

RAPID COMMUNICATION

## Resection of non-cystic adenocarcinoma in pancreatic body and tail

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### INTRODUCTION

The prognosis of pancreatic body and tail cancer is dismal<sup>[1-10]</sup>. Its curative resection is rarely performed, only a few reports are available<sup>[4-10]</sup>. The outcome of 8 Chinese patients with non-cystic adenocarcinoma in pancreatic body and tail (NCAPBT) after resection is reported and the clinical-pathological characteristics and surgical strategy of NCAPBT are discussed in this paper.

### MATERIALS AND METHODS

Resection of NCAPBT was performed in eight Chinese patients with complete clinical-pathological data from January 2000 to September 2004 in our hospital. The outcome of all the patients is summarized in Tables 1 and 2. The average age of the patients was 67 years (range, 53-79 years) and the ratio of male to female was 1:1. Abdominal pain was found in 87.5%, weight loss in 75% and back pain in 62.5% patients, respectively. No patient had jaundice. The mean tumor size was 5.04 cm (range, 2.3-8 cm). Curative distal pancreatectomy and splenectomy were performed in 3 patients, palliative distal pancreatectomy and splenectomy in 4 patients, palliative segmental pancreatectomy in 1 patient. Curative resection was defined as resection with all gross tumor tissues removed and negative microscopic margins. Resection with gross residual tumor and/or distal metastasis was considered palliative resection. All the 8 patients had histology-verified NCAPBT. Seven of 8 NCAPBTs were ductal adenocarcinoma. No.4 NCAPBT was mucinous non-cystic adenocarcinoma (Tables 1 and 2). No cystic adenocarcinoma and other rare adenocarcinomas such as adenosquamous carcinoma, undifferentiated adenocarcinoma and primary cancer were found. All the 8 patients were followed up. The log-rank test was used for comparison of differences in survival. Chi-square test or Fisher's exact test was used to evaluate the correlation between categorical data.  $P < 0.05$  was considered statistically significant.

### RESULTS

The outcome of the 8 patients is summarized in Tables 1 and 2. Intra-abdominal abscess was found in 1 patient and no major postoperative complications were found in

### Abstract

**AIM:** To report the outcome of Chinese patents with non-cystic adenocarcinoma in pancreatic body and tail (NCAPBT) after resection and to discuss its surgical strategy.

**METHODS:** Resection of NCAPBT was performed in eight Chinese patients with complete clinical-pathological data in our hospital from January 2000 to May 2004. The surgical strategy was explored by analyzing the results of these patients.

**RESULTS:** The resection rate of NCAPBT in patients without back pain was higher than that in patients with back pain (66.67% vs 20%, 2/3 vs 1/5). The prognosis in the group receiving palliative resection was poorer than that in the group receiving curative resection. The median survival time was 12 mo in the curative resection group and 6 mo in the palliative resection group, respectively.

**CONCLUSION:** The overall survival time of the Chinese patients with NCAPBT is dismal. The Chinese patients after curative resection of NCAPBT have a longer survival time. The Chinese NCAPBT patients with back pain trend to have a lower curative resection rate, but back pain should not be considered a contraindication for curative resection.

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**Key words:** Pancreas; Adenocarcinoma; Pancreatectomy; Survival; Back pain

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Table 1 Clinical data of NCAPBT

Patient No.	Gender	Age (yr)	Abdominal pain	Back pain	Weight loss (kg)	Location	Size (cm)	Survival (mo)
1	M	79	Y	Y	NA	BT	5	6
2	F	62	Y	N	5	BT	5	6
3	F	66	Y	Y	7.5	BT	6	4
4	M	65	Y	Y	NA	B	5	8
5	M	53	Y	Y	5	BT	NA	6
6	F	71	Y	N	4.5	B	2.3	12
7	F	68	Y	Y	5	BT	4	28
8	M	72	N	N	3	T	8	8

NA: Not available; BT: Pancreatic body and tail; B: Pancreatic body; T: Pancreatic tail; Y: Yes; N: No.

Table 2 Data of surgery and pathology of NCAPBT

Patient No.	pT	pN	pM	Histological differentiation	Resection	Blood loss (mL)	Operative duration (min)	Reason for non-curative resection
1	4	x	0	Moderate	Palliative	600	140	Invasion of super mesenteric artery
2	4	1	0	Well	Palliative	600	235	Adhesion of abdominal aorta
3	4	x	0	Well	Palliative	200	110	Invasion of celiac trunk and abdominal aorta
4	4	x	0	Poor	Palliative	400	185	Invasion of super mesenteric artery
5	4	x	1	Well	Palliative	600	165	Liver metastasis
6	2	0	0	Poor	Curative	100	165	
7	2	0	0	Moderate	Curative	2300	225	
8	2	1	0	Moderate	Curative	600	205	

the other 7 patients. Major complications were defined as those threatening the life potentially. Neither re-operation was performed nor death of patients occurred during operation. None of the 8 patients was treated in ICU. The curative resection rate of the patients without back pain was higher than that of those with back pain (66.67% *vs* 20%, 2/3 *vs* 1/5). The median survival time was 6 in the palliative resection group and 12 mo in the curative resection group, respectively. The latter group had a longer survival time than the former group, while the former group had a higher 1-year survival rate than the latter group (66.7% *vs* 0%).

## DISCUSSION

The prognosis of pancreatic body and tail cancer is poor even after surgical resection<sup>[1-10]</sup>. Due to the absence of painless obstructive jaundice and earlier symptoms, most patients with pancreatic body and tail cancer are found in an advanced stage, which results in a low resection rate<sup>[1-10]</sup>. The 5-year survival rate of pancreatic body and tail cancer patients after surgical resection ranges from 0% to 25%, and the median survival time is 10 to 15.9 mo<sup>[4-10]</sup>. In our study, no NCAPBT patient survived longer than 5 years, the median survival time of the patients after curative resection was comparable with that of other reports<sup>[5-10]</sup>, but the median survival time of the patients after palliative resection was much shorter than that of those after curative resection (Table 2). The portal vein and/or superior mesenteric vein resection combined

with pancreatectomy can be successfully performed<sup>[9,10]</sup>, preoperative CT scan or other image analysis should be emphasized on the relationship between the tumor and its major adjacent vessels, such as superior mesenteric artery, abdominal aorta and celiac trunk, because they help surgeons to more precisely judge the resectability of the tumor before operation.

Bathe *et al*<sup>[11]</sup> reported that old NCAPBT patients have a higher ratio of major postoperative complications and a significantly shorter survival time, and need to receive radical resection. An interesting finding in our study is that three old patients ( $\geq 70$  years of age) had no major postoperative complications, however, 1 of 5 patients ( $< 70$  years of age) had major postoperative complications. No patient received re-operation. Furthermore, 2 patients in the older patient group ( $\geq 70$  years of age) after curative resection had a longer survival time than those after palliative resection, suggesting that surgical resection of NCAPBT in old patients might not result in more major postoperative complications than in younger patients.

Pancreatic cancer patients with back pain have a low resection rate and poor prognosis<sup>[12]</sup>. In our study, the patients without back pain tended to have more chances of curative resection, however, the longest survivors were those with back pain, indicating that back pain should not be considered a contraindication, though the patients with back pain had less chance of curative resection.

Metastasis occurs in most patients with adenocarcinoma of the body and tail of the pancreas<sup>[3,10,13,14]</sup>. In our study, one patient with liver metastasis had a comparable

survival time with the other 4 after palliative resection, suggesting that the prognosis of patients with liver metastasis after palliative resection of NCAPBT is not poorer than that of patients without distal metastasis.

Sboup *et al*<sup>[10]</sup> reported that the survival rate is correlated with histological differentiation. An interesting finding in our study is that three patients with poorly- or moderately-differentiated tumor in the curative resection group had a longer survival time than the other three patients with well-differentiated tumor in the palliative resection group, indicating that though histological differentiation is related with survival, curative resection of NCAPBT is a more important prognostic factor.

Segmental pancreatectomy is mainly performed for benign or low malignant tumor in the pancreatic body and leads to more postoperative complications than distal pancreatectomy<sup>[15]</sup>. In our study, one patient after palliative segmental pancreatectomy had no major complications and was discharged ten days after the operation. The survival time was a little longer than that of the other 4 patients after palliative resection, suggesting that segmental pancreatectomy is a feasible surgery and can preserve more pancreatic tissues.

Sboup *et al*<sup>[10]</sup> reported that if extended resection is considered necessary for curative resection of the tumor, the resection is justified in patients with NCAPBT. Fabre *et al*<sup>[4]</sup> found that only patients with tumor not more than 4 cm in diameter, but without lymph involvement and metastasis have a significant longer survival time after resection. In our study, the patients in the curative resection group had a longer survival time than those in the palliative resection group. The median survival time of the latter group was only half of the former group. No patients survived more than 1 year in the palliative resection group. The data showed that curative resections of NCAPBT should be recommended. Furthermore, in the curative resection group, one patient with a tumor over 4 cm in diameter and lymph involvement, survived only 8 mo which was a little longer than the median survival time of those in the palliative resection group, while survival time of the two patients with tumor not more than 4 cm in diameter but without lymph involvement and metastasis was not less than 1 year, indicating that the theory of Fabre *et al*<sup>[4]</sup> seems to fit for the Chinese patients.

In conclusion, the overall survival of Chinese NCAPBT patients is dismal. Chinese NCAPBT patients after curative resection may have a longer survival time. Chinese NCAPBT patients with back pain, tend to have a lower curative resection rate, but back pain should not

be considered a contraindication for curative NCAPBT resection.

## REFERENCES

- 1 Dalton RR, Sarr MG, van Heerden JA, Colby TV. Carcinoma of the body and tail of the pancreas: is curative resection justified? *Surgery* 1992; **111**: 489-494
- 2 Nordback IH, Hruban RH, Boitnott JK, Pitt HA, Cameron JL. Carcinoma of the body and tail of the pancreas. *Am J Surg* 1992; **164**: 26-31
- 3 Johnson CD, Schwall G, Flechtenmacher J, Trede M. Resection for adenocarcinoma of the body and tail of the pancreas. *Br J Surg* 1993; **80**: 1177-1179
- 4 Fabre JM, Houry S, Manderscheid JC, Huguier M, Baumel H. Surgery for left-sided pancreatic cancer. *Br J Surg* 1996; **83**: 1065-1070
- 5 Brennan MF, Moccia RD, Klimstra D. Management of adenocarcinoma of the body and tail of the pancreas. *Ann Surg* 1996; **223**: 506-511; discussion 511-512
- 6 Nakao A, Harada A, Nonami T, Kaneko T, Nomoto S, Koyama H, Kanazumi N, Nakashima N, Takagi H. Lymph node metastasis in carcinoma of the body and tail of the pancreas. *Br J Surg* 1997; **84**: 1090-1092
- 7 Sperti C, Pasquali C, Pedrazzoli S. Ductal adenocarcinoma of the body and tail of the pancreas. *J Am Coll Surg* 1997; **185**: 255-259
- 8 Kayahara M, Nagakawa T, Ueno K, Ohta T, Kitagawa H, Arakawa H, Yagi H, Tajima H, Miwa K. Distal pancreatectomy-does it have a role for pancreatic body and tail cancer. *Hepatogastroenterology* 1998; **45**: 827-832
- 9 Burcharth F, Trillingsgaard J, Olsen SD, Moesgaard F, Federspiel B, Struckmann JR. Resection of cancer of the body and tail of the pancreas. *Hepatogastroenterology* 2003; **50**: 563-566
- 10 Shoup M, Conlon KC, Klimstra D, Brennan MF. Is extended resection for adenocarcinoma of the body or tail of the pancreas justified? *J Gastrointest Surg* 2003; **7**: 946-952; discussion 952
- 11 Bathe OF, Caldera H, Hamilton KL, Franceschi D, Sleeman D, Livingstone AS, Levi JU. Diminished benefit from resection of cancer of the head of the pancreas in patients of advanced age. *J Surg Oncol* 2001; **77**: 115-122
- 12 Ridder GJ, Klempnauer J. Back pain in patients with ductal pancreatic cancer. Its impact on resectability and prognosis after resection. *Scand J Gastroenterol* 1995; **30**: 1216-1220
- 13 Sener SF, Fremgen A, Menck HR, Winchester DP. Pancreatic cancer: a report of treatment and survival trends for 100,313 patients diagnosed from 1985-1995, using the National Cancer Database. *J Am Coll Surg* 1999; **189**: 1-7
- 14 Jimenez RE, Warshaw AL, Rattner DW, Willett CG, McGrath D, Fernandez-del Castillo C. Impact of laparoscopic staging in the treatment of pancreatic cancer. *Arch Surg* 2000; **135**: 409-414; discussion 414-415
- 15 Shibata S, Sato T, Andoh H, Yasui O, Yoshioka M, Kurokawa T, Watanabe G, Ise N, Kotanagi H, Asanuma Y, Koyama K. Outcomes and indications of segmental pancreatectomy. Comparison with distal pancreatectomy. *Dig Surg* 2004; **21**: 48-53

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