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RATE OF PANCREATIC FISTULA LAPAROSCOPIC VERSUS OPEN WHIPPLE; COMPARATIVE STUDY

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Abstract:
This study was carried out to explore the Rate of pancreatic fistula laparoscopic versus open Whipple.

Materials and Methods: A retrospective study was carried out on 70 patients who had pancreaticoduodenectomy at Saidu Teaching Hospital, Swat - Pakistan between July 2020 and June 2021 after taking approval from the ethical committee of the institute. All individuals' demographic and perioperative information was gathered, including information on their preoperative health, the need for surgery, their history of jaundice and the nature of the procedure. SAS statistical Software (version 9.1) was used for analysis.

Results: A total of 70 patients who had done pancreaticoduodenectomy. The patients were divided into two groups. Laparoscopic pancreaticoduodenectomy (LP) N=35 and open pancreaticoduodenectomy (OP) N=35.Out of them male were n=40 (57.1%) and female were n=30(42.85). Between the two groups there was no statistical deference in ASA class, BMI, sex, age and abdominal surgery. In both groups pancreatic fistula were observed. LP group had grade A n=2(5.7%) pancreatic fistula (PF) While the frequency of grade B and C PF was absent in LP group. The prevalence of (PF) was maximum in the OP group. Over all 11.4% of patients had PF. Out of which 50% had Grade A, 25% had Grade B and 25% C pancreatic fistula

Conclusion; the rate of pancreatic fistula is more prevalent in OP as compare to LP. So LP is better option as compared to OP for the pancreaticoduodenectomy.

Key words: Pancreatic fistula, Open vs. laparoscopic

Introduction

Treatment for a variety of pancreatic disorders, both malignant and non-malignant, often involves pancreaticoduodenectomy. It is used for treating trauma, non-pancreatic cancers, chronic jaundice, and pancreatic tumors. Currently, the death rate after pancreaticoduodenectomy is between 0 and 7%.(1) However, the morbidity rate has remained high over the previous 10 years, ranging between

37% and 50%, despite advancements in surgical techniques and perioperative patient care.(2) postoperative pancreatic fistula (POPF) is the utmost common problem emerging after pancreaticoduodenectomy. Many other issues, including as hemorrhage, sepsis, and intra-abdominal abscesses, are associated with postsurgical morbidity.(3) The pancreas' texture, the major pancreatic duct's size , the technique used for resection with anastomosis the pancreatic remnant, and the surgeon's experience are some other factors that increase risk. There is no consensus on avoiding POPF, although the fact that several strategies have been seen to do so. (4, 5). Due to its complex anatomy and the technical difficulty of laparoscopic anastomosis, laparoscopic (LP) is a challenging procedure. It can have advantages such as reducing blood loss and avoiding hospital stays, in addition to having similar rates of morbidity and mortality compared to open pancreaticoduodenectomy (OP).(6) Despite the use of surgical techniques, postoperative pancreatic fistula (POPF) remains the leading cause of morbidity in both patients and hospitals.(7). Therefore this study was conducted to determine Rate of pancreatic fistula laparoscopic versus open Whipple

Materials and method

A retrospective study was carried out on 70 patients who had pancreaticoduodenectomy at Saidu Teaching Hospital, Swat – Pakistan between July 2020 and June 2021 after taking approval from the ethical committee of the institute. All individuals' demographic and perioperative information was gathered, including information on their preoperative health, the need for surgery, their history of jaundice, the nature of the procedure, and the technique used to perform Pancreatojejunostomy. Postoperative factors included ultimate pathology, morbidity, and duration of stay. The International Society for the Study Group of Pancreatic Fistula (ISGPF) defined postoperative pancreatic fistulas as the output from an operating drain with a drain amylase level 3 times greater than serum level after postoperative Day 3, categorized as A, B, or C. The term "grade A fistulas" refers to biochemical leaks that are characterized by a continuous drain output of fluid high in amylase. In these cases, standard postoperative care is followed, with the exception of the patient being released out with a drain and/or having their drain kept in place for an extended period of time.

A shift in postoperative care is necessary for grade B fistulas, and this care may involve delayed discharge, radiological imaging, percutaneous drain implantation, antibiotics for a localized infection, or restriction of nutrition. To diagnose Grade C fistulas, it is necessary to undergo a significant change in clinical management such as taking somatostatin analogs or sometimes need reoperation.

Statistical analysis

The study population was characterized by a univariate analysis of demographics and operative variables. X 2 tests were utilized to evaluate categorical independent variables. . Variables with a normal distribution were compared against the average using t-symmetric analysis; nonparametric variables were tested using the nonstandard Wilcoxon-Mann-Whitney test. A P value of less than 0.05 was measured statistically noteworthy. SAS statistical Software (version 9.1) was used for analysis**.**

Results

A total of 70 patients who had done pancreaticoduodenectomy. The patients were divided into two groups. Laparoscopic pancreaticoduodenectomy (LP) N=35) and open pancreaticoduodenectomy (OP) N=35.Out of them male were n=40 (57.1%) and female were n=30(42.85). Between the two groups there was no statistical deference in ASA class, BMI, sex, age and previous abdominal surgery. Preoperative biliary drainage contain more by OP group 16(45.6%) as compared to Group 11 (31.1%). Neoadjuvant chemotherapy had done (2.6%) in LP Group while 5 (14.1%) in OP group. More individuals in the OP group experienced than in the LP group. OP was more persistently done in participants with pancreatic cancer pathology. The demographic date of all the individuals are presented in the **table 1**

TABLE 1 Patient demographics of the LPD and OPD groups(N=70)			
	LP N=35	OP =35	Value of P
Age (mean ± SD)	62.7 ± 11.3	66.3 ± 9.9	0.223
SEX			
Male	19(47.5%)	21(52.5%)	.153
Female	16(53.3)	14(46.6)	
Body mass index (kg/m2)	23.9 ± 4.9	23.4 ± 2.9	.195
abdominal operation history	(19.0%)	(25.6%)	.059
ASA class			
1	5(14%)	4(11.4%)	
2	21(60%)	21(60%)	
3	9(25%)	9(25.7%)	
Preoperative biliary drainage	11(31.1%	16 (45.6%)	<.001
Albumin (g/dL)	3.9 ± 0.6	3.9 ± 0.5	.998
CEA (ng/mL)	154.5 ± 624.3	303.9 ± 959.6	<.001
Neoadjuvant Chemotherapy	1(2.6%)	5 (14.1%)	<.001
Pathology	8(22.8%)	8(22.85)	<.001
Pancreas cancer	10(28.5%)	10(28.5%)	
Common bile duct cancer	12(34.2%)	12(34.5%	
Others	5(14%)	5(14%)	
CEA, carcino embryonic antigen			

Rate of pancreatic fistula after pancreaticoduodenectomy with laparoscopic and open Whipple

A total of 70 patient underwent surgical procedure of pancreaticoduodenectomy. 50% had operated through Laparoscopic pancreaticoduodenectomy and 50% open surgery. In both groups pancreatic fistula were observed .LP group had grade A n=2(5.7%) pancreatic fistula **(PF)** While the frequency of grade B and C PF was absent in LP group .The prevalence of (PF) was maximum in the OP group. Over all 11.4% of patients had PF. Out of which 50% had Grade A, 25% had Grade B and 25% C pancreatic fistula. As shown in the **table 2**

Rate of pancreatic fistula Laparoscopic versus open pancreaticoduodenectomy			
Variables	LP(N=35)	OP(N=35	P value
Pancreatic fistula	n=2(5.7%)	n=4(11.4%)	0.646
Grade A	2(100%)	2 (50%)	
Grade B	0	1(25%	
Grade C	0	1(25%)	
LP Laparoscopic pancreaticoduodenectomy **,OP open** pancreaticoduodenectomy			

Discussion and Conclusion

This study was carried out to determine the rate of postoperative pancreatic fistula laparoscopic versus open pancreaticoduodenectomy .A total of 70 individuals were divided into two groups operated through LP and OP. Although the surgical benefits of laparoscopic pancreaticoduodenectomy are still uncertain, it is possible that these procedures have lowered surgical morbidity in many procedures. (8, 9). The preferred outcome of laparoscopic surgery is usually a quicker recovery and less likely wound complications.(10). The current study groups were similar in, comorbidities, body mass index, and ASA scores. Previous studies that evaluated the impact of LP on POPF and OP did not take into account the risks associated with individual POF risks. (11).The incidence of CR-POPF has been compared in this study, with the risk adjusted for both procedures. After evaluating both risk stratification and pre- and post-intervention, we found that the incidence of CR-POPF was similar. Pancreatic fistula was determined at the rate of 5.7% in the laparoscopic group as compared to 11.4% in the open surgery .Further it was analyzed in our study that pancreatic fistula was 100% in the case of LP. Out of 11.4% rate of PF 50% were in grade A, 25% in grade B and 25% in C. According to a previous study, the risk of pancreatic fistula was low in patients with non-fibrotic and firum pancreas tissue and duct-to-mucosa anastomosis

who underwent applied ventricular perfusion. (12). another series had a rate of 6 pancreatic fistulae. A quarter of the patients who underwent duct to-mucosa anastomosis and 19% were affected. (13).From this study it was explored that the frequency of pancreatic fistula is prevalent in open Whipple as compared to laparoscopic surgery. So LP is better option as compared to OP for the pancreaticoduodenectomy.

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