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Is the Lateral Decubitus Position Safe and Easy for Laparoscopic Distal Pancreatectomy?

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Authors' contributions

This work was carried out in collaboration among all authors. Author SC conceptualized the paper, methodology, software, wrote the reviewed and edited. Author CY managed the data curation, wrote original draft preparation, wrote the reviewed and edited. Author HC managed the software, edited the paper. All authors read and approved the final manuscript.

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ABSTRACT

Aims: In this study, we compared the results of laparoscopic distal pancreatic surgery performed in the classical supine position and lateral decubitus position.
Study Design: Retrospective cohort study.
Place and Duration of Study: The files of 12 patients who underwent laparoscopic distal pancreatectomy in the General Surgery Clinic of our hospital between January 2017 and June 2020 were found by scanning the electronic file system of the hospital.
Methodology: Patients who underwent open surgery and whose data were not available, who had distant metastases, had a history of surgery due to other malignancies and those younger than 18 years were excluded from the study. All data were collected by the data collection assistant who was a general surgery and surgical oncology specialist. Clinicopathological records, inpatient treatment epicrisis, radiological examination reports, pathology reports and demographic information of the patients were reviewed.
Results: LDP was applied to 9 (75%) patients and LDP + splenectomy procedure was applied to 3

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(25%) patients. Postoperative complications were seen in 2 (12.6%) patients. The average operation time was 199.58 minutes. The amount of perioperative bleeding was 111.25 ml. The average length of stay in the hospital is 5.83 ± 0.6 days. All of the patients are alive and the mean survival time is 16.91 ± 2.38 months, with no recurrence.

Conclusion: We think that LP provides a significant advantage to the surgeon, since it provides a better viewing angle and facilitates colon mobilization and stomach retraction. This argument can be supported by more patient numbers and studies.

Keywords: Distal pancreatectomy; laparoscopic surgery; splenectomy; lateral decubitus position.

1. INTRODUCTION

Laparoscopic surgery has become the standard procedure in many abdominal surgeries with the advantage of developing technology, increasing surgical experience and surgical instrument use. Although it has been used in distal pancreatic benign and malignant tumors today; the reasons such as retroperitoneal localization, relation with major vessels, postoperative complications being more mortal than other surgeons have led to prejudices in the use of laparoscopy in pancreatic surgery. In addition, less incidence of pancreatic tumors negatively affects the learning curve and experience in laparoscopic pancreatic surgery [1].

Laparoscopic distal pancreatectomy (LDP) was first described in 1994 by Soper et al. as a safe and applicable method in pig models [2]. Although laparoscopic pancreatic surgery did not gain popularity like other laparoscopic abdominal surgeries at that time, it has now become applicable in many experienced centers and especially the developing technology, laparoscopic ultrasonography, stapler and energy devices have contributed to this. With laparoscopic surgery; morbidity, mortality is reduced and hospital stay is shortened [3]. However, retraction becomes easier, less blood loss develops, exploration can be performed more comfortably and provides a better viewing angle with greater magnification.

The traditional approach in laparoscopic surgery is dissection from medial to lateral in the supine position, first transection of the pancreas then following the splenic artery and vein and moving towards the splenic hilum [4]. Another new method in the literature is the lateral to medial approach first in the lateral decubitus position. Dissection starts with mobilization of the splenic flexure and release of the spleen and continues from lateral to medial and the pancreas is lifted laterally and finally transected [5]. The authors state that the pancreas can be accessed more easily and that dissection will be easier and it will provide less morbidity [6].

In this study; we aimed to present the results of our laparoscopic distal pancreatectomy cases performed using the right lateral decubitus and supine position method.

2. MATERIALS AND METHODS

2.1 Patient Selection and Data Collection

This study was approved by the Ethics Commitee of our center. The files of 12 patients who underwent laparoscopic distal pancreatectomy and / or splenectomy in the General Surgery Clinic of our hospital between January 2017 and June 2020 were found by scanning the electronic file system of the hospital. Patients who underwent open surgery and whose data were not available, who had distant metastases, had a history of surgery due to other malignancies and those younger than 18 years were excluded from the study. All data were collected by the data collection assistant who was a general surgery and surgical oncology specialist. Clinicopathological records, inpatient treatment epicrisis, radiological examination reports, pathology reports and demographic information of the patients were reviewed. The operation reports were checked and the position where the operation was performed, the duration of the operation and the amount of blood loss were noted. 7 patients operated in the right lateral decubit position were classified as "lateral position (LP)" and 5 patients operated in the supine position as "supine position (SP)".Trocar and surgical team positions, operation time, blood loss, and perioperative complications between the groups were compared retrospectively using the information collected. The lateral decubitus or supine position was left at the surgeon's discretion.

2.2 Surgical Procedure

All operations were performed by the same surgical team. The location of the tumor was determined by evaluating the preoperative abdominal imaging. Written informed consent was obtained from each patient about the surgical procedure and scientific studies before surgery. Preoperative bowel cleansing was not given to any patient. All patients were taken to the operating room after 8 hours of fasting and prophylactic single dose antibiotherapy (IV 1 g cefazolin sodium) was administered. During the operation, normothermia was provided with the help of monitoring by the anesthesia team. In the SP group, the laparoscopy tower was placed at the left shoulder. The patient's legs were opened wide enough for the surgeon to enter and both arms were kept closed. Patients in the LP group, the surgical team was placed on the right side of the patient and the laparoscopy system was positioned behind the patient. A 30 degree camera and 4 trocars was used in both groups. Following the placement of trocars and insufflation a medial to lateral dissection was performed, with pancreatic transection taking priority in the SP group. In the LP group, a lateral-to-medial dissection was performed starting from the splenocolic, gatrosplenic and splenophrenic ligaments and the pancreas was cut at the last stage. In both groups, pancreas was transected with vascular stapler. The splenic artery and vein were clipped using hem-o-loc clips. Pathology specimens were removed with the help of an endobag by an incision on the umbilicus. A single aspirative drain reaching the diaphragm was placed in all patients.

2.3 Statistical Analysis

SPSS 25 software was used in the analysis of the data. For descriptive analysis, quantitative variables were presented as mean ± standard deviation and median (minimum-maximum), and qualitative variables were presented as number of patients (percentage). Since the normal distribution assumptions were not realized, whether there was a difference between the categories of the qualitative variable, which has two categories in terms of quantitative variable, was analyzed by using the Mann-Whitney U test. The Chi-squared test and Fisher's exact test were used to evaluate the relationship between two qualitative variables. The statistical significance level was accepted as 0.05.

3. RESULTS

Twelve patients were included in our study and patients underwent laparoscopic distal pancreatectomy (LDP) or LDP + splenectomy procedures. The mean values of the patients' age and tumor size were 56.08 ± 4.99 and 4.65 ± 0.87, respectively. LDP was applied to 9 (75%) patients and LDP + splenectomy procedure was applied to 3 (25%) patients. 5 (41.6%) of the patients were male and 7 (58.4%) were female. Postoperative complications were seen in 2 (12.6%) patients, both of them were pancreatic fistulas. Surgical intervention was not performed in both patients and they were treated with conventional approach. Of the patients, 1 (8.3%) intrapancreatic mucinous neoplasm, 3 (25%) serous cystadenoma, 2 (16.7%) solid pseudopapillary, 3 (25%) ductal adenocarcinoma and 3 (25%) is also a neuroendocrine tumor. Patient characteristics are given in Table 1.

5 (41.6%) of 12 patients were operated in the SP and 7 in the LP (58.4%), and the average operation time was 199.58 minutes. None of the patients had a conversion to open surgery. The amount of perioperative bleeding was 111.25 ml on average and blood transfusion was performed in only 2 patients. The average surgical margin is 1.17 ± 0.36 cm. The average length of stay in the hospital is 5.83 ± 0.6 days. All of the patients are alive and the mean survival time is 16.91 ± 2.38 months, with no recurrence.

The relationship between position and variables is given in Table 2.

4. DISCUSSION

Advances in minimally invasive surgery in the past decade have brought many surgical advantages. Laparoscopic surgery has become a standard in many areas of surgery with its advantages such as reduced postoperative pain, morbidity, rapid wound healing and early discharge. Reasons such as retroperitoneal localization, proximity to major vessels and the mortality of postoperative complications compared to other surgeons have led to prejudices in the use of laparoscopy in pancreatic surgery and the lower incidence of pancreatic tumors negatively affect the learning curve and experience in laparoscopic pancreatic surgery [1].

Table 1. Patient characteristics

Variables		
Age (Years)	Mean±SD	56.08±4.99
Size (CM)	Mean±SD	4.65±0.87
Gender, n(%)	Male	5 (41,6)
	Female	7 (58,4)
Position, n(%)	Supine	5 (41,6)
	Lateral Decubitus	7 (58,4)
Operation type, n(%)	LDP	9 (75)
	LDP+splenectomy	3 (25)
Pathology, n(%)	İPMN	1 (8,3)
	Serous cystadenoma	3 (25)
	Solid pseudopapillary	2 (16,7)
	Ductal adenocarcinoma	3 (25)
	Neuroendocrine	3 (25)
Complication, n(%)	No	10 (87,4)
	Yes	2 (12,6)
Surgical Margin(cm)	Mean±SD	1,17±0,36
Mortality, n(%)	No	12 (100)
	Yes	0 (0)
Survival time (Months)	Mean±SD	16,91±2,38
Recurrence	Yes	0 (0)
	No	12 (100)

LDP: Laparoscopic distal pancreatectomy

Table 2. Relationship between position and variables

Variables		Position		p value
		LP (n=7)	SP (n=5)	
Gender (%)	Male	3 (42,8)	2 (40,0)	0,921
	Female	4 (57,2)	3 (60,0)	
Age (Years)	Mean±SD	60,14±11,59	50,40±23,48	0,360
Spleen preservation, n(%)	No	5 (71,5))	4 (80,0)	0,731
	Yes	2 (28,5)	1 (20,0)	
Conversion, n(%)	No	7 (100)	5 (100)	-
	Yes	0 (0)	0 (0)	
Postoperative Complication, n(%)	No	7 (100)	3 (60,0)	0,067
	Yes	0 (0)	2 (40,0)	
Blood loss(ml)	Mean±SD	104,29±13,97	121±44,77	0,369
Operation time(min)	Mean±SD	190,71±19,45	212±16,80	0,077
Length of hospital stay, n(%)	Mean±SD	5±1,15	7±2,6	0,102

In the literature, there are studies describing many laparoscopic pancreatic surgeries including distal pancreatectomy and splenectomy, spleen-sparing distal pancreatectomy and enucleation [7-9]. LDP is performed more frequently than laparoscopic pancreaticoduodenectomy and enucleation. Nigri et al. published 10 studies comparing laparoscopic and open distal surgery for the first time and meta-analyzes involving 729 patients and concluded that there was less blood loss, earlier oral intake time, shorter hospital stay and fewer postoperative complications in the laparoscopic group [10]. In the same study, no significant difference was found in terms of mortality and number of reoperations. The Central Pancreas Consortium published their multicenter study comparing laparoscopic distal pancreatectomy and open distal pancreatectomy and in their initial analysis they argued that laparoscopic surgery could be preferred to open surgery with less blood loss, less hospital stay and reduced morbidity [11]. However, on the suspicion of whether laparoscopic surgery is performed with oncological principles in pancreatic adenocarcinomas, the same group published the results of the second analysis and the results were similar between both groups in terms of short-term (number of lymph nodes

removed, surgical margin) and long-term (survival) [12].

After the thought that laparoscopic surgery is a standard and applicable approach in distal pancreatic surgery, studies comparing laparoscopic techniques have started to be published in the literature. The most common of these comparisons was the LP and the classical SP. In surgeries performed in the SP, it includes the control of the splenic artery and vein and its dissection towards the splenic hilum, starting from the medial to the lateral, staying lateral to the superior mesenteric vessels [11]. Recently, the number of articles showing the advantages of LP in laparoscopic distal pancreatic surgery has been increasing [3,6]. In their study involving 43 patients comparing both methods by Strickland et al., They argued that the lateral approach was statistically advantageous in terms of shorter operative time and less blood loss and no significant difference was found between the two groups in terms of oncology [13]. Even though it was not statistically significant in our study, the lateral position shortened the duration of the operation by factors such as the ease of retraction of the stomach, the splenic flexure with the help of gravity and easier colon mobilization ($p = 0.077$). Although the positivity of surgical margins and the absence of conversion in both groups is an indication that laparoscopic method can be preferred over open method in experienced hands. There is no statistically significant difference, we think that better visualization of splenic vessels in LP reduces perioperative bleeding and increases the spleen preservation ($p = 0.369$, $p = 0.731$). Our 2 patients who developed complications were in the SP group and we think that the reason for this was the prolonged operation time, higher perioperative blood loss, transfusion and splenectomy which prolonged the hospital stay for the same group.

The limitations of our study are the small number of patients, the retrospective nature of the study and the inability to randomize the patients.

5. CONCLUSION

As a result, we think that LP provides a significant advantage to the surgeon since it provides a better viewing angle and facilitates colon mobilization and stomach retraction. This argument can be supported by more patient numbers and studies.

CONSENT

Written informed consent was obtained from all the patients.

ETHICAL APPROVAL

This study is planned after the approval of Lokman Hekim University Medical Faculty Ethical Committee.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Winslow ER, Brunt LM, Perioperative outcomes of laparoscopic versus open splenectomy: A meta-analysis with an emphasis on complications. Surgery. 2003; 134(4):647-653.
2. Soper N, et al. Laparoscopic distal pancreatectomy in the porcine model. Surgical Endoscopy. 1994;8(1):57-61.
3. Thomas JK, et al. Lateral laparoscopic approach to pancreatic tail insulinomas. World J Endocr Surg. 2012;4(1):3-7.
4. Melotti G, et al. Laparoscopic distal pancreatectomy: Results on a consecutive series of 58 patients. Annals of Surgery. 2007;246(1):77.
5. Honore C, Honore P, Meurisse M. Laparoscopic spleen-preserving distal pancreatectomy: description of an original posterior approach. Journal of Laparoendoscopic & Advanced Surgical Techniques. 2007;17(5):686-689.
6. Nakamura M. et al. Lateral approach for laparoscopic splenic vessel-preserving distal pancreatectomy. Surgery. 2011; 150(2): 326-331.
7. Berends FJ, et al. Laparoscopic detection and resection of insulinomas. Surgery, 2000;128(3):386-391.
8. Cuschieri A, Jakimowicz JJ, van Spreeuwel J. Laparoscopic distal 70% pancreatectomy and splenectomy for chronic pancreatitis. Annals of surgery. 1996;223(3):280.
9. Lo C, Lo C, Fan S. Role of laparoscopic ultrasonography in intraoperative localization of pancreatic insulinoma. Surgical Endoscopy. 2000;14(12):1131-1135.

10. Nigri GR, et al. Metaanalysis of trials comparing minimally invasive and open distal pancreatectomies. Surgical endoscopy. 2011;25(5):1642-1651.
11. Kooby DA, et al. Left-sided pancreatectomy: A multicenter comparison of laparoscopic and open approaches. Annals of Surgery. 2008;248(3):438-446.
12. Kooby DA, et al. A multicenter analysis of distal pancreatectomy for adenocarcinoma: is laparoscopic resection appropriate? Journal of the American College of Surgeons. 2010;210(5):779-785.
13. Strickland M, et al. Lateral approach in laparoscopic distal pancreatectomy is safe and potentially beneficial compared to the traditional medial approach. Surgical Endoscopy. 2015; 29(9):2825-2831.

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