
Accuracy of ^{18}F -FDG PET/CT, Multidetector CT, and MR Imaging in the Diagnosis of Pancreatic Cysts: A Prospective Single-Center Study

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Accurate diagnosis of the nature of pancreatic cysts is challenging but more important than ever, in part because of the increasing number of incidental cystic findings in the pancreas. Preliminary data suggest that ^{18}F -FDG PET/CT may have a significant influence on clinical decision making, although its role is still evolving. Our aim was to prospectively compare the accuracy of combined ^{18}F -FDG PET and contrast-enhanced CT (^{18}F -FDG PET/CT), multidetector CT (MDCT), and MR imaging in differentiating malignant from benign pancreatic cysts. **Methods:** Thirty-one consecutive patients with pancreatic cysts were enrolled in the study. They underwent a protocol including ^{18}F -FDG PET/CT, MDCT, and MR imaging combined with MR cholangiopancreatography, all of which were evaluated in a masked manner. The findings were confirmed macroscopically at surgery or histopathologic analysis ($n = 22$) or at follow-up ($n = 9$). **Results:** Of the 31 patients, 6 had malignant and 25 had benign lesions. The diagnostic accuracy was 94% for ^{18}F -FDG PET/CT, compared with 77% and 87% for MDCT ($P < 0.05$) and MR imaging, respectively. ^{18}F -FDG PET/CT had a negative predictive value of 100% and a positive predictive value of 75% for pancreatic cysts. The maximum standardized uptake value was significantly higher in malignant (7.4 ± 2.6) than in benign lesions (2.4 ± 0.8) ($P < 0.05$). When the maximum standardized uptake value was set at 3.6, the sensitivity and specificity were 100% and 88%, respectively. Furthermore, when compared with MDCT and MR imaging, respectively, ^{18}F -FDG PET/CT altered the clinical management of 5 and 3 patients, respectively. **Conclusion:** ^{18}F -FDG PET/CT is an accurate imaging modality for differentiating between benign and malignant pancreatic cysts. We recommend the use of ^{18}F -FDG PET/CT in the evaluation of diagnostically challenging pancreatic cysts.

Key Words: pancreatic cyst; PET; diagnosis

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The prevalence of incidental findings of pancreatic cystic lesions has increased dramatically during the past few decades thanks to the increased use of cross-sectional imaging methods. A recent study found a 45% prevalence of pancreatic cysts incidentally discovered on MR imaging (1). Because of overlap in the imaging features of various cysts, a fifth of preoperative diagnoses made in a tertiary care center with broad experience in pancreatology were inaccurate (2). Surgical treatment should be considered carefully in asymptomatic patients, in view of the operative mortality rate of 2%–4% and morbidity rate of 40% for pancreatic resection (3). So far, the diagnostics of pancreatic cysts have remained suboptimal, thus hampering clinical decision making.

In the literature, there is no consensus on the role of ^{18}F -FDG PET/CT in the diagnosis of pancreatic cysts. The first time promising results were published on the evaluation of pancreatic cysts by ^{18}F -FDG PET was in 2001, by Sperti et al. (4). Later, the same group showed good results in a group of patients with intraductal papillary mucinous neoplasia (IPMN), with an evaluation accuracy of 95% (5). Since then, various other groups (6–8) have emphasized the role of PET, especially in IPMN, although conflicting results (9) have also been published. The use of ^{18}F -FDG PET/CT has been demonstrated to further improve diagnostic sensitivity, but only one prospective study that includes IPMN lesions has been conducted (10). Moreover, there have been only a few case reports concerning various pancreatic cysts. Prospective studies comparing ^{18}F -FDG PET/CT with multidetector CT (MDCT) and MR imaging are lacking. Our former study (11) on 38 patients with suspected pancreatic cancer included 6 patients with a pancreatic cystic lesion. ^{18}F -FDG PET/CT accurately detected 4 of 5 benign cysts and 1 malignant cyst. In a patient with pancreatitis-related cystic lesions, the finding was false-positive. Encouraged by these results, we decided to prospectively compare ^{18}F -FDG PET/CT, MDCT, and MR imaging in cystic tumors of the pancreas.

The aims of our study were to evaluate which imaging technique is best for assessing pancreatic cystic lesions and what impact ^{18}F -FDG PET/CT has on the clinical management of such patients. Our hypothesis was that ^{18}F -FDG PET combined with contrast-enhanced CT (^{18}F -FDG PET/CT) would be more accurate than contrast-enhanced MDCT or MR imaging alone. We prospectively compared the results of MDCT and MR imaging with those of ^{18}F -FDG PET/CT in a series of 31 patients with a pancreatic cystic lesion.

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MATERIALS AND METHODS

Study Design

Thirty-one consecutive patients (19 women and 12 men; mean age, 57.1 y; range, 28–74 y) with pancreatic cysts detected on previous imaging were prospectively included in this study between June 2011 and November 2013. All patients were scanned using MDCT, MR imaging, and ¹⁸F-FDG PET/CT within 6 wk. The patient characteristics are shown in Table 1. The clinical treatment of the patients was performed as a separate entity from the study layout. According to the International Consensus Guidelines (Sendai criteria) (12), surgical resection was performed for all main-duct IPMNs and for branch-duct IPMNs that were larger than 3 cm or that showed increasing size at follow-up, were symptomatic, had septal thickening, or showed mural nodules on imaging.

The study was conducted according to the guidelines of the Declaration of Helsinki, and the protocol was approved by the ethics committee of the Hospital District of Southwest Finland. All patients gave written informed consent before participating in the study. The study has been registered on ClinicalTrials.gov (identifier NCT01317836).

¹⁸F-FDG PET/CT Protocol

¹⁸F-FDG PET/CT was performed using a Discovery VCT scanner (GE Healthcare). The patients fasted 6 h before the study. In all

patients, plasma glucose levels were under 10 mmol/L at the time of intravenous ¹⁸F-FDG injection (270 ± 35 MBq). Attenuation correction was performed using a low-dose ultrafast CT protocol (80 mAs, 140 kV, 0.3 mSv per field of view) followed by a static 3-dimensional (3D) ¹⁸F-FDG PET/CT protocol covering the upper torso from eyebrows to mid thighs (3-min emission scan per position) starting about 60 min after injection. After the ¹⁸F-FDG PET/CT scan, diagnostic 4-phase unenhanced MDCT of the upper abdomen was performed with a 5-mm section thickness and 5-mm spacing according to clinical routine. An intravenous contrast agent, iomeprol (Iomeron [400 mg of iodine/mL]; Bracco Altana Pharma), was then administered (1.5 mL/kg at 4 mL/s), and arterial phase imaging of the upper abdomen was started semiautomatically using the bolus tracking technique. Both the arterial and the pancreatic parenchymal phase images of the upper abdomen were acquired with a collimation of 64 × 0.625 mm. The venous imaging used a 5-mm slice thickness and scanned the area from above the diaphragm to below the symphysis.

Image Processing

Transaxial, coronal, and sagittal images for visual and semiquantitative data analysis were corrected for dead time, decay, and photon attenuation and were reconstructed in a 128 × 128 matrix using 2 iterations and 28 subsets, a postprocessing filter of 6.0 mm in full

TABLE 1
Patient Demographics

Parameter	Total (n = 31)	Malignant (n = 6)	Benign (n = 25)	P
Mean age ± SD (y)	57.1 ± 14.5	60.8 ± 16.3	56.2 ± 14.2	NS
Sex (F/M)	19/12	3/3	16/9	NS
Body mass index (kg/m ²)	25.0 ± 4.1	23.9 ± 2.8	25.5 ± 4.3	NS
Use of alcohol (yes/no)	2/29	0/6	2/23	NS
Smoking (yes/no)	6/25	1/5	5/20	NS
History of pancreatitis (yes/no)	6/25	0/6	2/23	NS
Symptoms (yes/no)	19/12	5/1	14/11	NS
Blood chemistry				
Ca19-9 (kU/L)	87 ± 263	232 ± 494	47 ± 156*	NS
Carcinoembryonic antigen (μg/L)	2.6 ± 1.6	3.0 ± 2.3	2.5 ± 1.4	NS
Total bilirubin (μmol/L)	11.9 ± 10.3	9.7 ± 2.6	12.8 ± 11.6	NS
Alkaline phosphatase (U/L)	70 ± 32	76 ± 50	68 ± 28	NS
Alanine transferase (U/L)	25 ± 18	28 ± 28	24 ± 15	NS
Amylase (U/L)	69 ± 31	53 ± 24	74 ± 32	NS
γ-glutamyl transferase (U/L)	45 ± 62	42 ± 28	46 ± 68	NS
Location				
Head	15	2	13	NS
Body	5	1	4	NS
Tail	8	2	6	NS
Whole pancreas	3	1	2 [†]	NS
Size [†] (cm)				
Mean ± SD	5.3 ± 3.8	5.1 ± 4.0	4.8 ± 2.7	
Range	1.3–18	2.5–18	1.3–10	

*One patient with benign mucinous cystic neoplasia had Ca19-9 of 775 kU/L.

[†]Two patients with main-duct IPMN.

NS = not statistically significant.

Data are numbers of patients, unless otherwise indicated.

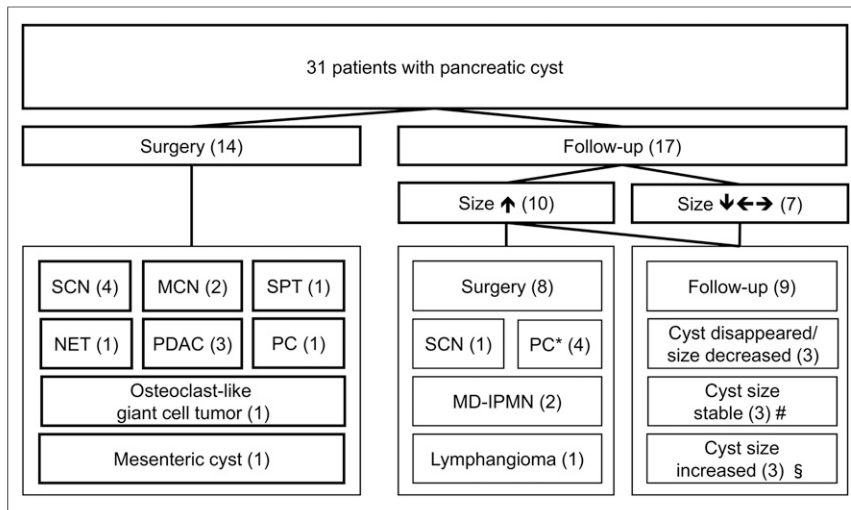


FIGURE 1. Characterization of 31 patients with pancreatic cysts. Twenty-two patients were operated on, and 9 patients were followed up. Histopathologic findings of operated patients are also shown. MCN = mucinous cystic neoplasia; MD = main duct; NET = neuroendocrine tumor; PC = pseudocysts; PDAC = pancreatic ductal adenocarcinoma; SCN = serous cystic neoplasia; SPT = solid pseudopapillary tumor. *One patient with severe dysplasia in resection margin. #Three-branch-duct IPMN. §One-branch-duct IPMN and 2 undifferentiated lesions.

width at half maximum, and fully 3D maximum-likelihood ordered-subset expectation maximization. ^{18}F -FDG PET/CT images were analyzed visually and semiquantitatively by calculating maximum standardized uptake value (SUV_{max}), defined as the ratio of activity per milliliter of tissue to activity in the injected dose corrected for decay and for the patient's body weight. The volume of interest was placed on the area of the lesion with the highest ^{18}F -FDG uptake and was analyzed using an Advanced workstation, version 4.5 (GE Healthcare).

MR Imaging and MR Cholangiopancreatography (MRCP) Protocol

All patients were examined using a 1.5-T MR imaging system (Gyrosan Intera Nova Dual [Philips Medical System] or Avanto [Siemens Medical Solutions]) with a 4-channel body surface coil. The patients were initially examined according to the routine MR imaging protocol for the upper abdomen, which included fat-saturated axial T2-weighted spectral presaturation with inversion recovery and T1-weighted axial dual fast field echo images. MRCP was performed using coronal 2D and 3D sequences with the turbo spin echo technique. Axial single-shot spin echo echo-planar diffusion-weighted

sequences were acquired using b values in the range of either 0–1,000 (Gyrosan) or 50–800 (Avanto). Apparent diffusion coefficient maps were reconstructed from these images. Subsequently, gadoterate meglumine (0.1 mmol/kg, Dotarem; Guerbet) was administered, and dynamic fat-saturated fast field echo 3D axial images were obtained in 3 phases; arterial, parenchymal, and venous. Diffusion-weighted imaging was performed for 21 patients.

Data and Image Analysis

The definition of the gold standard was based on histopathologic findings ($n = 21$) and operative findings without biopsy ($n = 1$). All pathologic slides were reanalyzed by an experienced pathologist. In 9 patients, the diagnostic accuracy was determined only by follow-up, which was continued for a minimum of 18 mo. (mean, 27 mo; range, 18–36 mo), having at least one follow-up imaging study. The diagnostic accuracy of ^{18}F -FDG PET/CT, MDCT, and MR imaging/MRCP was assessed, and the differential diagnostic capabilities of the 3 modalities were compared.

One experienced abdominal radiologist from a different institute independently assessed the enhanced MDCT and MR/MRCP images in a masked manner, and one physician experienced in nuclear medicine analyzed the ^{18}F -FDG PET/CT images. Neither interpreter knew the clinical history or the findings of previous imaging studies.

On ^{18}F -FDG PET/CT imaging, any focal tracer accumulation exceeding normal regional tracer uptake was considered to represent malignancy, and diffuse pancreatic uptake was considered to represent inflammation.

On analysis of the MDCT and MR/MRCP images, the cystic pancreatic lesions were categorized into 5 classes, with classes 1 and 2 representing benign lesions (simple cysts, pseudocysts, serous cystic neoplasia, or side branch-type IPMNs if atypical features were not seen), class 3 representing uncertain lesions, and classes 4 and 5 representing suspected malignant lesions (mural nodules, lesions with a main duct larger than 6 mm, lesions with thick septa, or lesions whose septa enhanced with contrast). Classes 1–3 were categorized as negative for malignancy and classes 4 and 5 as positive for malignancy. Lesions with known malignant potential, such as mucinous cystic neoplasia, were graded as class 2 or 3 if no features indicating malignancy (e.g., those in mucinous cystadenocarcinoma) were found.

TABLE 2
Comparison of the 3 Modalities in Differential Diagnosis of Pancreatic Cysts

Parameter	^{18}F -FDG PET/CT	MDCT	MR imaging	^{18}F -FDG PET/CT vs. MDCT	^{18}F -FDG PET/CT vs. MR imaging
Sensitivity*	100	83	83	0.317	0.317
Specificity*	92	76	88	0.046	0.564
Accuracy	94	77	87	0.025	0.317
Positive predictive value	75	45	63		
Negative predictive value	100	95	96		

*In differentiating malignant from benign cystic lesion.
 $n = 31$.

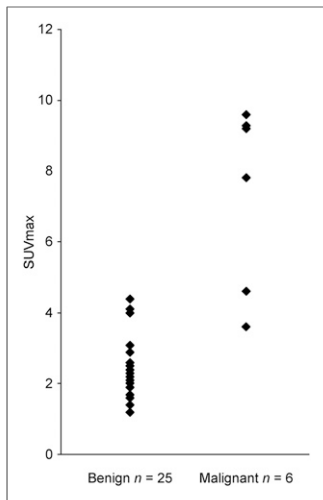


FIGURE 2. Distributions of SUV_{max} in benign and malignant cystic pancreatic lesions.

the χ^2 test. The optimal cutoff value of SUV_{max} for differentiating benign from malignant cysts was determined by receiver-operating-characteristic analysis using the highest Youden index.

RESULTS

The patients are characterized in Figure 1. ^{18}F -FDG PET/CT accurately differentiated all 6 malignant cysts and 23 of 25 benign cysts, with a sensitivity of 100% and a specificity of 92%, whereas the respective sensitivities and specificities were 83% (5/6) and 76% (19/25) for MDCT and 83% (5/6) and 88% (22/25) for MR imaging (Table 2). The accuracy of ^{18}F -FDG PET/CT in the differential diagnosis of malignant and benign pancreatic cysts was 94%, compared with 77% and 87% for MDCT and MR imaging, respectively. In the differential diagnosis of malignant and benign cystic lesions, ^{18}F -FDG PET/CT had a positive predictive value of 75%. In one patient with pancreatitis-related cystic lesions of the pancreas, all 3 imaging methods produced false-positive results; these lesions disappeared during 29 mo of follow-up. Another patient had a benign serous cystic lesion, which was also false-positive on MDCT.

The distributions of SUV_{max} in the benign and malignant pancreatic cystic lesions are shown in Figure 2. SUV_{max} was significantly higher in malignant lesions (7.4 ± 2.6) than in benign lesions (2.4 ± 0.8) ($P < 0.05$). Figure 3 shows an example of a patient with a malignant cystic lesion in the tail of the pancreas.

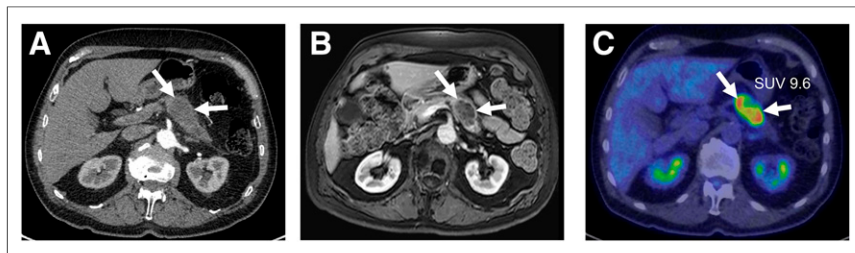


FIGURE 3. (A and B) Enhanced MDCT image (A) and enhanced T1-weighted MR image (B) of patient with lesion in tail of pancreas (arrows). Both MDCT and MR imaging had findings suggestive of malignancy. (C) Focal uptake was observed on ^{18}F -FDG PET/CT (arrows). Histopathology confirmed adenocarcinoma.

Statistical Analysis

The results are expressed mainly as mean \pm SD. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of ^{18}F -FDG PET/CT, MDCT, and MR imaging were evaluated. The specificity and sensitivity of ^{18}F -FDG PET/CT for pancreatic cyst detection were calculated using histopathologic results and clinical follow-up as the gold standard, using a 2×2 contingency table. The McNemar test was performed to compare the findings of ^{18}F -FDG PET/CT, MDCT, and MR imaging. All statistical analyses were performed using SAS (version 8.2; SAS). Statistical differences between subgroups were determined using the Mann-Whitney U test and

A cutoff of 3.6 for SUV_{max} had the best discriminative value in receiver-operating-characteristic analysis (sensitivity, 100%; specificity, 88%; negative predictive value, 100%; positive predictive value, 67%).

As for the impact on clinical management, the results of preoperative ^{18}F -FDG PET/CT would have significantly influenced clinical decision making in 5 (16%) of our 31 patients when compared with the results of MDCT and in 3 patients (10%) when compared with the results of MR imaging. One operation would have been avoided if the ^{18}F -FDG PET/CT findings had been relied on (Fig. 4). In one of these patients, ^{18}F -FDG PET/CT was relied on and no operation was performed although both MDCT and MR imaging indicated malignancy. During 18 mo of follow-up, no signs of malignancy were detected in this patient (Fig. 5).

DISCUSSION

This is, to our knowledge, the first prospective study that has compared ^{18}F -FDG PET/CT with both dedicated MDCT and MR imaging in the assessment of pancreatic cystic lesions. In our 31 patients, the accuracy of ^{18}F -FDG PET/CT was 94%, compared with 77% and 87% for MDCT and MR imaging, respectively. Furthermore, if ^{18}F -FDG PET/CT had been relied on, the clinical management of 5 and 3 patients would have changed compared with that based on the results of MDCT and MR imaging, respectively.

Accurate diagnosis of cystic pancreatic tumors on conventional imaging is often difficult. The accuracy of MDCT for determining malignancy ranges from 53% to 86% (13). Sainani et al. (14) concluded that, even though the morphology of small cysts can be assessed more confidently with MR imaging than with MDCT, the accuracy of the two modalities in characterizing cysts is comparable. The risks of pancreatic surgery are considerable (15). Most small lesions are benign, and the incidence of malignancy in asymptomatic patients with such lesions is as low as 3.5% (16). Further, the role of cyst-fluid analysis is controversial. The recent study by Woolf et al. (17) confirmed a low false-positive rate for cyst-fluid analysis in diagnosing cystic pancreatic lesions but a relatively high false-negative rate, with a sensitivity of 47% and an accuracy of 67%.

Earlier studies have already shown that ^{18}F -FDG PET is more accurate than conventional imaging techniques in the diagnosis of cystic pancreatic lesions, although conflicting results have also been published (9). In our study, ^{18}F -FDG PET/CT had excellent sensitivity of 100% and a good positive predictive value of 75% in the differential diagnosis of malignant and benign pancreatic cystic lesions. Similarly, ^{18}F -FDG PET/CT has outperformed conventional imaging in all previous studies concerning pancreatic cystic lesions—studies that were conducted on patients with IPMN (10,18–20). Recently, Pedrazzoli et al. (21) concluded that the decision on whether to perform prophylactic resection of IPMN in young patients fit for surgery should be guided by the International Consensus Guidelines (12), whereas PET should be performed in the case of older patients, those at increased surgical risk, and those for whom

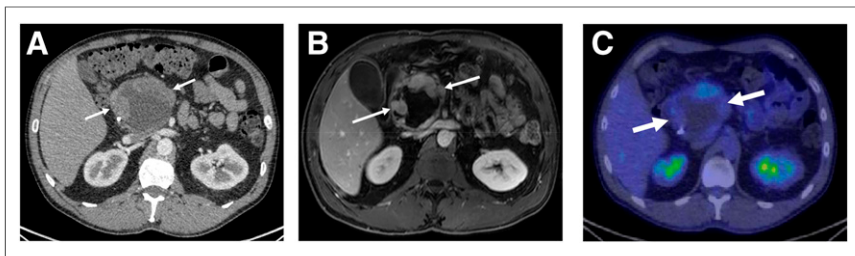


FIGURE 4. 46-y-old man with abdominal pain for 1 mo, significant weight loss, and jaundice. He had neither previous episodes of pancreatitis nor excess alcohol consumption. (A) MDCT showed thick-walled cystic mass enhancing with contrast in head of pancreas (arrows). ERCP showed biliary stricture, and stent was placed. Serum Ca19-9 activity was slightly elevated (51 kU/L). (B) T1-weighted enhanced MR imaging showed thick, irregular walls containing cystic lesion suspected of being malignant (arrows). (C) ^{18}F -FDG PET/CT showed only diffuse uptake throughout pancreas. Patient underwent pancreaticoduodenectomy, and histopathology revealed pseudocyst (7 cm).

the feasibility of parenchyma-sparing surgery demands reliable preoperative exclusion of malignancy.

So far, prospective ^{18}F -FDG PET/CT studies concerning various cystic lesions have been lacking. Zhang et al. (8) used ^{18}F -FDG PET as a problem-solving tool in 20 patients for whom conventional imaging (MDCT and endoscopic ultrasound) had been unable to define the diagnosis. In 5 cases, PET altered the treatment strategy completely, indicating follow-up instead of surgery or vice versa. These results agree well with our results. The role of ^{18}F -FDG PET was questioned in a study by Mansour et al. (9). In that retrospective study performed over an 8-y period, a single ^{18}F -FDG PET scan was acquired for 68 patients. The sensitivity and specificity of PET were only 57% and 85%, respectively, in differentiating between benign and malignant cystic pancreatic lesions. In contrast to Mansour's study (9), our assessment of images was masked and prospective.

Current guidelines for the management of mucinous cystic neoplasia are based on the assumption that these lesions can be classified correctly on the basis of imaging features. Sato et al. (22) reported a case of mucinous cystic neoplasia that showed ^{18}F -FDG accumulation in the cyst wall, and they speculated that macrophage migration and fibrosis were involved in accumulation. However, our study included 2 patients with histologically confirmed benign mucinous cystic neoplasia, neither of whom showed ^{18}F -FDG accumulation on PET/CT imaging. Further, 4 of 5 cases with histologically confirmed serous cystic neoplasia were negative for ^{18}F -FDG uptake on PET/CT. One patient had false-positive ^{18}F -FDG accumulation and suggestive thickening of the cyst wall

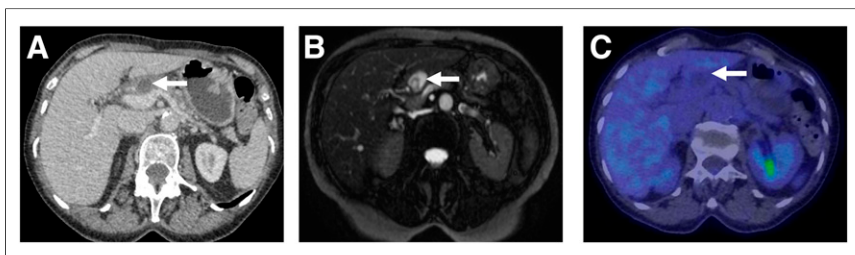


FIGURE 5. Corresponding MDCT (A), MR (B), and PET/CT (C) images of patient with 3-cm cystic lesion in head of pancreas (arrows). Both MDCT and MR imaging were suggestive of malignancy. No uptake was observed on ^{18}F -FDG PET/CT. During 18 mo of follow-up, patient was asymptomatic.

on the corresponding MDCT, but MR imaging gave a true-negative result.

Assessment of both PET and MDCT modalities is crucial for accurate diagnosis (Fig. 5). In our study, all interpreters were masked to referral information, but in routine clinical work, it is of the utmost importance for the interpreters to know the patient's history. Our analysis of ^{18}F -FDG PET/CT included analysis of enhanced CT images. Although it is not a common practice to perform or interpret enhanced MDCT in most nuclear medicine or PET institutions, we specifically wanted to test the added value of ^{18}F -FDG PET against a traditional imaging protocol including enhanced MDCT: ^{18}F -FDG PET/CT is rarely performed

without a prior diagnostic MDCT study. PET imaging, then, is an opportunity to measure metabolic activity with a semiquantitative means such as SUV_{max} , although these objective values may differ between institutions. In a study including 72 patients, Tomimaru et al. found that, for an SUV_{max} cutoff of 2.5, ^{18}F -FDG PET had a sensitivity, specificity, and accuracy of 93%, 100%, and 96%, respectively, in the diagnosis of malignant IPMN (7). Sperti et al. have reported similar results, with a sensitivity of 97%, a specificity of 92%, and an accuracy of 95% for an SUV_{max} cutoff of 2.6 (4,5). Interestingly, in our study, the best cutoff was much higher, 3.6.

Our study was limited by the fairly heterogeneous and relatively small group of patients with malignant lesions ($n = 6$). However, all the pancreatic cysts referred to our tertiary center were included in our study during the enrollment period, and therefore no selection bias occurred. In contrast to our study, which also included patients with benign disease, most of the patients included in both the Sperti (5) and the Tomimaru (7) studies had been diagnosed as having malignant IPMN. As observed in former studies, both hyperglycemia and inflammation, including pancreatitis, can affect the sensitivity of ^{18}F -FDG PET. In addition, an increased rate of glucose intolerance represents a potential limitation of ^{18}F -FDG PET in the diagnosis of pancreatic lesions. In our study, all patients had normal C-reactive protein and amylase levels before undergoing ^{18}F -FDG PET/CT (Table 1), and all glucose values before scanning were less than 10 mmol/L. The major limitations of ^{18}F -FDG PET/CT in the evaluation of pancreatic cystic lesions are false-negative results for borderline and in situ tumors and false-positive results in areas of lesion-associated pancreatitis. In our study, 2 patients had a histologic diagnosis of dysplasia with negative ^{18}F -FDG PET/CT results but none of the patients had carcinoma in situ. In addition, 1 patient had a false-positive finding on ^{18}F -FDG PET/CT due to a pancreatitis-related cyst, which was also false-positive on conventional imaging methods.

The role of the emerging dual-modality PET/MR imaging in the differentiation of pancreatic cystic lesions will be interesting. In a recent study, Nagamachi et al. (23) compared the efficiency of PET/CT and PET/MR imaging (retrospective fusion image) in diagnosing pancreatic tumors. Thirty-one of 119 patients had cystic

lesions, and PET/MR imaging had a sensitivity of 100%, compared with 95.5% for PET/CT. Additionally, PET/MR imaging found significantly more intratumoral structures such as mural nodules and intracystic septa. Given the high accuracy of ¹⁸F-FDG PET/CT, it appears doubtful that PET/MR imaging can further improve diagnostic accuracy.

CONCLUSION

To the best of our knowledge, no previous studies have prospectively compared ¹⁸F-FDG PET/CT, MDCT, and MR imaging in the differential diagnosis of pancreatic cysts. On the basis of our results, ¹⁸F-FDG PET/CT is a highly useful method for characterizing suggestive pancreatic cystic lesions, particularly in patients with inconclusive findings on MDCT or MR imaging. In our 31 patients, ¹⁸F-FDG PET/CT influenced the treatment strategy in 3 and 5 patients when compared with the use of MR imaging and MDCT, respectively.

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