



# Whole Body Fluoro-Deoxy-Glucose Positron Emission Tomography in Pediatric Solid Pseudopapillary Epithelial Neoplasm

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## Abstract

Solid pseudopapillary epithelial neoplasm (SPEN) is a rare pancreatic tumor primarily affecting adolescent girls and young women. While generally indolent, SPEN can exhibit locally aggressive behavior or distant metastases. Accurate preoperative characterization is essential for optimal management.

## Keywords

- ▶ FDG
- ▶ SPEN
- ▶ pancreas
- ▶ PET
- ▶ CBD

## Introduction

Solid pseudopapillary epithelial neoplasm (SPEN) is a rare pancreatic tumor primarily affecting adolescent girls and young women<sup>1,2</sup> with a female-to-male ratio of 9:1. Less than 10% of SPEN cases occur in males, and these cases may present with distinct characteristics, such as being more locally invasive and aggressive compared with female patients.

Imaging plays a crucial role in its diagnosis and management, with conventional modalities like ultrasound, CT, and MRI providing morphological details. However, fluoro-deoxy-glucose (FDG) PET-CT offers additional functional insights by assessing the tumor's metabolic activity.<sup>3</sup> While SPEN typically demonstrates low to moderate FDG uptake, cases with aggressive features may exhibit increased metabolism.<sup>4,5</sup> Here, we present a case highlighting the role of FDG PET-CT in evaluating SPEN, aiding in diagnosis, surgical planning, and disease monitoring.

## Case

A 9-year-old boy presented with complaints of yellowish discoloration of the conjunctiva for the last 3 weeks. There

was a history of intermittent abdominal pain with generalized itching. There was no history of fever, nausea, vomiting, or significant weight loss. There was no history of any other significant medical conditions, abdominal surgeries, or chronic illnesses. There was no known history of similar complaints in the past. The family history was noncontributory.

He was evaluated at a local hospital for the above complaints, with an ultrasound showing a 4.7 cm × 4.5 cm × 3.9 cm well-defined, heterogeneous, predominantly solid echogenic lesion in the pancreatic head, externally indenting the common bile duct (CBD), leading to upstream biliary dilatation.

He was referred for a whole body FDG PET-CT scan, which showed a mildly hypermetabolic (SUV max 2.6), well-defined heterogeneously enhancing soft tissue density lesion in the pancreatic head indenting the ampulla of Vater and CBD with dilatation of the cystic duct and common hepatic duct and bilateral intrahepatic biliary radicular dilatation (▶ **Figs. 1** and **2**).

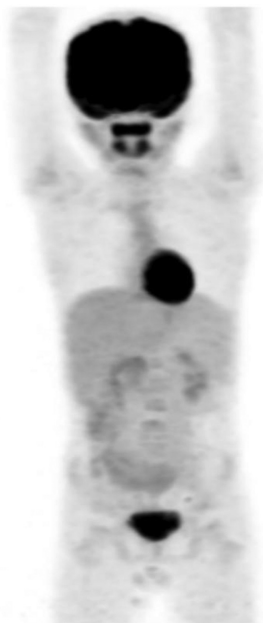
Because of localized disease with no aggressive behavior or distant metastasis, the patient underwent a Whipple's pancreaticoduodenectomy with complete resection of the tumor.

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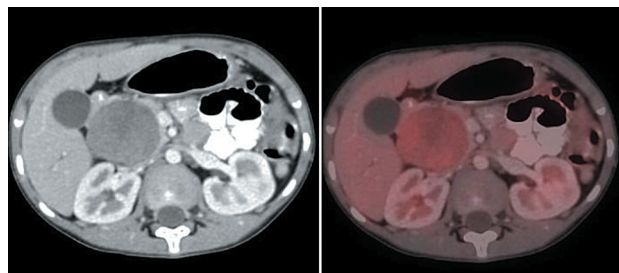
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**Fig. 1** Maximum intensity projection (MIP) image of a 9-year-old boy with a pancreatic tumor showing mild fluoro-deoxy-glucose (FDG) uptake.



**Fig. 2** Showing mild increased FDG uptake in a well-defined pancreatic head mass with a standardized uptake value (SUV max 2.6).

## Discussion

SPEN of the pancreas are rare pancreatic tumors described by the WHO as low-grade malignant tumors. They tend to affect

young women in the second or third decade of life and rarely affect children or men.<sup>6</sup> Due to their indolent nature, SPENs are most frequently discovered incidentally on physical examination or imaging for other reasons. An alternating solid and pseudopapillary architecture is characteristic of these tumors, which makes prompt radiological detection possible. Though SPENs are considered to have a relatively favorable prognosis, they have garnered attention in recent years due to an apparent increase in incidence. This study has also demonstrates a risk of metastasis or recurrence following surgical resection, emphasizing the need for close follow-up postoperatively.<sup>2,5</sup>

## Conclusion

FDG PET-CT serves as a valuable imaging modality in pediatric SPEN, aiding in tumor characterization, treatment planning, and detection of aggressive disease. Further studies are needed to establish standardized metabolic parameters for risk stratification and prognosis.

## Conflict of Interest

None declared.

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