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The Novel Method For Pancreaticojejunostomy : Horseshoe Shaped Invagination Technique

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Background : Pancreaticojejunostomy (PJ) is considered a weak point of the Whipple operation due to the deadly complication of postoperative pancreatic fistula (POPF). It is associated with risk factors such as a soft pancreas, a small pancreatic duct, and high blood loss. To prevent these complications, various modern techniques are being employed. However, no specific technique has been definitively reported to prevent POPF. In this presentation, we introduce a simple method of PJ

Methods : Horseshoe Shaped Invagination Technique 1. Before resecting the pancreas, perform corner sutures on both sides (for hemostasis and handling the pancreas) using double-arm Prolene. 2. Modified Blumgart Anastomosis 3. Reinforcement Suture: Suture the jejunum longitudinally with the corner sutures and tie. 4. Invagination through Corner Stitch: The jejunum encircles the pancreas in a horse-shoe shape.

Results : First Case: A 71-year-old male with distal CBD cancer underwent PPPD, and mBA was performed. On POD 7, CT showed dirty fluid collected in the epigastric area, which was consistent with pancreatic juice. Second Case: A 55-year-old male underwent PPPD for distal CBD cancer, and horseshoe invagination with corner stitch was performed in addition to mBA. Postoperative drain output was consistently low, and CT on POD 7 showed intact PJ anastomosis with minimal fluid collection. A schematic representation of the traditional Blumgart method shows its advantages in preventing POPF: 1. Tension Mechanism: The tension of the suture acts as a shear force (compression by the jejunum), stabilizing the pancreas. 2. Reduced Suture Count: Fewer sutures reduce the risk of capsule damage from cut-through. 3. Sealing Effect: Even if cut-through occurs, the jejunal serosa acts as a patch, covering the area. However, the both ends of the anastomosis appear to be weak points, resembling the ends of a hotdog where ketchup leaks out. The horseshoe shaped invagination technique enhances the completeness of modified Blumgart anastomosis without compromising its simplicity, making it applicable to MIS and other types of pancreaticojejunostomy as well.

Conclusions : The horse shoe shaped invagination technique appears to enhance the stability of pancreaticojejunostomy. However, further verification is needed to determine its actual effectiveness. Our center plans to actively use this technique and conduct research to compare it with previous data.

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