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Shark-Mouth Pancreaticojejunostomy with Jejunal Blind Loop and Side-to-Side Jejunal Anastomosis Following Pancreaticoduodenectomy: A Reappraisal of the Blind Loop

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1. Abstract

Desmoid fibromatosis is a rare mesenchymal tumor arising from the proliferation of fibroblasts, characterized by local invasiveness and a propensity for recurrence, but it generally does not metastasize distantly. Moreover, it has a high rate of postoperative recurrence. Therefore, in recent years, it has been advocated to observe asymptomatic patients. For patients who show progression during the observation period or are at risk of complications such as obstruction, surgery or pharmacological treatment can also serve as secondary therapeutic options [1]. However, precise diagnosis is challenging. We detail a case involving a patient who, two years ago, underwent a pancreaticoduodenectomy due to a pancreatic tumor. Upon subsequent follow-up, a solid mass was discovered adjacent to the anastomotic site in the upper abdomen, accompanied by symptoms such as abdominal distension and discomfort. Imaging studies, including magnetic resonance imaging (MRI) and positron emission tomography (PET), failed to definitively ascertain the nature of the mass. Capitalizing on the preserved jejunal blind loop from the patient's primary surgery, which employed the "shark mouth" pancreaticojejunostomy technique [2]. We were able to perform an en bloc resection of the tumor while preserving the existing pancreaticojejunal anastomosis. Then proceeded reconstructed the choledochojejunostomy and gastrojejunostomy. Postoperative pathology confirmed the diagnosis of intra-abdominal desmoid fibromatosis. The patient's postoperative course was uncomplicated, with a resolution of symptoms and a smooth recovery leading to discharge from the hospital.

2. Introduction

we presented a case involving a patient who had undergone a pancreaticoduodenectomy for a pancreatic tumor and was later found to have a solid intra-abdominal mass. After surgical excision and immunohistochemical confirmation, the diagnosis was intra-abdominal desmoid fibromatosis (IADF), which is associated with a history of trauma or surgery. However, due to the lack of distinct imaging features, precise preoperative diagnosis is difficult. Thus, we remind everyone once again to consider the possibility of IADF in the differential diagnosis and also re explore the application of the "shark mouth" pancreaticojejunostomy technique. The case highlights the value of innovative surgical techniques like the "shark mouth" anastomosis, which can offer solutions for complex cases and improve patient outcomes.

3. Case Report

A 59-year-old male initially presented to our hospital two years ago following the detection of a pancreatic space-occupying lesion during a routine medical examination. In accordance with the Fukuoka guidelines, we performed apancreaticoduodenectomy with a "shark mouth" pancreaticojejunostomy technique. The postoperative recovery was uneventful, and pathology indicated high-grade dysplasia. Consequently, the patient was placed under regular surveillance without adjuvant therapy. Two months prior, the patient returned with discomfort and postprandial abdominal distention due to the discovery of a solid upper abdominal mass. Radiological examination via enhanced CT delineated a solid soft tissue mass with a density anterior to the portal vein and inferior vena cava, measuring approximately 66 mm, with distinct boundaries. Moderate enhancement was observed during the arterial phase. Magnetic resonance imaging (MRI) revealed the tumor to have isointense signal characteristics on T1-weighted and T2-weighted imaging, with arterial phase enhancement of the lesion's periphery and heterogeneous, mild enhancement within the lesion's interior. A subsequent positron emission tomography-computed tomography (PET-CT) scan demonstrated increased metabolic activity within the mass, with indistinct demarcation from the adjacent small intestine,

further complicating the determination of the mass's specific nature Figure 1. Given the substantial size of the mass and the potential for complications such as intestinal obstruction, surgical intervention was deemed necessary. Intraoperative exploration revealed the mass to be in close proximity to the choledochojejunal anastomosis and intimately associated with the jejunal mesentery. After resection, the local blood supply to the jejunum was compromised, necessitating the dismantling and reconstruction of the original choledochojejunal anastomosis. When addressing the pancreaticojejunostomy, we capitalized on the preserved blind loop from the initial "shark mouth" anastomosis, preserving the pancreaticojejunal continuity and performing an enteroenterostomy. Postoperative pathology reported intra-abdominal desmoid fibromatosis with negative surgical margins on microscopy, indicating a lower risk of postoperative recurrence and no need for subsequent adjuvant therapy. The patient had a smooth recovery, with no complications such as pancreatic fistula or bile leakage, and was discharged 10 days postoperatively.

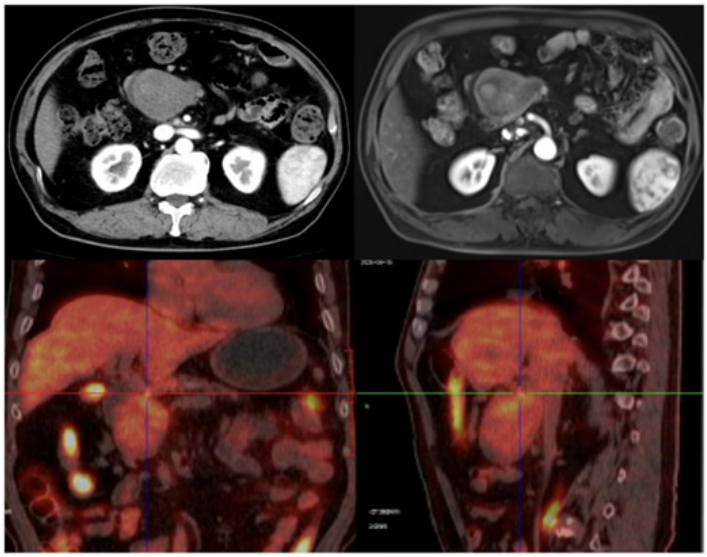

Figure 1: Radiographic Evaluation.

4. Discussion

Precision in preoperative diagnosis is hampered by the indeterminate imaging characteristics of intra-abdominal desmoid fibromatosis (IADF). Initially, the differential diagnosis must entertain the possibility of tumor recurrence or metastasis. Despite preliminary exclusion of such events following enhanced abdominal computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography-computed tomography (PET-CT), the diagnosis of gastrointestinal stromal tumors (GIST) remains a consideration. The tumor's large size and intimate association with the jejunal mesentery near the choledochojejunal anastomosis, characteristic of the locally invasive growth of intra-abdominal desmoid fibromatosis (IADF), necessitated the dismantling and reconstruction of the original anastomosis after complete tumor resection, which affected the jejunal blood supply.

The complexity of re-anastomosis after pancreaticojejunal anastomosis is well recognized, with the associated risk of pancreatic fistula. Total pancreatectomy is often the surgical approach of choice today, despite the increased risk of postoperative complications due to endocrine and exocrine dysfunction, particularly in non-malignant tumors. The "shark mouth" pancreaticojejunostomy technique, utilized in the initial surgery, provided a unique advantage. The preserved jejunal blind loop allowed for an enteroenterostomy without the need for reconstructing the pancreaticojejunal anastomosis or performing a total pancreatectomy. This preserved pancreatic function and avoided the risk of anastomotic pancreatic fistula, enhancing surgical safety, organ preservation, and perioperative recovery. Consequently, the patient was discharged without significant complications approximately 9 days post-surgery. This case illustrates the innovative application of the "shark mouth" pancreaticojejunostomy, which not only reduces the risk of pancreatic fistulas and improves surgical safety in the initial procedure but also offers a solution for gastrointestinal tract reconstruction in subsequent abdominal surgeries where similar challenges arise.

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