

Pancreatic head excavation for tissue diagnosis may reduce unnecessary pancreaticoduodenectomies in the setting of chronic pancreatitis

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BACKGROUND: The necessity to obtain a tissue diagnosis of cancer prior to pancreatic surgery still remains an open debate. In fact, a non-negligible percentage of patients undergoing pancreaticoduodenectomy (PD) for suspected cancer has a benign lesion at final histology. We describe an approach for patients with diagnostic uncertainty between cancer and chronic pancreatitis, with the aim of minimizing the incidence of PD for suspicious malignancy finally diagnosed as benign disease.

METHODS: Eighty-eight patients (85.4%) with a clinicoradiological picture highly suggestive for malignancy received formal PD (group 1). Fifteen patients (14.6%) in whom preoperative diagnosis was uncertain between pancreatic cancer and chronic pancreatitis underwent pancreatic head excavation (PHEX) for intraoperative tissue diagnosis (group 2): those diagnosed as having cancer received PD, whereas those with chronic pancreatitis received pancreaticojejunostomy (PJ).

RESULTS: No patient received PD for benign disease. All patients in group 1 had adenocarcinoma on final histology. Eight patients of group 2 (53.3%) received PD after intraoperative diagnosis of cancer, whereas 7 (46.7%) received PJ because no malignancy was found at intraoperative frozen sections. No signs of cancer were encountered in patients receiving PHEX and PJ after a median follow-up of 42 months. Overall sur-

vival did not differ between patients receiving PD for cancer in the group 1 and those receiving PD for cancer after PHEX in the group 2 ($P=0.509$).

CONCLUSION: Although the described technique has been used in a very selected group of patients, our results suggest that PHEX for tissue diagnosis may reduce rates of unnecessary PD, when the preoperative diagnosis is uncertain between cancer and chronic pancreatitis.

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KEY WORDS: pancreatic carcinoma;
chronic pancreatitis;
pancreaticoduodenectomy;
pancreatic head excavation

Introduction

Preoperative biopsy for tissue diagnosis is not usually performed before pancreaticoduodenectomy (PD) in those patients where both the clinical picture and the imaging findings are consistent with resectable carcinoma of the head of the pancreas.^[1-3] Nonetheless, a continuing debate exists on whether or not patients with potentially resectable carcinomas of the pancreatic head should undergo preoperative biopsy before PD, because it is well recognized that in 4%-13% of patients undergoing a so-called “blind PD” (i.e. without a histologically-proven diagnosis of malignancy), a diagnosis of non-malignant lesion will eventually be established.^[1-6]

In fact, different solid pancreatic head masses resembling ductal adenocarcinoma may ultimately be diagnosed as benign lesions, such as chronic pancreatitis, benign endocrine neoplasms, and masses of inflammatory or autoimmune etiology.^[7, 8] In particular, chronic pancreatitis is often indistinguishable from pancreatic

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cancer, mostly when enlargement of the pancreatic head is present on imaging studies. Furthermore, these two conditions may co-exist in the same patient and chronic pancreatitis is a well-known risk factor of pancreatic cancer.^[9] Although PD has been considered as an acceptable option also for patients with symptomatic chronic pancreatitis, the non-negligible rates of complications associated with that surgical procedure led some clinicians to develop drainage procedures and limited pancreatic resections.^[10-14]

In 2009, with the aim of minimizing the number of PD for benign pancreatic lesions mimicking malignancy of the head of the pancreas, we started an approach for those patients in whom preoperative work-up and intraoperative assessment were uncertain between cancer and chronic pancreatitis. In those cases, a pancreatic head excavation (PHEX) was carried out in order to obtain a tissue diagnosis on frozen section. This procedure allowed us to continue with either a formal PD in patients with carcinoma, or with a pancreaticojejunostomy (PJ) in those with benign lesions. The purpose of this study was twofold: to assess the surgical outcomes of PHEX for intraoperative diagnosis and to evaluate the rates of unnecessary PD since this approach was adopted.

Methods

Patient selection

Data from every patient undergoing pancreatic and biliary surgery between January 2009 and December 2013 have been prospectively collected in an institutional review board-approved database. For the present study, we queried our institutional database for any patient undergoing surgery for histologically-proven or suspicious pancreatic head carcinoma.

In general, the policy at our institution is to proceed with formal PD in presence of a clinicoradiological picture highly suggestive for pancreatic head adenocarcinoma; preoperative cytological or histological diagnosis is not usually pursued in this setting. In the study cohort, brushing for cytology examination was only obtained in patients undergoing endoscopic retrograde cholangiopancreatography (ERCP) for preoperative biliary stent placement. All patients underwent total body CT-scan and transabdominal ultrasound as preoperative imaging studies. In selected cases, also endoscopic ultrasound (EUS) and magnetic resonance cholangiopancreatography (MRCP) were used. Patients with autoimmune pancreatitis were excluded.

We identified two groups of patients. Group 1 included patients having a clinicoradiological picture

highly suspicious for malignancy; all of them received formal PD with or without pylorus preservation. Group 2 included patients with preoperative work-up that was considered uncertain between pancreatic cancer and chronic pancreatitis; in all patients of this group a PHEX and intraoperative frozen section analysis was performed with the aim of guiding the surgical strategy as described below.

MRCP was performed in 14 patients of group 1 and in all patients of group 2. In the latter group MRCP showed signs of chronic pancreatitis and enlargement of the pancreatic head, however it was challenging to differentiate mass forming chronic pancreatitis from pancreatic adenocarcinoma.

All patients of group 2 also underwent EUS, and ultrasound features were evaluated against the Rosemont criteria for diagnosis of chronic pancreatitis as described by Catalano and coworkers.^[15] The demographic and clinical characteristics of the whole cohort are provided in Table 1. In patients of group 2, the preoperative diagnosis was defined as “uncertain” according to the findings resumed in Table 2, the main selection criterion being an enlargement of the pancreatic head in the setting of imaging findings indicative of chronic pancreatitis.

This study was approved by the institutional review board of our department and all patients involved in this study have given their informed consent. In particular, patients of group 2 were properly advised that the PHEX procedure was designed to permit intraoperative diagnosis and to guide surgical strategy. The patients were also informed about the risks and benefits of a PD carried out for a potential benign disease.

All patients of group 2 were operated on by the same surgeon (Porcu A). For all patients the following data were extrapolated: demographic and clinical character-

Table 1. Demographic and clinical characteristics of study patients (n, %)

Characteristics	Group 1 (n=88)	Group 2 (n=15)	P value
Age (yr, mean, range)	67 (39-89)	66 (49-81)	0.41
Male gender	57 (64.8)	10 (66.7)	0.61
Jaundice	59 (67.0)	6 (40.0)	0.047
Smoking	80 (90.9)	14 (93.3)	0.79
Alcohol consumption (>2 glasses of wine/day)	44 (50.0)	7 (46.7)	0.75
Abdominal pain	41 (46.6)	8 (53.3)	0.63
Weight loss	33 (37.5)	5 (33.3)	0.73
Diabetes mellitus	30 (34.1)	5 (33.3)	0.98
History of chronic pancreatitis	11 (12.5)	4 (26.7)	0.17
Cholelithiasis/lithiasis of the biliary tract	34 (38.6)	4 (26.7)	0.35

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