



# Isolated Drain Site Metastasis after Laparoscopic Radical Pancreatosplenectomy in Left-Sided Pancreatic Cancer

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## Abstract

In spite of debates, minimally invasive radical distal pancreatosplenectomy is carefully thought to be safe and effective in well selected left-sided pancreatic cancer. Several significant literatures are demonstrating that it can result in comparable oncologic outcomes of conventional open distal pancreatectomy. It is general that patients with resected pancreatic cancer experience systemic metastasis; however, cutaneous metastasis of resected pancreatic cancer is reported to be rare. Here, we report extremely rare case of isolated drain-site metastasis of resected left-sided pancreatic cancer.

**Keywords:** Minimally invasive surgery; Laparoscopic; Pancreatectomy; Pancreatic cancer; Metastasis

## Introduction

With the advance of minimally invasive surgery, laparoscopic distal pancreatectomy is regarded as safe and effective approach in treating non-malignant pancreatic pathology. Although it is controversial, laparoscopic or robotic distal pancreatosplenectomy is carefully reported to be one of the options for curative surgery for well-selected left-sided pancreatic cancer [1,2].

It is general that pancreatic cancer is famous for early recurrence even after radical pancreatectomy. Liver is the most common site of recurrence, followed by lungs, bones, and brain [3,4]. So called, Sister Mary Joseph's nodule is known for one of the predominant presentations of cutaneous metastasis. Non-umbilical cutaneous metastasis of pancreatic cancer is very rare. Most cases are usually associated with disseminated pancreatic cancer [5].

In this study, we present extremely rare case of isolated drain-site metastasis of resected left-sided pancreatic cancer. This report is thought to be the first to show the potential risk of drain-site recurrence after laparoscopic radical distal pancreatosplenectomy, providing new insight for careful follow-up of pancreatic cancer patients who underwent minimally invasive radical pancreatectomy.

## Case Presentation

A fifty-one year old female patient visited our hospital for palpable mass on left mid-abdominal area. She had undergone laparoscopic radical pancreatosplenectomy for left sided pancreatic cancer on 18 August, 2015 (Figure 1A and B). During initial preoperative evaluation period for primary left-sided pancreatic cancer, a gastroenterologist had attempted endoscopic ultrasound-guided fine needle biopsy (EUS-FNAB), but failed to confirm pathologic diagnosis. Preoperative CA 19-9 was noted to be 223.5 U/ml. Minimally invasive radical distal pancreatosplenectomy was done by previously reported approach [1]. After surgery, no clinically relevant postoperative complication was noted, and could go home on postoperative seventh day. She started chemotherapy (Gemcitabine) on postoperative twenty eighth days, and had completely the systemic treatment. Follow up the serum CA 19-9 had dropped down to 11.6U.

On postoperative 8 months, she reported painless abdominal wall lump around previous drain site. It was noted that serum CA 19-9 elevated up to 40.0 U/ml and PET-CT showed increased signal intensity on left-mid abdominal wall area compatible with previous drain insertion site following initial laparoscopic radical pancreatectomy (Figure 1C). There are no other evidences suggesting associated systemic or peritoneal recurrence. Wide excision of isolated drain-site metastasis was performed with approximately 1.5 cm margin (Figure 1D and E). Pathologic examination revealed that about 2 cm x 1 cm x 1 cm sized mass was metastatic adenocarcinoma, clinically from pancreas (Figure 1F).

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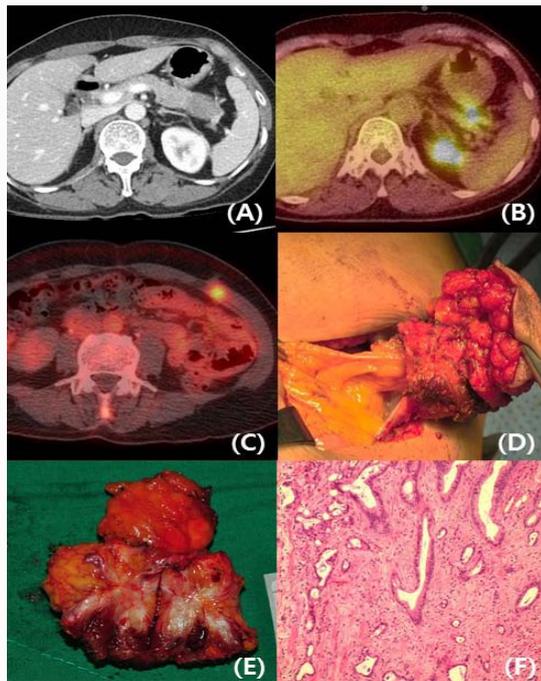
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**Figure 1:** Isolated drain site metastasis after laparoscopic radical distal pancreatectomy.

## Discussion

Since 2007, under our own strict selection criteria, so called Yonsei Criteria [6-8], we have applied minimally invasive radical distal pancreatectomy in left-sided pancreatic cancer. Our institutional experiences of radical distal pancreatectomy for pancreatic cancer suggested that bloodless and margin negative resection was identified to be independent prognostic factors for left-sided pancreatic cancer [9]. On preoperative CT scan, following tumor characteristics will be appropriate for bloodless and margin-negative minimally invasive distal pancreatectomy; 1) pancreas-confining tumor, 2) intact fascia layer between left-sided pancreas and left adrenal gland and kidney, and 3) tumor at least 1-2cm apart from celiac axis (origin of the splenic artery) [10]. Recently, it was reported that minimally invasive radical distal pancreatectomy for pancreatic cancer within Yonsei Criteria resulted in very excellent oncologic outcomes [1]. Although our Yonsei Criteria needs for external validation, it seems to provide the insight for decision-making in treating left-sided pancreatic cancer [11].

With the increasing clinical practices of minimally invasive radical surgery in clinical oncology, skin metastases are not uncommonly reported. Especially, skin metastasis from gallbladder cancer and colon cancer after laparoscopic minimally invasive surgery were often reported [12,13]. However, as far as authors' knowledge, the present case of isolated drain site metastases from pancreatic cancer following laparoscopic radical distal pancreatectomy is the first report in far advanced laparoscopic era.

When reviewing the literatures [5,14], cutaneous metastasis after radical pancreatectomy for left-sided pancreatic cancer was frequent, and almost all cases were noted to be associated with disseminated disease. Although there were no evidences of multiple systemic metastases, our patient needed for close observation and additional systemic chemotherapy. In fact, the patient refused additional systemic chemotherapy. During follow up, she was found to have

multiple peritoneal seeding 4 months after excisional biopsy for cutaneous lesion.

Regarding mechanisms of cutaneous metastasis after minimally invasive radical pancreatectomy for left-sided pancreatic cancer, several issues can be taken into consideration. First, EUS-FNAB associated peritoneal resected pancreatic seeding is concerned. Although it is known that preoperative EUS-FNAB does not impair survival of patients with cancer [15], there are several reports on needle tract, perigastric and peritoneal seeding after EUS-guided fine needle aspiration biopsy in pancreatic cancer [16-18]. Second, according to the pathological examination, cancer cells were found to invade to peripancreatic soft tissue (pT3), which might be very vulnerable for shedding during laparoscopic mobilization of resected left-sided pancreas. Third, adverse impact of tumor biology itself needs to be taken into consideration. For example, previous our study correlating  $SUV_{max}$  determined based on preoperative PET-CT and SMAD4 expression, high  $SUV_{max}$  value was found to be closely related to the loss of SMAD4, suggesting systemic metastasis [19].

According to our experiences of minimally invasive approach to well selected left sided pancreatic cancer, oncologic outcome was very excellent, however, the present case is again giving a fundamental lesson that pancreatic surgeon should be alert to isolated drain site recurrence of the pancreatic cancer. Careful wound inspection and physical examination will facilitate early detection of cutaneous metastasis, which might be associated with disseminated tumor conditions. In addition, it has been reported that FOLFIRINOX and nab-paclitaxel are very effective in systemic pancreatic cancer [20]. Additional aggressive chemotherapy may be only chance for improving survival outcome for this patient.

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