# Inflammatory myofibroblastic tumor of the pancreas – a case report

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**SUMMARY** **Inflammatory myofibroblastic tumor (IMT) of the pancreas is an uncommon tumor with occasional recurrences and rare malignant transformation. We experienced a case of IMT in the body of the pancreas. The patient had no particular symptoms. Dynamic computed tomography revealed a 19-mm lesion in the body of the pancreas. Results: The patient underwent distal pancreatectomy, and has remained in good condition without recurrence for 3 years. Preoperative diagnosis of IMT is difficult due to its rarity and the lack of specific findings. Although the prognosis is better than that for pancreatic carcinoma, long-term follow-up is mandatory.**

***Key Words:*** Pancreas, cancer, resection

## Introduction

Inflammatory myofibroblastic tumor (IMT), proposed by Pettinato *et al*. (*1*), is a rare pathologic entity. IMT is a mass lesion consisting of myofibroblastic spindle cells and plasma cells with inflammatory proliferation (*2*). IMT recurs locally, manifests systemic symptoms, and rarely undergoes malignant transformation (*3*). An inflammatory cell response to infection (*4,5*), trauma, or surgery and immunologic response (*6-8*) are proposed to cause IMT, but the pathogenesis is not clear. IMT most commonly occurs in the lungs followed by lymph node, spleen, liver, heart, orbit, gastrointestinal tract, soft tissue, and bladder (*3,6,9,10*). We report a case of pancreatic IMT.

## Case Report

A 65-year-old man was diagnosed with bladder cancer and underwent transurethral resection of the bladder tumor in 1992. In 2002, a hypoechoic mass in the body of the pancreas was detected in a routine follow-up by ultrasonography examination. He had no particular symptoms. A complete laboratory profile, including the tumor markers carcinoembryonic antigen, cancer antigen 19-9, sialylated carbohydrate antigen (DUPAN-2), and human pancreatic cancer-associated antigen (Span-1), was normal and physical examination was unremarkable.

Abdominal ultrasonography and endoscopic ultrasonography showed a poorly demarcated 2 × 2 cm hypoechoic lesion in the body of the pancreas close to the main pancreatic duct containing several hyperechoic spots. The main pancreatic duct was not dilated. Dynamic computed tomography (CT) showed a 19-mm lesion in the body of the pancreas. Before contrast agent administration, the mass was observed as an iso- dense area. In early - phase contrast CT, the tumor was not enhanced and had a hypo-dense pattern. In late-phase contrast CT, the tumor appeared as an iso- dense mass. Magnetic resonance imaging revealed a low intensity mass in T1 and T2 weighted images, and in dynamic study, the mass appeared as a low intensity mass in the early phase and a high intensity mass in the late phase. Endoscopic retrograde cholangiopancreaticography and celiac angiography revealed no abnormal findings.

Distal pancreatectomy with splenectomy was performed without systemic lymph node dissection. Macroscopically, the tumor was a 2.0 × 1.8 × 1.5 cm mass, poorly demarcated from the normal pancreatic parenchyma. The pancreatic duct was intact and the tumor was as an elastic, hard, solid mass with a yellowish and whitish cut surface (Figure 1). Microscopically, the tumor was fibroblastic and slightly myxoid with moderate infiltration of plasma cells,

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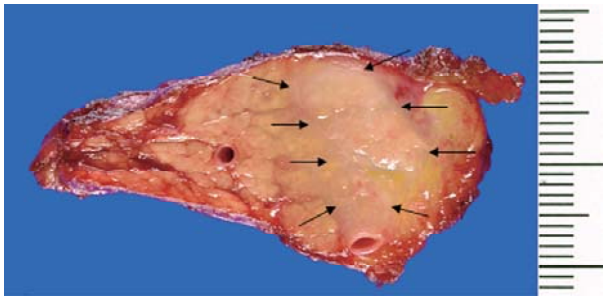

**Figure 1.** Cut surface of the specimen. Arrows indicate the outline of the tumor. The pathologic finding of pancreas without tumor was free from inflammatory changes.

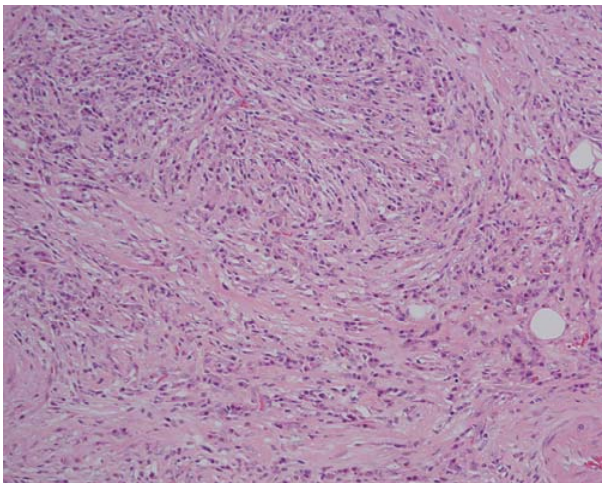

**Figure 2.** Microscopic view of the lesion. Note the increased number of fibromyoblastic cells and moderate infiltration of small round cells.

which are lymphocytes without atypical features. Some of the exocrine and endocrine system remained (Figure 2). Spindle cells were immunohistochemically positive for vimentin and smooth muscle actin (1A-4) and negative for desmin and CD34. The lesion contained small round cells and some were positive for kappa chain and others were positive for lambda chain. Monoclonality was not observed. The estimated MIB1 index of the small round cells was 5%. The patient remains in good condition without recurrence 3 years after the operation.

## Discussion

Although in the presented case a mass lesion was noticed incidentally during routine examination, most patients with pancreatic IMT present with variable signs and symptoms, including abdominal pain (45%), jaundice (45%), weight loss (24%), and abdominal mass (21%) (*11*,*12*). Laboratory findings are variable and non-specific or normal, such as in the present case.

The most typical finding of IMT in diagnostic imaging is a mass lesion without specific findings. Therefore IMT is easily diagnosed as pancreatic cancer. A possible explanation for these misdiagnoses is the low incidence of IMT in the pancreas, the low index of clinical suspicion, the similarity to malignant neoplasm on radiologic examination, and the variability in the histologic appearance of IMT. Fine needle aspiration biopsy or frozen section is of little help for diagnosis (*11*) due to the overwhelming inflammatory infiltration of the lesion.

No previous reports have mentioned positive lymph nodes on pathologic examination. Based on the generally benign behavior of the tumor and the lack of positive swollen lymph nodes in any of the reports, including our experience, additional lymph node dissection is unnecessary. Although IMT has the potential for local recurrence, there are only rare reports of locally aggressive or malignant lesions with distant metastases (*9*,*13*). Those were likely related to factors precluding complete resection, such as adherence to vital strictures and multifocality (*9*), or were connected with some histologic similarities of certain other more aggressive neoplasms (*i.e.* inflammatory fibrosarcoma) even in patients whom received complete resection (*3*,*11*).

In summary, we report a case of pancreatic IMT. Preoperative diagnosis of IMT was difficult due to its rarity and the lack of specific findings. The first choice of treatment should be surgical excision of the tumor as well as excision of detected nodules in the area of the main tumor. Although the prognosis is better than for pancreatic carcinoma, long-term follow-up is mandatory.

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