

Stratafix Barbed Suture Versus Polydioxanone Suture on the Rate of Pancreatic Fistula After Pancreaticoduodenectomy

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Abstract : Postoperative pancreatic fistula (POPF) is a complication that occurs in up to 41% of patients after pancreaticoduodenectomy. Although certain characteristics such as individual patient anatomy are known risk factors for POPF, the effect of barbed suture techniques remains underexplored. This study examines whether the use of Stratafix barbed suture versus PDS impacts the risk of developing POPF. After obtaining IRB exemption, a retrospective chart review was initiated involving patients who underwent pancreaticoduodenectomy for the treatment of malignant or premalignant lesions of the pancreas at our institution between April 1st 2020 and April 30th 2022. Patients were stratified into 2 groups respective to the technique used to suture the pancreatico-jejunal anastomosis: Group 1 was composed to patients in which 4.0 Stratafix® suture was used n=41. Group 1 was composed to patients in which 4.0 PDS suture was used n=42. Data regarding patient age, sex, BMI, presence or absence of biochemical leak, presence or absence of grade B & C postoperative pancreatic fistulas, rate and type of in hospital complication, rate of reoperation, 30 day readmission rate, 90 day mortality, and total mortality were compared between groups. 83 patients were included in our study with 42 receiving Stratafix and 41 receiving PDS (50.6% vs 49.4%). Stratafix patients had less biochemical leaks (0.0% vs 4.8%, p=0.19) and higher rates of POPF but this was not statistically significant (7.2% vs 2.4%, p=0.26). Additionally, there was no difference between the use of stratafix versus PDS on the risk of clinically relevant grade B or C POPF (p=0.26, OR=3.25 [CI= 0.74-16.43]). Of the independent variables including age, race, sex, BMI, and ASA class, BMI greater than 25 increased the risk of clinically relevant POPF by 7.7 times compared to patients with BMI less than 25 (p=0.03, OR=7.79 [1.04-88.51]). Despite no significant difference in primary outcomes, the Stratafix group had lower rates of secondary outcomes including 90-day mortality; bleeding, cardiac, and infectious complications; reoperation; and 30-day readmission. On statistical analysis, Stratafix decreased the risk of 30-day readmission (p=0.04, OR=0.21, CI=0.04-0.97) and had a marginally significant effect on the risk of reoperation (p=0.08, OR=0.24, CI=0.04-1.26). There was no difference between the use of Stratafix versus PDS on the risk of POPF (p=0.26). However, Stratafix decreased the risk of 30-day readmission (p=0.04) and BMI greater than 25 increased the risk of clinically relevant POPF (p=0.03).

Keywords : pancreas, hepatobiliary surgery, hepatobiliary, pancreatic leak, biochemical leak, fistula, pancreatic fistula

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