 95% CI 0.363-0.763; P < 0.001). They also reported that there was no significant difference between classic PD versus pylorus preserving PD, pancreaticogastrostomy versus pancreaticojejunostomy, Roux-en-Y versus Billroth II gastrojejunostomy, or minimally invasive PD versus open PD. Another meta-analysis by Panwar in 2017 showed PRPD seems to offer the most promising solution to reduce the occurrence of DGE. However, Klaiber et al in 2017 reported that PRPD is not superior PPPD for reducing DGE. In terms of antecolic compared with retrocolic gastrojejunostomy, a meta-analysis by Joliat et al in 2016 showed that antecolic reconstruction after PD is not superior to retrocolic reconstruction to reduce DGE (OR 0.6, 95% CI 0.31–1.16, p = 0.13).

In summary, there are still heterogenous results to minimize DGE in terms of surgical techniques using antecolic reconstruction route and PRPD (SSPPD). Further randomized controlled trials are necessary to evaluate DGE taking other causes into consideration.

Abbreviations: DGE, delayed gastric emptying; PD, pancreaticoduodenectomy; ISGPS, The International Study Group of Pancreatic Surgery; PRPD, pylorus-resecting PD; SSPPD, subtotal stomach preserving PD; PPPD, pylorus-preserving PD

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**SYMPOSIUM: SHARE COMMON CONCERNS BETWEEN UGI AND HBP SURGEONS**

## **How to Prevent of GB Stones after Post-gastrectomy**

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### SYMPOSIUM: SHARE COMMON CONCERNS BETWEEN UGI AND HBP SURGEONS

# A Variety of Ways to Manage CBD Stone in Post-gastrectomy Situations

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Endoscopic retrograde cholangiopancreatography (ERCP) is essential treatment modality for pancreatobiliary disease, however, considered the technically most difficult procedure in gastrointestinal (GI) endoscopy. Because altering the Upper GI tract or pancreatobiliary anatomy following surgery invariably adds to procedure complexity and technical challenge, both the understanding surgically altered anatomy (SAA) and careful procedure planning is essential to ensure successful ERCP.

The endoscopist performing ERCP in SAA is faced with several challenges. These include (1) identifying the pancreaticobiliary enteral limb; (2) reaching the major papilla or anastomoses; (3) selectively cannulating the bile or pancreatic duct; and (4) performing therapeutic interventions with devices designed for standard ERCP while possibly using forward viewing endoscopes that lack an elevator. In solving these problems, it is important to check the followings before ERCP. First, adequate indication must be reviewed thoroughly. Second, the understanding specific features of SAA are useful to choose the optimal endoscope and devices for successful ERCP, and lastly, the experience of endoscopists should be also emphasized.

Of patients with SAA, ERCP in esophagectomy, sleeve gastrectomy, band gastroply, Billroth-I and choledochoduodenostomy, may be performed with a conventional side-viewing duodenoscope and devices for cannulation and intervention. Even if Billroth-II subtotal gastrectomy predisposes to a high risk of perforation, given the generally short distance (30-50 cm) from the gastrojejunal anastomosis to the major papilla, ERCP usually can be accomplished with duodenoscope or cap fitted gastroscope that uses standard devices. On the other hand, because accessing the bile duct through the long afferent limb of a Roux-en-Y anatomy or a Braun anastomosis after subtotal gastrectomy is technically more difficult, a pediatric colonoscope or single balloon/double balloon enteroscope (SBE/DBE) assisted ERCP is required. Especially, other than an occasional case of favorably short Roux and afferent limbs, bariatric gastric bypass makes ERCP far too challenging. SBE/DBE-assisted ERCP has been reported to be highly successful in a few centers, but most endoscopists would prefer to perform percutaneous transhepatic cholangiography or laparoscopy assisted ERCP in these patients. Recently, based on the expertise of each institute, endoscopic ultrasound guided intervention can be considered alternative good options to overcome the hurdles of ERCP in SAA.

In conclusion, the success of ERCP in patients with SAA depends on multiple factors including the postoperative anatomy, expertise of the endoscopist, and availability of specialized endoscopes and devices to perform endotherapy. These procedures ideally should be planned by using multidisciplinary collaboration with interventional radiologists and surgeons.

#### Keywords

*Endoscopic retrograde cholangiopancreatography, Surgically altered anatomy, Endoscopic ultrasonography guided intervention, Percutaneous transhepatic cholangiography*