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**Solid Pseudo papillary Neoplasm of the Pancreas (Frantz Tumor) in
a 19-Year-Old Female: A Case Report**



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Solid Pseudo Papillary Neoplasm of the Pancreas (Frantz Tumor) in a 19-Year-Old Female: A Case Report



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Abstract

We report the case of a 19-year-old female who presented with a one-month history of epigastric pain, nausea and occasional vomiting. Contrast-enhanced computed tomography demonstrated a characteristic solid-cystic mass in the pancreatic head suggestive of solid pseudo papillary neoplasm (SPN) of the pancreas. The patient underwent open pancreatoduodenectomy (Whipple procedure). Histopathology confirmed a low-grade SPN with clear margins. Postoperative complications, including pancreatic fistula, acute pancreatitis and pleural effusion, were successfully managed. This case illustrates that complete surgical resection remains curative for SPN, with manageable complications and excellent long-term survival.

Keywords: *Solid Pseudo Papillary Neoplasm, Frantz Tumor, Pancreatic Head, Whipple Procedure, Pancreatic Fistula, Pancreatic Exocrine Insufficiency*

Introduction:

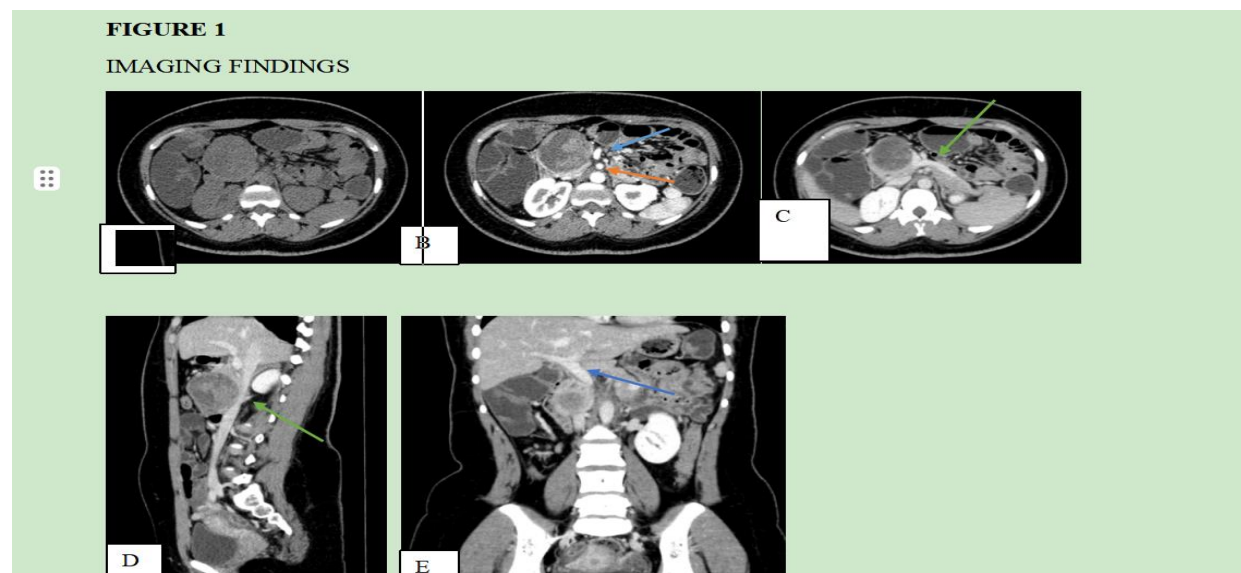
Solid pseudo papillary neoplasm (SPN) of the pancreas, also known as Frantz tumor, is a rare neoplasm accounting for 1–3% of all pancreatic tumors.[1] It has a striking female predilection (female-to-male ratio approximately 10:1) and typically occurs in young women in their 20s and 30s, although it can present in adolescents and children.[1, 2] The pathogenesis remains unclear. Although most SPNs arise in the body or tail of the pancreas (approximately 60% of cases), lesions in the pancreatic head are well documented, particularly in older patients within the typical age range.[3] SPNs are low-grade malignancies with an excellent prognosis following complete surgical resection. Various historical terms have been used, including solid and cystic tumor, papillary-cystic tumor and solid pseudo papillary epithelial neoplasm.[4] Surgical resection (pancreaticoduodenectomy for head lesions, distal pancreatectomy for body/tail lesions, or enucleation for small, well-circumscribed tumors) remains the cornerstone of treatment and is considered curative in the vast majority of cases.[1, 5]

Case presentation:

A 19-year-old previously healthy female presented with a one-month history of acute-onset, persistent epigastric pain radiating to the back. The pain was constant and only partially relieved by analgesics; it showed no improvement with proton-pump inhibitors or dietary modifications. Associated symptoms included nausea and occasional non-bilious vomiting. She also reported retrosternal chest pain but denied fever, dysphagia or weight loss. Intermittent constipation was noted without steatorrhea or loose, foul-smelling stools. There was no history of trauma, gallstones, or prior pancreatitis but had history of short term alcohol use. Serum amylase and lipase were within normal limits at presentation.

On physical examination, the patient was well-nourished, afebrile and had anicteric sclera. Abdominal examination revealed a soft, non-tender abdomen of normal contour with no palpable mass or organomegaly. Upper gastrointestinal endoscopy showed a few superficial mucosal erosions in the gastric antrum and a small, non-obstructing bulge in the antral wall. She was initially treated with proton-pump inhibitors and lifestyle modifications, but symptoms remained largely unchanged.

Abdominal ultrasonography revealed a mass in the pancreatic head without intrahepatic biliary dilatation. Contrast-enhanced computed tomography (CECT) of the abdomen demonstrated a well-circumscribed, heterogeneous solid-cystic mass arising from the pancreatic head, measuring $6.8 \times 5.2 \times 6.6$ cm (**Figure 1**). There was no main pancreatic duct or common bile duct dilatation, no vascular invasion, no loco-regional lymphadenopathy and no duodenal obstruction. The radiological diagnosis was solid pseudo papillary neoplasm of the pancreas.

Figure 1:

Findings: *Images A, B, and C* are axial pre-contrast, arterial phase, and venous phase abdominal CTs, respectively, and *Images D and E* are sagittal and coronal venous phases, respectively, showing a well-defined heterogeneous (mixed cystic and solid) mass in the pancreatic head with enhancing solid components.

There is no contact of the mass with the Superior mesenteric artery (*Orange arrow, Image B*) or celiac trunk (*Blue arrow, Image B*) and their branches, and the Aorta is normal.

There is a $<180^\circ$ abutment of the IVC without encasement or invasion or vessel wall irregularity, with mild narrowing of the IVC (*Green arrow, Image D*).

The portal vein is patent with no narrowing or thrombosis. (*Blue arrow, Image E*).

The splenic, SMV, and renal vessels are normal. (*Green arrow, Image C, The portal confluence*)

Laboratory investigations were otherwise unremarkable: urea and electrolytes normal, HbA1c non-diabetic, CA19-9 2.93 U/mL (normal), CEA 0.952 ng/mL (normal) and carbonic anhydrase levels within reference range. Multidisciplinary review by radiologists and hepatopancreatobiliary surgeons recommended pancreaticoduodenectomy (Whipple procedure). After counselling, the patient consented to surgery. Intraoperatively, the pancreatic parenchyma was soft with a very small main pancreatic duct; therefore, a dunking (invagination) Pancreaticojejunostomy was performed rather than duct-to-mucosa anastomosis. The resected gross specimen is shown in **Figure 2** below.



Histopathology and immunohistochemistry confirmed a low-grade solid pseudo papillary epithelial neoplasm (SPEN/SPN) with clear resection margins and ten lymph nodes negative for malignancy (Figure 3)

HISTOPATHOLOGY

CASE SUMMARY

: 25MLH46588

: Whipple's surgery

: Solid Pseudopapillary Epithelial Neoplasm (SPEN) +
IHC

All resection margins, lymphnodes free of tumor.

Adjacent gastric, duodenum, pancreas unremarkable.

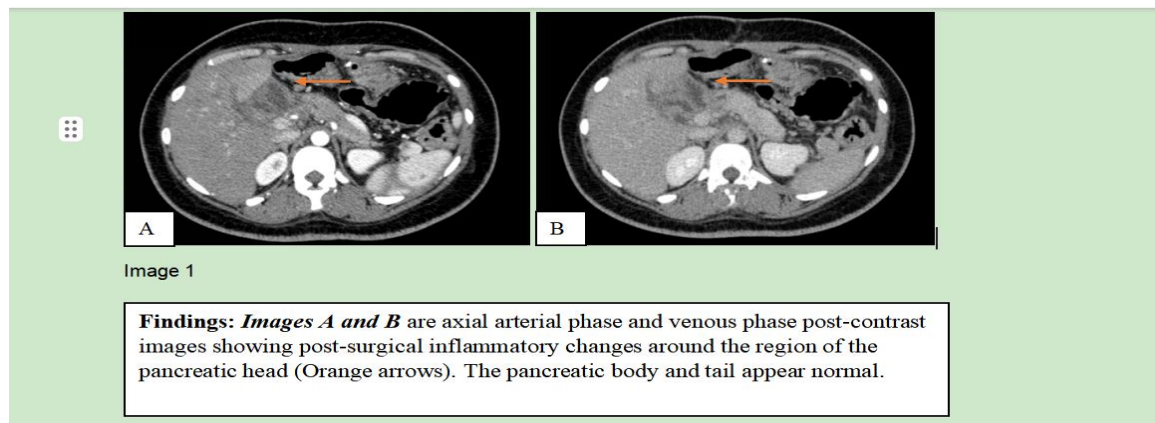
Path stage : pT3 N0

On IHC :

- CD99 : Positive
- Vimentin : Positive
- B-catenin : Positive
- CD10 : Positive
- Synaptophysin : Negative
- Chromogranin : Negative
- PR : Positive

Postoperatively, the patient developed severe acute pancreatitis on POD 2, a grade B postoperative pancreatic fistula on POD5 and a pleural effusion. Management included percutaneous abdominal and pleural drainage together with optimized supportive care. She gradually improved and was discharged on POD 12. On outpatient follow-up she reported recurrent postprandial abdominal pain. Although serum pancreatic enzymes remained normal, she described moderately loose, oily, burning stools. Pancreatic exocrine insufficiency was diagnosed and treated with pancreatic enzyme replacement therapy. She subsequently developed new-onset diabetes mellitus requiring medical management. At latest follow-up she remains clinically stable with no evidence of residual disease or intra-abdominal collections on surveillance imaging.

Figure



Discussion:

Solid pseudo papillary neoplasm is a rare but well-recognized pancreatic tumor with low malignant potential.[1, 6] Despite advances in imaging, preoperative diagnosis can still be challenging, and many cases are initially managed as other cystic or solid pancreatic lesions.[7] Tumour markers (CEA, CA19-9, AFP, CA125) are usually normal or only mildly elevated and are not diagnostic.[8] Characteristic imaging features—well-circumscribed, encapsulated solid-cystic mass with peripheral enhancement—raise suspicion, but definitive diagnosis requires histopathological examination.[9]

It was first described by Virginia Frantz in 1959.[10] Complete surgical resection with negative margins is the gold-standard treatment regardless of tumor size or location and offers a cure rate exceeding 95% for localized disease.[1, 11] In this case, the pancreatic head location necessitated a Whipple procedure. The decision to perform a dunking Pancreaticojejunostomy was dictated by the soft pancreatic texture and tiny duct, a common technical adaptation in young patients to reduce the risk of pancreatic fistula.[11]

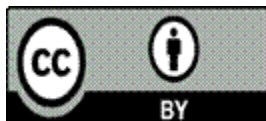
Postoperative complications such as pancreatic fistula, pancreatitis and pleural effusion are recognized after pancreaticoduodenectomy and were successfully managed with drainage and supportive care in this patient.[5] Long-term sequelae—exocrine and endocrine pancreatic

insufficiency—highlight the functional consequences of resection even when oncological outcome is excellent. Regular follow-up with imaging and clinical assessment is essential, although recurrence after R0 resection is rare.[1]

This case underscores the importance of including SPN in the differential diagnosis of solid-cystic pancreatic masses in young females and reinforces that radical resection remains both therapeutic and diagnostic.[12]

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