

selection bias, because the decision for surgery may have been based on other factors (for example, imaging findings or cytologic findings). Finally, studies need to be done to see whether the time from aspiration and freezing or thawing affects the glucose levels. For these reasons, it is hard to conclude from this meta-analysis that PCF glucose is more accurate than CEA. Larger prospective studies are clearly needed to establish the utility of PCF glucose determination in clinical practice.

DISCLOSURE

Dr Confer is a consultant for Boston Scientific and Merit Endotek. Dr Diehl is a consultant for Olympus America, Boston Scientific, and Cook Medical. The other author disclosed no financial relationships.

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Response:



We wish to thank Confer et al¹ for their interest in our recent meta-analysis comparing carcinoembryonic antigen (CEA) and cyst fluid glucose in the diagnosis of mucinous cysts.² The growing rate of pancreatic cyst diagnosis is due to improvements in the quality and increased use of cross-sectional imaging. Better biomarkers that help to discriminate potentially malignant lesions are needed in clinical practice. Previous studies, namely, one study from our group,³ showed that cyst glucose concentration performs better than CEA to identify mucinous, potentially malignant cysts, with the need of minimal amounts of cyst fluid. These findings led us to perform this systematic review and meta-analysis.

We agree with Confer et al¹ that the surgical pathologic diagnosis was not included in the study by Lopes,⁴ and as such it should have not been considered. We included it, but we registered the information of the surgical cohort of this study as NA (nonavailable) in Table 2 of our article, and in the quality assessment using QUADAS-2 (Fig. 2A of our article), we classified it with unclear risk of bias for patient selection.^{2,4} We correctly refer the 275 patients with surgical pathology specimens available, and only those should have been included in the final analysis. Because of this, we have redone the meta-analysis, including the forest plots of sensitivity and specificity (Fig. 1), the receiver operating characteristics (ROC) curve (Fig. 2), the sensitivity analysis (Fig. 3), and Deeks' funnel plot (Fig. 4) for glucose studies. The results, including only 4 studies with surgical pathologic diagnosis, confirm all previous findings with 5 studies, with identical sensitivity of 0.90 (95% confidence interval [CI], 0.85-0.94) and improved specificity of 0.82 (95% CI, 0.72-0.89) and area under the ROC curve of 0.96.

We agree with Confer et al¹ that using surgical pathology as a reference standard for diagnosis limits the data available to evaluate the sensitivity and specificity of glucose, but we chose to do so because histologic analysis is the criterion standard for diagnosis.

Although 3 studies in the glucose group were co-authored by Dr Park from Stanford University, in the study by Carr et al,⁵ the samples were obtained at Indiana

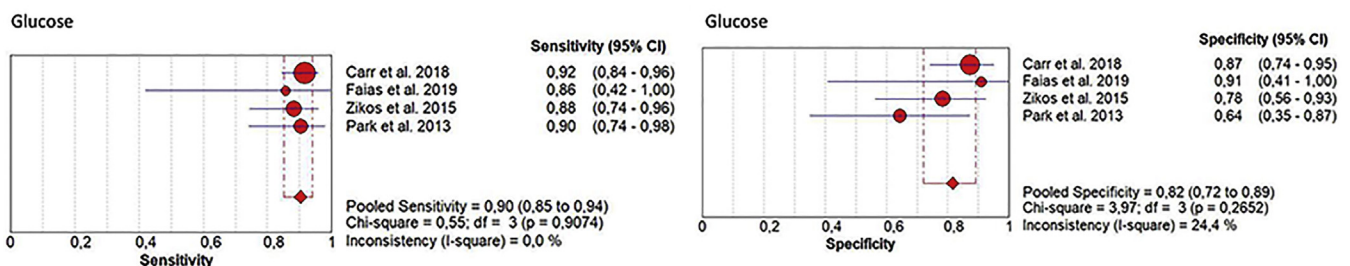


Figure 1. Forest plots of the studies for glucose. Between brackets, the 95% confidence intervals (CI) of the sensitivity and specificity. The figure shows the estimated sensitivity and specificity of the study (red circle) and its 95% CI (blue horizontal line). The area of the circle reflects the weight that the study contributes to the meta-analysis.

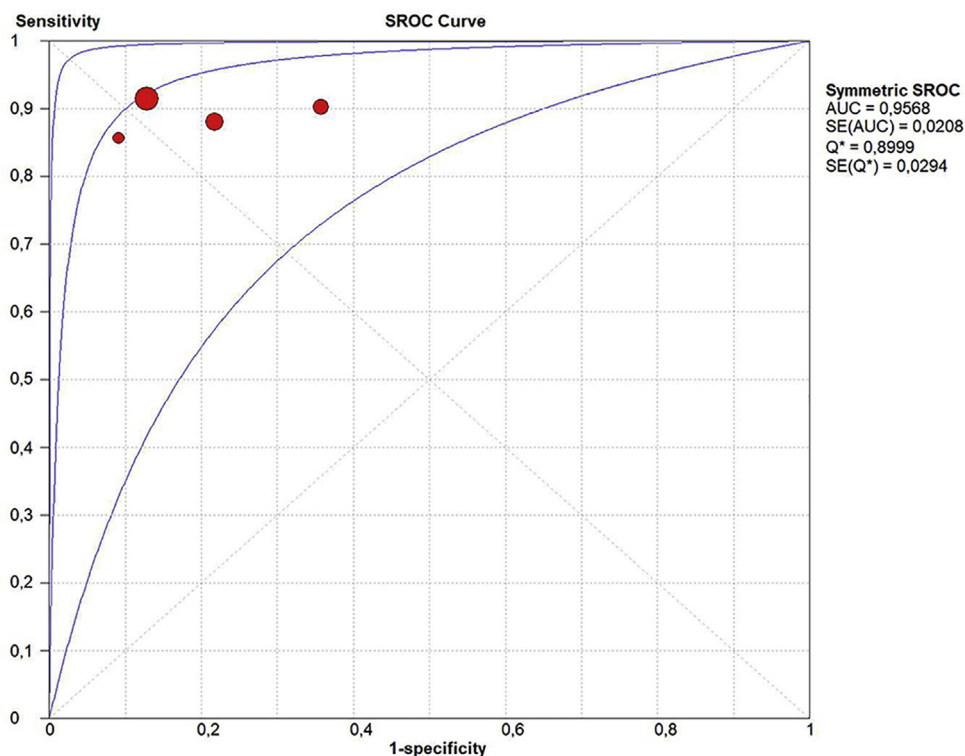


Figure 2. Summary receiver operating characteristics (SROC) plots for glucose <50 mg/dL. AUC, Area under the ROC curve.

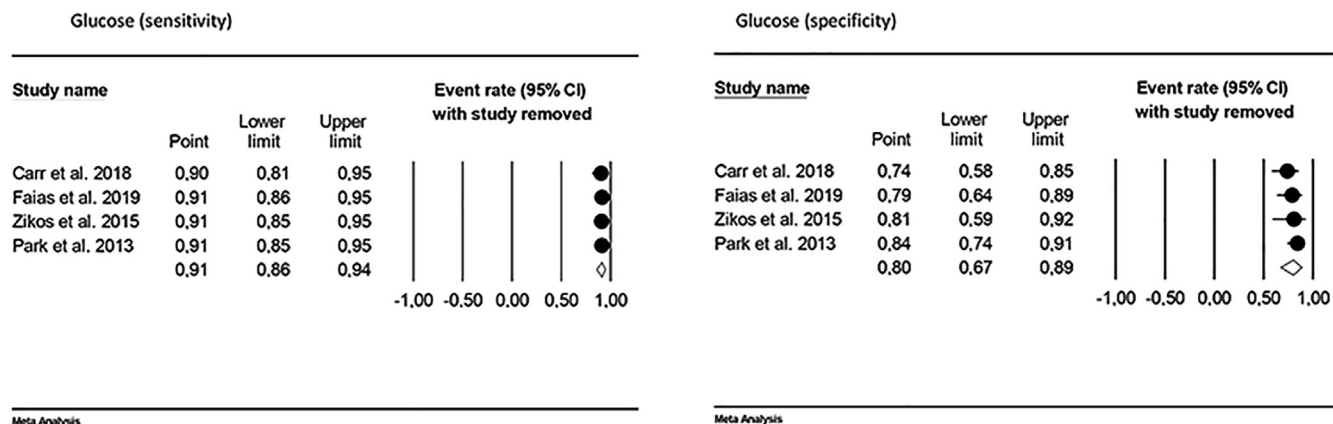


Figure 3. Sensitivity analysis for 4 glucose studies, with minimal variation between studies.

University Health University Hospital, and there was no overlap of patients with those in the studies by Park et al⁶ and Zikos et al.⁷ In those 2 studies, samples were obtained from the bio-repository for pancreatic cyst fluid at Stanford Medical Center, and there is an overlap of 19 patients in a total of 110 patients included. The limited number of publications, and the low number of patient overlap, led us to accept both studies.

In our meta-analysis,² the data of CEA and glucose levels of each study were extracted to Table 2, and a cutoff level

of CEA 192 mg/mL was used for calculations. In the 9 studies included using a different CEA cutoff level, it was possible to extract individual CEA levels from each study. As an example, in the study by Frossard et al⁸ we extracted CEA levels from Figure 3 in the article. By contrast, we had to exclude from this meta-analysis² a total of 8 full-text articles as presented in Figure 1 of the article, because individual CEA levels were not presented.

Our aim was to evaluate the utility of pancreatic cystic fluid glucose for mucinous cyst diagnosis in EUS-FNA

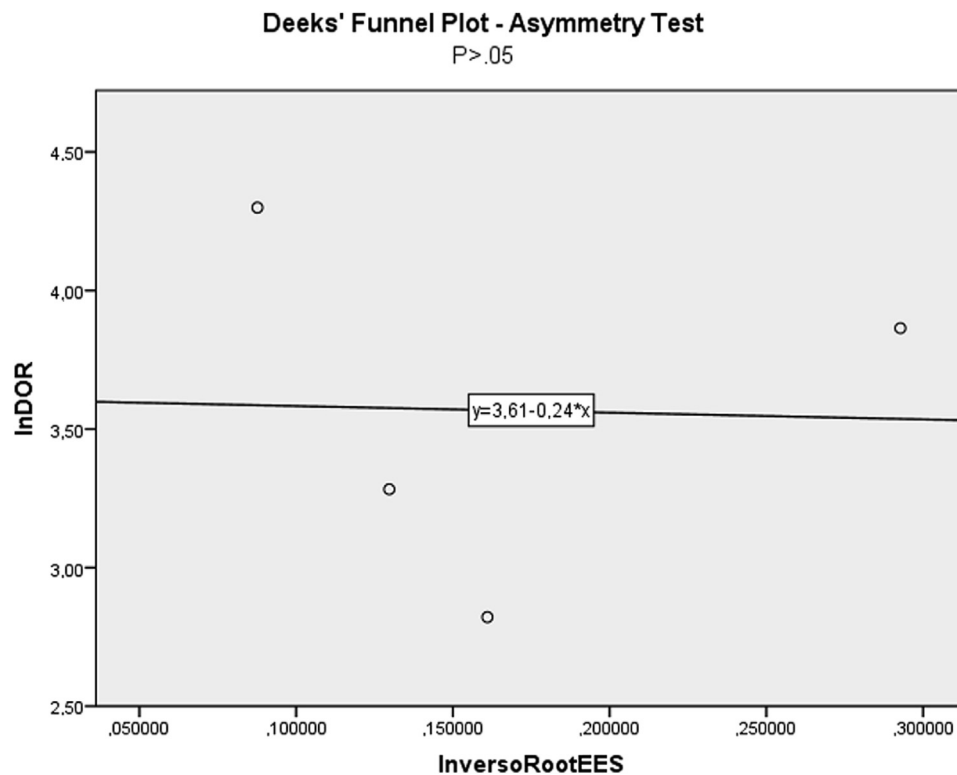


Figure 4. Deeks' funnel plot asymmetry tests showing low risk of publication bias in 4 glucose studies.

samples before surgery, not because glucose is a biomarker to select patients for surgery, but because the surgical pathologic specimen is the criterion standard for cyst diagnosis. Glucose and CEA are both biomarkers of mucinous cysts, with additional cytologic or morphologic features required to select cysts for surgery.

In a previous study by our group,³ glucose level was evaluated with a glucometer in 7 cystic lesions, both in a fresh sample in the EUS room and later in a frozen sample, as presented in Table 3 in the article. Nonsignificant changes of glucose level occurred, never crossing the 50 mg/dL cutoff level.

We believe that although this case is not settled, our meta-analysis clearly demonstrates the advantage of using glucose levels measured in the room by use of a glucometer, over CEA for mucinous cyst diagnosis.

DISCLOSURE

All authors disclosed no financial relationships.

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Illicit drug packet ingestion and the ASGE clinical guideline on removal of foreign bodies



To the Editor:

Recently at the New Jersey Poison Center, we consulted on a patient who swallowed packets of heroin to evade law enforcement and was admitted to the hospital for whole bowel irrigation with polyethylene glycol solution. After 24 hours, the packets were still in the stomach, and disagreement arose within the treatment team based on “Management of ingested foreign bodies and food impactions” from the American Society for Gastrointestinal Endoscopy,¹ which recommends against endoscopic packet retrieval and for surgical intervention if packets fail to progress. Our patient underwent endoscopic removal of several heroin packets, in consideration of 2 key factors: the circumstances of packet ingestion and the contents of the packets themselves.

There are 2 distinct scenarios in which patients ingest concealed packets of illicit drugs. “Body packing” refers to the ingestion of many large-volume, well-constructed packets to smuggle the contents across secure borders.² “Body stuffing” describes the hasty ingestion of a smaller number of poorly secured, low-volume packets to evade law enforcement. Although these low-volume packets are more likely to leak, they are much less likely to cause death because the total drug content is lower. These patients can undergo a trial of polyethylene glycol and, if packets fail to progress, controlled endoscopic removal.

Unfortunately, the stark distinction between stuffing and packing is often overlooked in the literature leading to unintended misguidance.² In addition, whether the packet contains an opioid or cocaine is significant. Although even a large opioid overdose can be effectively treated with naloxone and supportive care,³ rupture of a large-volume packet of cocaine can be fatal. Endoscopy is usually appro-

priate for removal of heroin packets of either type that fail to progress from the stomach after a reasonable period (24-48 hours). Endoscopic removal is also reasonable for cocaine packets of either type but is best performed in a critical care setting with surgical backup. In either case, endoscopic technique should minimize trauma, such as with use of a basket or net rather than a grasping device.

The original guidance, published in 2011, could benefit from a focused update on these aspects of packet ingestion.

DISCLOSURE

Both authors disclosed no financial relationships.

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Response:



We appreciate the interest taken by Calello et al¹ in the American Society for Gastrointestinal Endoscopy (ASGE) guideline on management of ingested foreign bodies and food impactions.² In their letter, the authors highlight 2 distinct scenarios of illicit drug packet ingestion: body packing and body stuffing. The authors highlight a case of successful endoscopic removal of several heroin packets from a patient. On the basis of their clinical experience, the authors conclude that endoscopy is appropriate for the removal of heroin packets and may be considered for the removal of cocaine packets in a critical care setting with surgical backup.

We agree with the authors regarding 2 distinct scenarios of ingested illicit drug packets. Body packing is typically a well-coordinated ingestion of many large-volume and precisely packed drug packets for the purpose of drug trafficking.³ By contrast, body stuffing refers to hurried swallowing of drug packets to avoid immediate arrest.⁴ Drug packets in body stuffing are mainly for individual use and contain much smaller amounts of drugs, but they can