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## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)Spontaneous regression of pancreatic cancer: A case report and literature review<sup>☆</sup>Ken Min Chin<sup>a</sup>, Chung Yip Chan<sup>b,c,d</sup>, Ser Yee Lee<sup>b,c,d,\*</sup><sup>a</sup> Yong Loo Lin School of Medicine, National University of Singapore, Singapore General Hospital, Hospital Drive 1, S169608, Singapore<sup>b</sup> Department of General Surgery, Singapore General Hospital, Singapore General Hospital, Hospital Drive 1, S169608, Singapore<sup>c</sup> Department of Hepatopancreatobiliary and Transplant Surgery, Singapore General Hospital, Singapore General Hospital, Hospital Drive 1, S169608, Singapore<sup>d</sup> Duke-National University of Singapore (NUS), Medical School Singapore, 8 College Road, S169857, Singapore

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## ABSTRACT

**INTRODUCTION:** Spontaneous regression of cancer is defined as the partial or complete disappearance of malignant disease without treatment, or in the presence of therapy that is deemed inadequate to exert an influence on malignant disease, as composed by Tilden Everson and Warren Cole in the 1960s. It has been a topic of major interest in the field of medical and surgical oncology. It is poorly understood and scantily documented. Factors associated and postulated pathogeneses are at best, hypothetical.

**PRESENTATION OF CASE:** We report a case of spontaneous resolution of a head of pancreas carcinoma in a 77-year-old gentleman after a myocardial infarction event delayed planned surgery.

**DISCUSSION:** A literature review of previously reported cases of spontaneous regression of pancreatic cancer was performed. The possible predisposing factors to spontaneous regression of pancreatic and other forms of malignancies was reviewed.

**CONCLUSION:** This is a novel case of spontaneous regression of pancreatic carcinoma after an episode of myocardial infarction. The pathophysiology to spontaneous resolution of cancer is not well understood, may be multifactorial and requires further study

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## 1. Introduction

Spontaneous regression of cancer is an extremely rare occurrence with reports estimating a rate of once in every 60,000–100,000 victims of cancer [1]. Certain cancers have seen a higher rate of regression such as in malignant melanomas and infant neuroblastomas where rates of spontaneous regression have been estimated at 1 in 400 and 1 in 6 respectively [2]. Cancers of intra-abdominal organs exhibit a much lower rate of spontaneous regression. Spontaneous regression of pancreatic cancer is among the rarest of occurrences with only 5 previous cases reported to date [3,4].

Frequent and well-known associations of spontaneous cancer regression involve concomitant infection [5–8], febrile episodes [5] and hormonal influences [9]. This report documents a case of spontaneous regression of head of pancreas carcinoma in a patient who developed an interval episode of non-ST elevated myocardial

infarction (NSTEMI). This case report was written in line with the SCARE checklist [10].

## 2. Case report

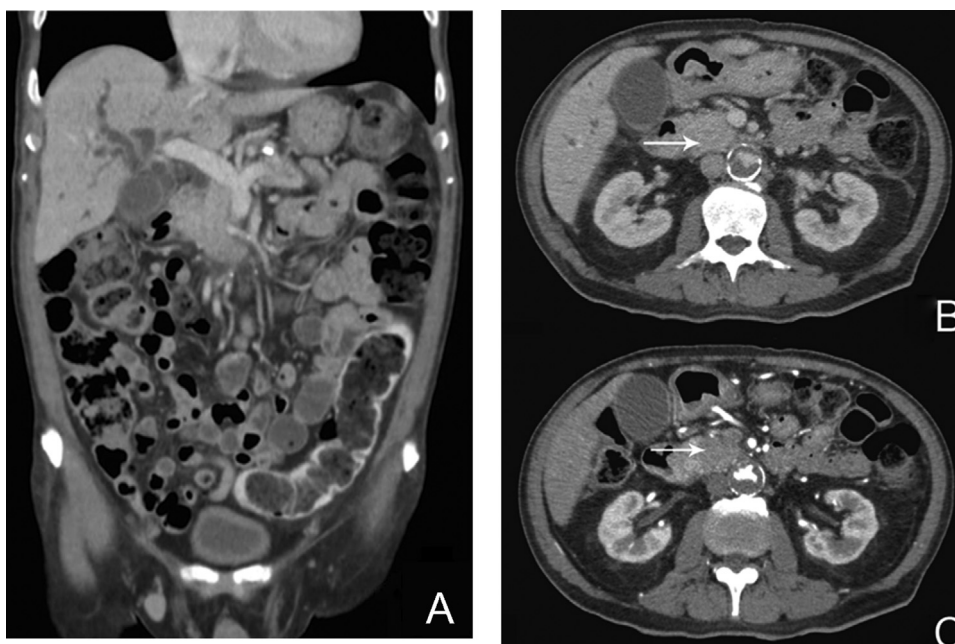
A 77-year-old gentleman presented in January 2015 with a 2-week history of jaundice, pruritus, bruising, tea-coloured urine, unintentional weight loss of 13 kg over the past year and a loss of appetite. Physical examination revealed scleral icterus and a right hypochondriac mass palpable approximately 2–3 cm inferior to the left costal margin.

Liver function test (LFT) revealed elevated total serum bilirubin 131  $\mu\text{mol/l}$ , alanine transaminase (ALT) 300 U/L, aspartate transaminase (AST) 217 U/L and alkaline phosphatase (ALP) 964 U/L. Carbohydrate antigen 19-9 (CA19-9) was elevated at 227 U/ml. Computer Tomography of the abdomen and pelvis (CTAP) revealed marked dilatation of the intrahepatic and common bile ducts with an abrupt cutoff proximal to a 4.0  $\times$  4.4 cm ill-defined hypovascular mass in the pancreatic head (Fig. 1A–C – white arrows). Based on clinical presentation and radiological findings, a multidisciplinary tumor conference consensus was that this as a resectable head of pancreas (HOP) adenocarcinoma. The patient was counselled for

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**Fig. 1.** A: Computer Tomographic scan (coronal plane) of the abdomen at time of diagnosis. B/C: Fig. 1B and 1C shows the venous and arterial phases of the Computer Tomographic scan (axial plane) of the abdomen at time of diagnosis respectively. White arrows demarcate the 4.0 × 4.4 cm ill-defined hypovascular mass in the pancreatic head.

endoscopic ultrasound and biopsy but opted for pancreaticoduodenectomy upfront.

Pre-operative anaesthetic evaluation revealed a carotid bruit. Carotid artery duplex scan revealed 70% stenosis bilaterally for which he underwent a left carotid endarterectomy, as recommended by the anesthetist and vascular surgeon. Unfortunately, post-procedure, he suffered an episode of non-ST elevated myocardial infarction (NSTEMI) complicated by pulmonary edema. The pancreaticoduodenectomy was thus postponed and the patient discharged 3 weeks later. The pancreaticoduodenectomy was scheduled to take place a few weeks post-discharge. However, in the span of 4 weeks between the diagnosis of the HOP carcinoma and hospital discharge, the patient’s LFT unexpectedly improved (Table 1), and eventually normalized without biliary decompression over the next 4 months. His CA19-9 levels were down-trending and normalized within the next 2 months. He regained his appetite and gained weight. A CTAP scan 4 months after initial diagnosis revealed that the intrahepatic and common bile duct biliary dilatation previously observed had resolved and the previously noted HOP tumor was no longer identified (Fig. 2A and B). The Position Emission Tomography-Computer Tomography (PET-CT) scan revealed an absence of any appreciable fluorodeoxyglucose (FDG) avid focus in the pancreas (Fig. 2C). These findings were reviewed and agreed upon at Hepatopancreatobiliary multidisciplinary tumor conference.

In view of the above events, and after discussion with the patient, pancreaticoduodenectomy was held off. Two consecutive CTAP scans 4 months and 10 months from the initial positive scan

were normal. Since January 2015, he has been on 6-monthly follow up with LFT and CA19-9 blood tests each time which have all been normal. His last follow-up was in May 2016 with normal blood test results.

### 3. Discussion

Also known as ‘Saint Peregrine tumor’ [11], spontaneously regressing cancers occur in only approximately 0.00001–0.000016% of all types of cancers [7], but this phenomenon has been extensively reported in the medical literature as early as 1742 [11]. It is reported that almost all types of malignant tumors have been shown to regress spontaneously. This includes both the primary tumor and metastases, with the latter occurring more frequently [12]. Spontaneous regression of pancreatic cancer is especially rare as compared to other types of malignancies such as melanomas, infant neuroblastomas and testicular germ cell tumors that regress with a known and predictable frequency [2,12].

To date, there have only been 4 other reports of spontaneous regression of pancreatic carcinoma (Table 2) [3,4]. One case documents a lady presenting with jaundice and right hypochondriac pain. She was diagnosed with cholangitis secondary to head of pancreas carcinoma on exploratory laparotomy and biopsy. The cancer was deemed inoperable and she was discharged to home care. She remained in good health and died 7 years later from a pulmonary embolism. An autopsy performed revealed no trace of any pancreatic tumor [3,4]. Another case involves a gentleman

**Table 1**  
LFT trending during the 4 weeks between diagnosis of HOP carcinoma and hospital discharge.

Date	5/1/15	8/1/15	9/1/15	12/1/15	15/1/15	18/1/15	19/1/15	22/1/15	23/1/15	24/1/15	25/2/15	26/1/15
Albumin (g/dL)	32	31	23	21	24	21	22	22	25	22	22	22
Bilirubin (umol/L)	131	148	178	154	171	91	79	58	60	56	43	41
AST (U/ml)	217	285	332	310	476	270	140	43	65	86	63	42
ALT (U/ml)	300	290	276	247	343	250	164	58	56	45	41	38
ALP (U/ml)	964	1128	1009	1099	1365	1090	989	605	611	485	417	237
GGT (U/ml)	Not performed	Not performed	849	697	865	760	700	406	432		282	

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