

How to manage the remnant pancreas after laparoscopic distal pancreatectomy

Jun Chul Chung

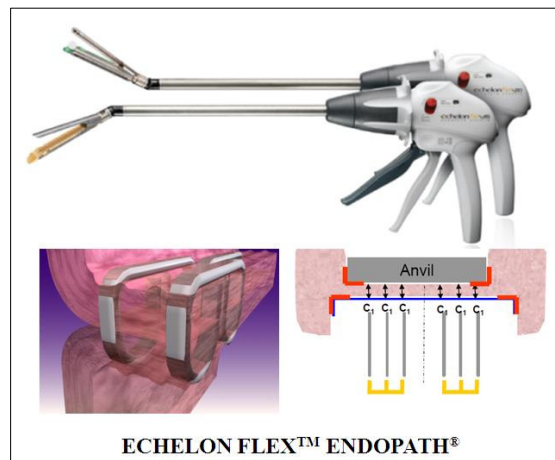
Soonchunhyang University, Korea

Since the first description of LDP in the porcine model by Soper et al. in 1994, laparoscopic distal pancreatectomy (LDP) has become an increasingly used procedure because of the advancement of laparoscopic instruments and its technical simplicity due to the absence of numerous anastomoses.

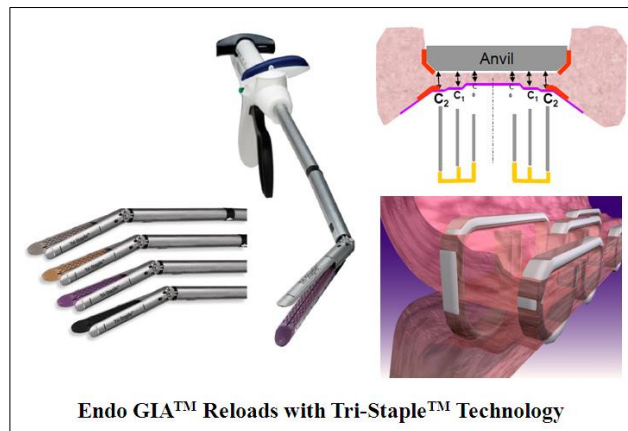
Although the mortality rate to LDP has recently been reduced, the postoperative morbidity remains high. The most frequent and dismal complication occurring after LDP is the development of postoperative pancreatic fistula.

Several resection methods and closure techniques for treating remnant pancreas have been developed in an effort to reduce the incidence of pancreatic fistula. However, the optimal procedure has not yet been established. How to adequately transect the pancreas laparoscopically has always been a concern among pancreatic surgeons.

In LDP, there have been many reports describing the usefulness of a stapler transection for the pancreas as a simple, quick, and secure method of closure of the proximal pancreas. So, in our institute, stapling technique has been routinely performed for the management of pancreatic remnant stump in LDP. Since the introduction of ECHELON FLEX™ ENDOPATH® Stapler (60mm lengths), I have been using this instrument. I think this stapler is better suited for pancreatic transection. In addition to the longer line of tissue division, the stapler jaws open at least 1cm wider and provides a precise and uniform wide compression throughout the entire length of the closure jaw, while also providing a six-row capability. Appropriate cartridge selection might be another important factor for reducing the damage to the pancreatic parenchyma. Gold cartridge (1.8mm compressible thickness) is thought to be appropriate for the pancreas with a normal texture in my experience. I think the step of stapler dissection is another important point to prevent pancreatic tissue tearing during compression. So, I advised that the stapler jaws be clamped carefully and slowly over a period of more than 1min at a fixed speed.



These days, I use the new device (Endo GIATM Reloads with Tri-StapleTM Technology). This stapler have three different heights at each rows (longer to laterally). It provide tighter staple closure on inner stalpe row closest to the cut line, and proper tissue compression on outer stalpe row. Black cartridge (1.75mm - 2.0mm - 2.25mm compressible thickness) is thought to be appropriate for the pancreas with a normal texture in my experience.



However, the use of the stapler is limited when the pancreas at the resection line is thick and firm. Closure of the stapler may crush the pancreatic parenchyma, leading to possible pancreatic fistula. In such cases, ultrasonic activated scalpel (harmonic scalpel) can be used for division of the pancreas. In this case, the pancreatic main duct is clipped, the branch ducts and small vessels are sealed by coagulating the surface of the pancreatic stump using harmonic scalpel and the stump is then left open without performing suture closure.

Finally, I spray the fibrin glue at the remnant pancreatic stump to reinforce pancreatic stump closures after LDP. Fibrin glue has been used clinically for the prevention of leakage of gastrointestinal anastomoses and hemorrhage in parenchymal organs. Also, it is a biologic adhesive and can be used conveniently by spraying onto the cut surface of the pancreas.