

Role of microbiome in development and progression of pancreatic cysts

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UEG Week Berlin 2025

Presentation

Digestive Oncology

Gut Microbiota

Pancreas

October 7, 2025

The speaker reviewed experimental evidence on microbiome in pancreatic cysts, concluding that cystic fluid appears sterile when properly controlled for contamination, though oral and intestinal microbiomes may influence cyst progression through metabolite and immune pathways.

KEY POINTS

- Studies claiming unique microbiomes within pancreatic cysts suffer from contamination issues, including bacteria from handling, non-sterile reagents, and batch effects that can create false distinct signals between sample groups.
- A rigorously controlled trial published in Gut with 19 negative controls and multiple technical replicates found that cystic fluid microbiome highly overlapped with blanks, leading authors to conclude cysts are sterile except in patients with prior endoscopic interventions.
- The speaker's preliminary data from 130 patients showed that oral cavity microbiome was associated with worrisome features and high risk stigmata in pancreatic cystic lesions.
- In pancreatic cancer, bacteria live within cells to escape the immune system rather than in the surrounding environment, suggesting studies of cystic fluid may miss intracellular microbiomes in mucus-producing cells.
- The speaker's group is pursuing metabolomics rather than direct microbiome profiling as biomarkers, stating metabolites are more homogeneous across individuals (85-90% overlap in function vs 40% species overlap) and easier to measure in a standardized manner.
- The speaker emphasized that microbiome influence on cysts likely occurs through metabolite regulation and immune system modulation, noting 80% of blood lymphocytes originate from the gut.

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