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Central pancreatectomy for solid pseudopapillary neoplasm: A pancreatic-preserving procedure

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ABSTRACT

INTRODUCTION AND IMPORTANCE: Solid pseudopapillary neoplasm (SPN) is a rare pancreatic disorder that usually affects young women with no or nonspecific clinical manifestation. It accounts for approximately 1% of pancreatic neoplasms. The incidence of SPN is increasing, owing to improved imaging techniques and better recognition of this entity. Although most patients with SPNs have a favorable prognosis after radical resection, local recurrence or metastasis still occurs after surgery.
CASE PRESENTATION: We present a 15-year-old female with a small solid pseudopapillary neoplasm in the Pancreas' proximal body. The patient presented with nonspecific symptoms and was diagnosed incidentally.
CLINICAL DISCUSSION: The patient underwent a central pancreatectomy and was discharged on the fifth postoperative day without complications. Central pancreatectomy may prevent devastating complications of pancreaticoduodenectomy surgery.
CONCLUSION: As SPN is a rare entity of pancreatic tumors, the surgical options for management are still debated. The respect for surgery should account for the tumor site and size. Also, life expectancy and surgical complications for each choice should be considered. In localized disease, segmental resection may prevent devastating complications of radical resection.

1. Introduction

Solid pseudopapillary neoplasm (SPN) is a rare pancreatic disorder that mostly affects young women. It accounts for approximately 1% of pancreatic neoplasms. The incidence of SPN is increasing, owing to improved imaging techniques and better recognition of this entity. Although most patients with SPNs have a favorable prognosis after radical resection, local recurrence or metastasis still occurs after surgery [1,2]. In this study, we present a case of SPN, which was managed by simple segmental central pancreatectomy. This work has been reported in line with the SCARE 2020 criteria [3].

2. Case presentation

A fifteen-year-old female patient, previously healthy, presented to the department with a three-year-history of vague abdominal pain radiating to the back; the pain was in moderate severity, not related to any food, sometimes associated with nausea. She also complained of constipation with one bowel motions per week. There was no history of neither anorexia nor weight loss. She was not a smoker. Further, no family history of the same condition was documented, and she was not on any medications. Physical examination was unremarkable, with a soft and lax abdomen and no organomegaly. She had an abdominal ultrasound and underwent upper endoscopy without significant pathology.

Abdomen Computed Tomography (CT) scan showed an ill-defined rounded hypodense lesion at the head of the Pancreas measuring 9 mm. Abdominal Magnetic Resonance Imaging (MRI) showed a mass in the Pancreas' proximal body measuring 9 mm in largest diameter without evidence of liver metastasis (Fig. 1). Biochemical markers were normal, and tumor markers were all

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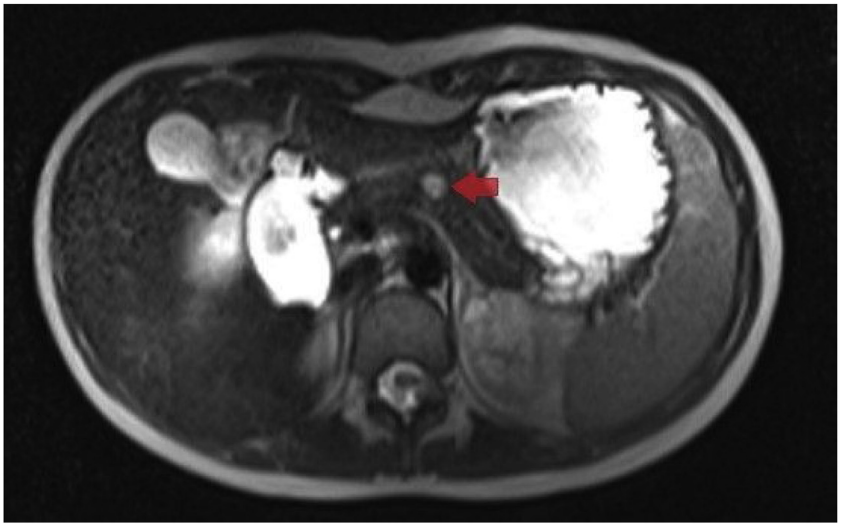

Fig. 1. Solid pseudopapillary tumor in the proximal body of the Pancreas (the red arrow).

negative. To show the exact pathology of the mass, endoscopic ultrasonography (EUS) with a biopsy was used. The histopathological revealed a probability of a pseudopapillary tumor.

Surgery was arranged for the patient with the aim of segmental central pancreatectomy; a hepatobiliary pancreatic surgery consultant, who has a 20-year-experience in pancreatic surgery, did the operation. A left subcostal incision was made, and an opening of the abdominal wall in layers was done, followed by opening the lesser bursa, identification, dissection around the central Pancreas, and finally excising the central part of the Pancreas. Primary closure of proximal pancreatic stump, creation of Roux-en-Y pancreatojejunostomy through retro colic approach, and placement of a drain at the pancreatic bed. There were no intraoperative complications.

The histopathology report showed a solid pseudopapillary tumor that was completely excised. The drain was removed after five days, and the patient was discharged without any complications. In the outpatient clinic, the patient was seen one weak, one month, and three months later. No evidence of fever, abdominal pain, or vomiting, indicating signs of a leak or intestinal obstruction, were documented by the patient, and she was doing fine during the follow-up period.

3. Discussion

Frantz first reported SPN of the Pancreas in 1959. Further specification by Hamoudi led to mark it as a separate clinicopathological entity [4]. It is an uncommon condition, mostly in females (90%), and 85% of them are under 30-years old, with a median age of 26. Usually small, measuring 2–17 cm, and is well-demarcated and rounded on macroscopic examination. The tumor is of unclear histogenetic origin of a relatively benign behavior; it is estimated as a low-grade malignant papillary-cystic neoplasm of the Pancreas, and may occur anywhere in the Pancreas [1]. SPNs can present with various symptoms, including abdominal pain, jaundice, a palpable mass, or symptoms of acute pancreatitis. However, due to its slow growth, SPN often remains asymptomatic until the tumor has enlarged considerably [2].

CT is the most frequently useful method for diagnosing SPN; it usually shows the presence of a heterogeneously enhanced solid and cystic mass. However, MRI is better than CT in differentiating the cystic or solid component inside the tumor and providing information about respectability [5]. EUS-guided Fine Needle Aspiration (FNA) or core biopsy is often diagnostic, showing uniform cells forming microadenoid structures, branching, and papillary clusters with delicate fibrovascular cores [2].

The aim of surgery in SPN should be complete (R0) resection. However, the clinical outcome solely depends on the surgical procedure itself rather than on the tumor characteristics. Principally, SPN management is Pancreaticoduodenectomy, which is performed for pancreatic head lesions, and distal pancreatectomy for tails lesion. In contrast, segmental or central resection is recommended for localized body or neck lesions. Inoculation can be done for localized disease. Common complications in all types of procedures included pancreatitis, pancreatic leak, fistula, pseudocyst, and persistent nausea and vomiting [6]. It is essential to understand and compare the prognosis of these surgeries to provide evidence-based guidance for patient expectations and physician follow-up.

Significantly less intraoperative bleeding and shorter hospitalization length, however twice higher chances of pancreaticoenteric anastomotic leak were observed with segmental resection than Pancreaticoduodenectomy. Nevertheless, fistulas and leaks were successfully treated conservatively. On follow-up also, a significantly lower number of patients with segmental resection developed new-onset DM or required enzyme substitution postoperatively compared to other procedures [7]. In our case, tumor location in the proximal body and the patient's long life expectancy resulted in a segmental central pancreatectomy being decided to preserve as much pancreatic tissue as possible and avoid iatrogenic splenic injury during distal pancreatectomy, ultimately resulting in doing splenectomy.

Overall 5-year survival approaches 97% in patients undergoing surgical resection. Death ascribed directly to the tumor is rare and long-term survival has been described even in asymptomatic disseminated disease [8]. Tumor rupture and metastasis have been referenced as the most common risk factors for recurrence, but some series have reported recurrences without any risk factors. This is why surgeons should assume that every SPN has malignant potential; however, perineural invasion, angioinvasion, or deep infiltration into the surrounding tissue indicates a tumor with invasive potential. Furthermore, SPN with a diameter of 5 cm or more is associated with a high-grade malignant phenotype [9].

4. Conclusion

As SPN is a rare entity of pancreatic tumors, the surgical options for management are still debated. The respect for surgery should account for the tumor site and size. Also, life expectancy and surgi-

cal complications for each choice should be considered. In localized disease, segmental resection may prevent devastating complications of radical resection.

Declaration of Competing Interest

No conflict of interest.

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Ethical approval

This article is approved by the ethics committee of Jordan University Hospital and IRP of the University of Jordan.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author's contribution

Mohamad Mahseer MD.: writing and editing and reviewing.
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Hala Halbouni MD.: writing and editing.
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Not Applicable.

Guarantor

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