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Introduction

Pancreatic cystic lesions are estimated to be present in 2-45% of the general population¹ and with the widespread use of high-resolution imaging, pancreatic cystic lesions have become a frequent incidental finding.

The discrimination of pancreatic cystic lesion is crucial as certain subtypes bear high risk for malignancy i.e., mucinous cysts. In contrast, non-mucinous cysts i.e., serous cysts and pseudocysts are considered benign. These lesions can sometimes be indistinguishable.

Objectives

The purpose of this study is to evaluate the accuracy of contrast-enhanced endoscopic ultrasound (CEUS) for diagnosing mucinous versus non-mucinous cysts and malignant versus benign cysts according to the presence of enhancement in the lesion.

Method

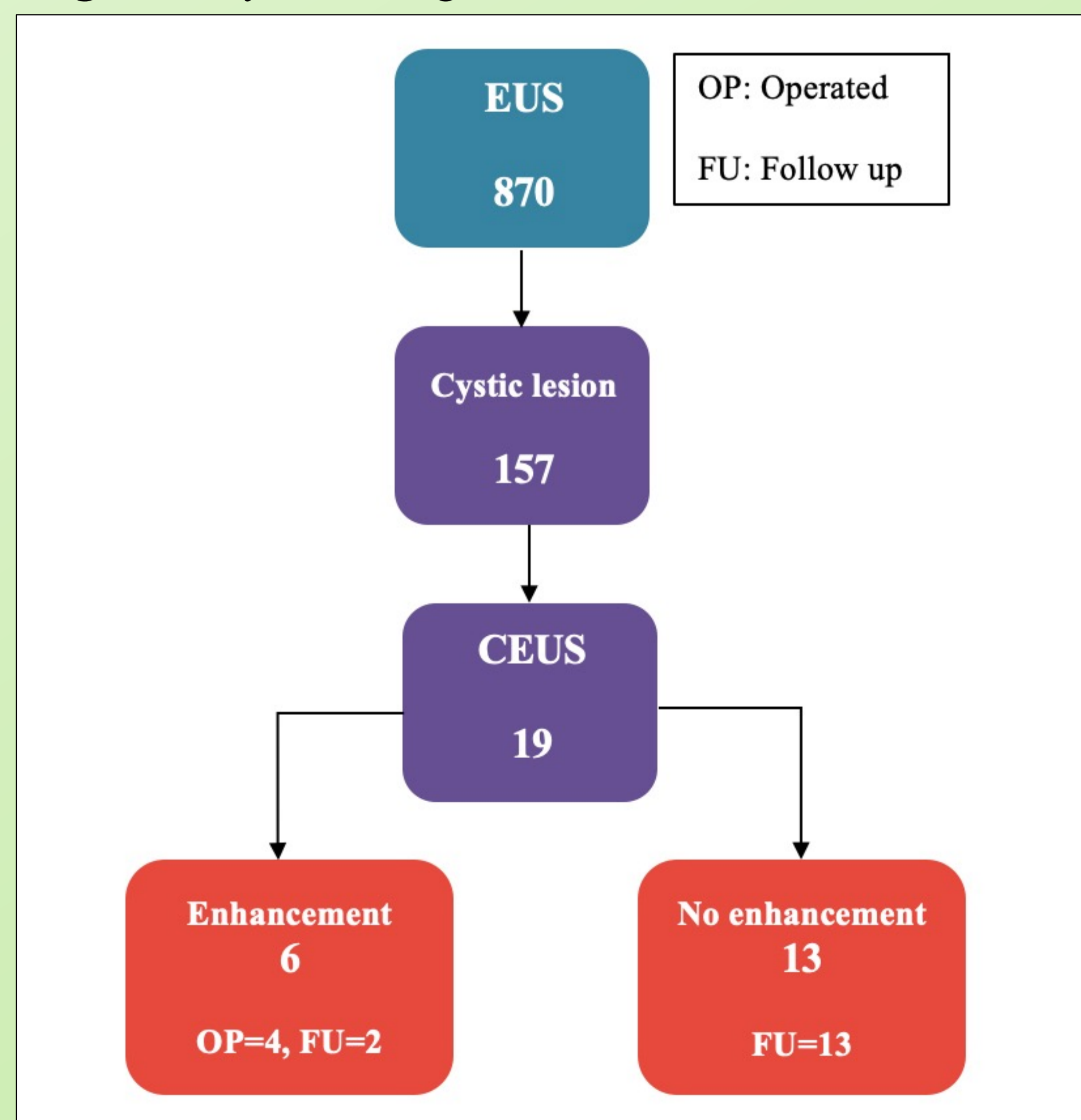
Initially, we gathered a sample of patients who underwent an endoscopic ultrasound (EUS) imaging at the II. Department of Internal Medicine, University Hospital Olomouc, from January 2020 to February 2022.

A retrospective analysis was performed to identify patients with suspected pancreatic cystic neoplasms who underwent a contrast-enhanced endoscopic ultrasound (CEUS). Histopathological confirmation after surgery, after EUS-guided fine needle aspiration or a 6-month follow-up were considered as the reference standards for final diagnosis.

Results

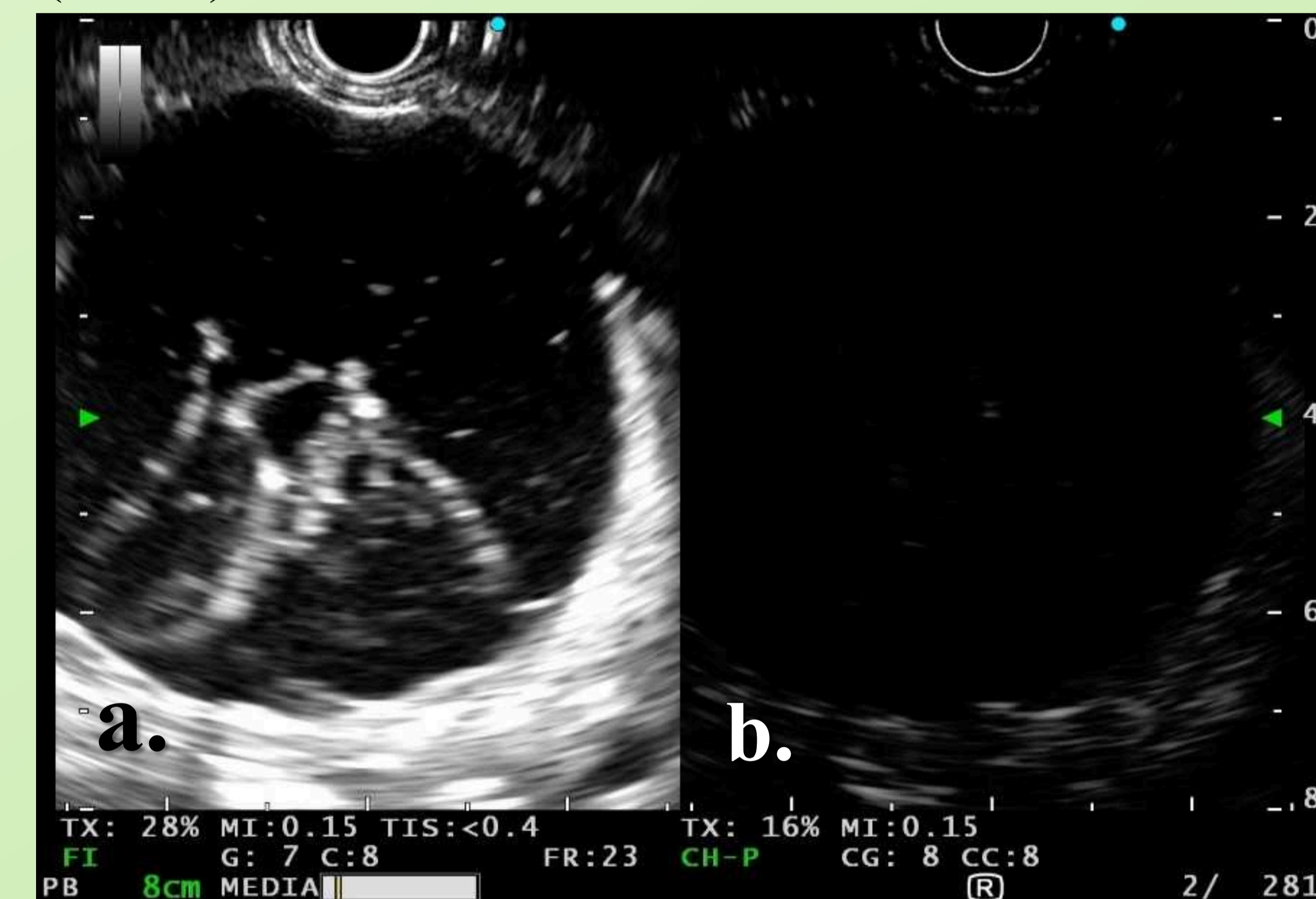
A total of 870 patients were analysed. 157 patients (18%) had a pancreatic cystic lesion. 19 of these patients (12%) were then referred for CEUS. Some enhancement was observed in 6 patients (32%) (Fig.1), 4 (67%) of whom were operated with a confirmation of premalignant and malignant diagnosis. The remaining 13 patients (68%) were without enhancement (Fig.2) and referred to follow-up. In this group, 2 (15%) patients had a premalignant cystic lesion and 11 (85%) patients had a benign diagnosis. No complications were reported. Performance characteristics for the diagnostic method are shown in Table 1.

Fig. 1 Study flow diagram.



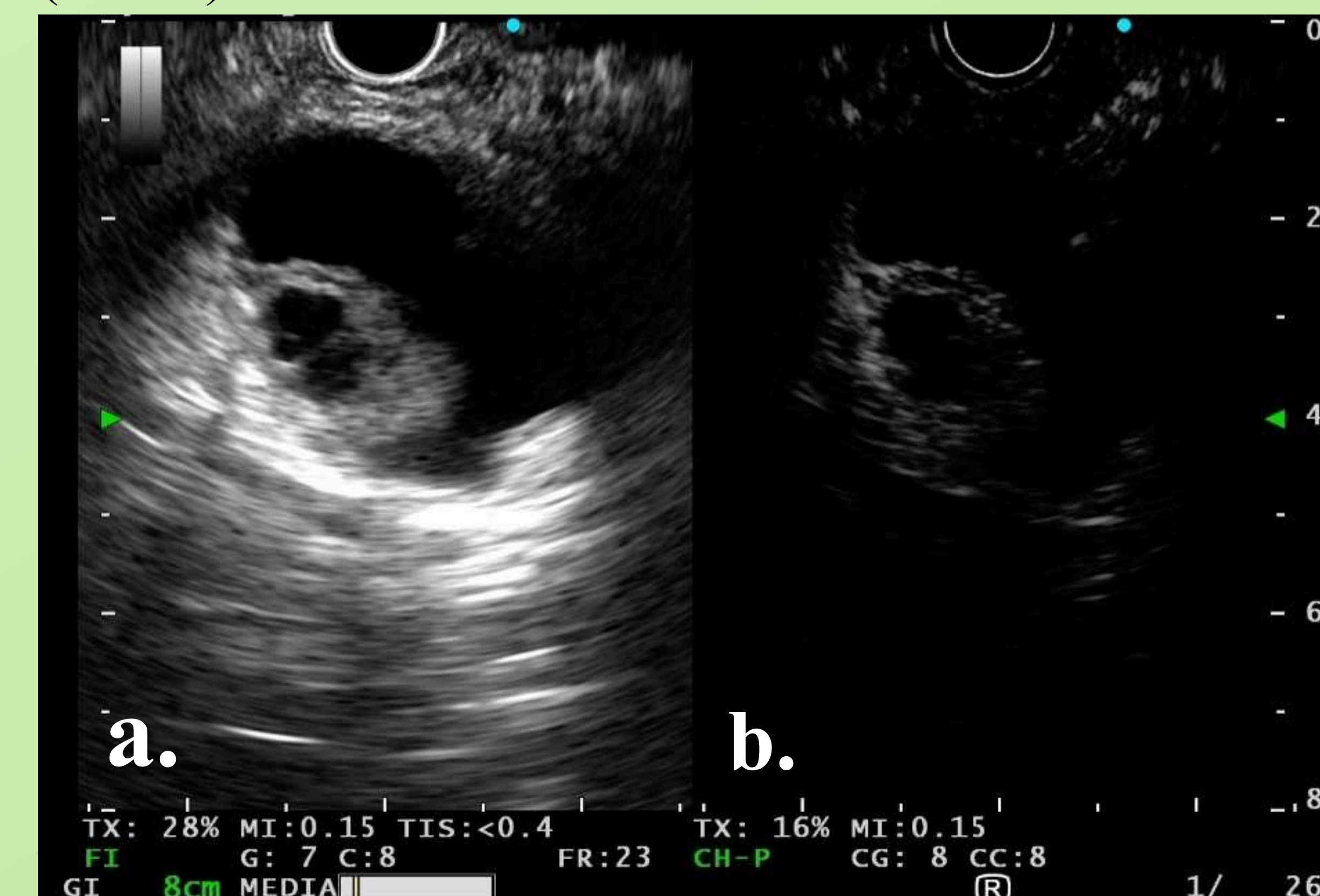
Results continued

Fig. 2 Pancreatic cystic lesion; a. Endoscopic ultrasound (EUS), b. Contrast-enhanced endoscopic ultrasound (CEUS) without enhancement.



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Fig. 3 Pancreatic cystic lesion; a. Endoscopic ultrasound (EUS), b. Contrast-enhanced endoscopic ultrasound (CEUS) with enhancement.



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Results continued

Tab. 1 Results of CEUS, showing sensitivity; specificity; PPV, positive predictive value; NPV, negative predictive value and overall accuracy

CEUS		
	Patients, n/n	%
Sensitivity	4/6	67%
Specificity	11/13	85%
PPV	4/6	67%
NPV	11/13	85%
Overall accuracy	15/19	79%

Conclusion

Contrast-enhanced endoscopic ultrasound is a feasible and safe method used for the differential diagnosis of suspected pancreatic cystic neoplasms, in order to guide their management. However, the results are limited by a low number of provided contrast endoscopic ultrasound. A prospective randomized study with more patients is necessary to confirm these results.

References

1. European evidence-based guidelines on pancreatic cystic neoplasms Gut 2018;67:789-804.
2. Kamata, Ken et al. "Contrast-enhanced harmonic endoscopic ultrasonography for differential diagnosis of pancreatic cysts." Endoscopy vol. 48,1 (2016): 35-41. doi:10.1055/s-0034-1393564