

The Role of Pancreatic Duct Stents in Pancreaticojejunostomy: A Systematic Review and Meta-Analysis of Operative and Postoperative Outcomes in Pancreaticoduodenectomy

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5

studies pooled

7

outcomes assessed

0

significant differences

0-29%

I² range

BACKGROUND

Pancreaticojejunostomy carries a significant risk of complications after pancreaticoduodenectomy. Pancreatic duct (PD) stents have been suggested to decrease leaks and fistulas, but the data are mixed. Even specialized surgeons disagree on the best and safest way to perform the pancreatic anastomosis.

OBJECTIVE

To assess the clinical impact of PD stents on operative and postoperative outcomes after pancreaticoduodenectomy.

METHODS

Databases

PubMed, Embase, Cochrane (inception to July 2025)

5 studies included after final screening

Meta-analysis

Review Manager 5.4.1

Heterogeneity

I² and chi-square

Outcomes: 90-day mortality, morbidity, pancreatic fistula, reoperation, hemorrhage, overall complications and others.

Statistics: heterogeneity was significant if I² > 50%; p < 0.05 was considered statistically significant.

RESULTS: PD STENT vs NO STENT

< Favors stent	Favors no stent >
Outcome	p-value
Pancreatic fistula	p = 0.65
Postoperative hemorrhage	p = 0.76
Reoperation	p = 0.63
Overall complications	p = 0.74
90-day mortality	p = 0.38
Delayed gastric emptying	p = 0.53
Length of stay: mean difference -0.03 days (95% CI -1.08 to 1.01), p = 0.95	

No outcome differed significantly with stenting. I² = 0-29% for all outcomes, indicating little to no heterogeneity and consistent findings across the five studies.

CONCLUSION

Across five studies, pancreatic duct stenting showed no significant benefit in reducing clinically relevant fistula, hemorrhage, reoperation or mortality. Heterogeneity was minimal, confirming consistent findings.

DISCUSSION

Across five studies, PD stents did not significantly reduce fistula, hemorrhage, reoperation, overall complications, delayed gastric emptying, mortality or hospital stay. Low heterogeneity shows consistent findings. Stenting alone should not be assumed to protect the anastomosis.

LIMITATIONS

Only five studies were pooled and three databases searched. Wide confidence intervals (e.g. fistula 0.50-3.05, mortality 0.17-1.98) mean a modest benefit or harm cannot be excluded. Stent type, technique and fistula definitions may differ between studies. Larger randomized trials are needed.

KEYWORDS

Pancreatic duct stent; Pancreaticoduodenectomy; Pancreaticojejunostomy; Pancreatic fistula; Meta-analysis

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