Case #125

NAME Educational Activities Committee

Case provided by:

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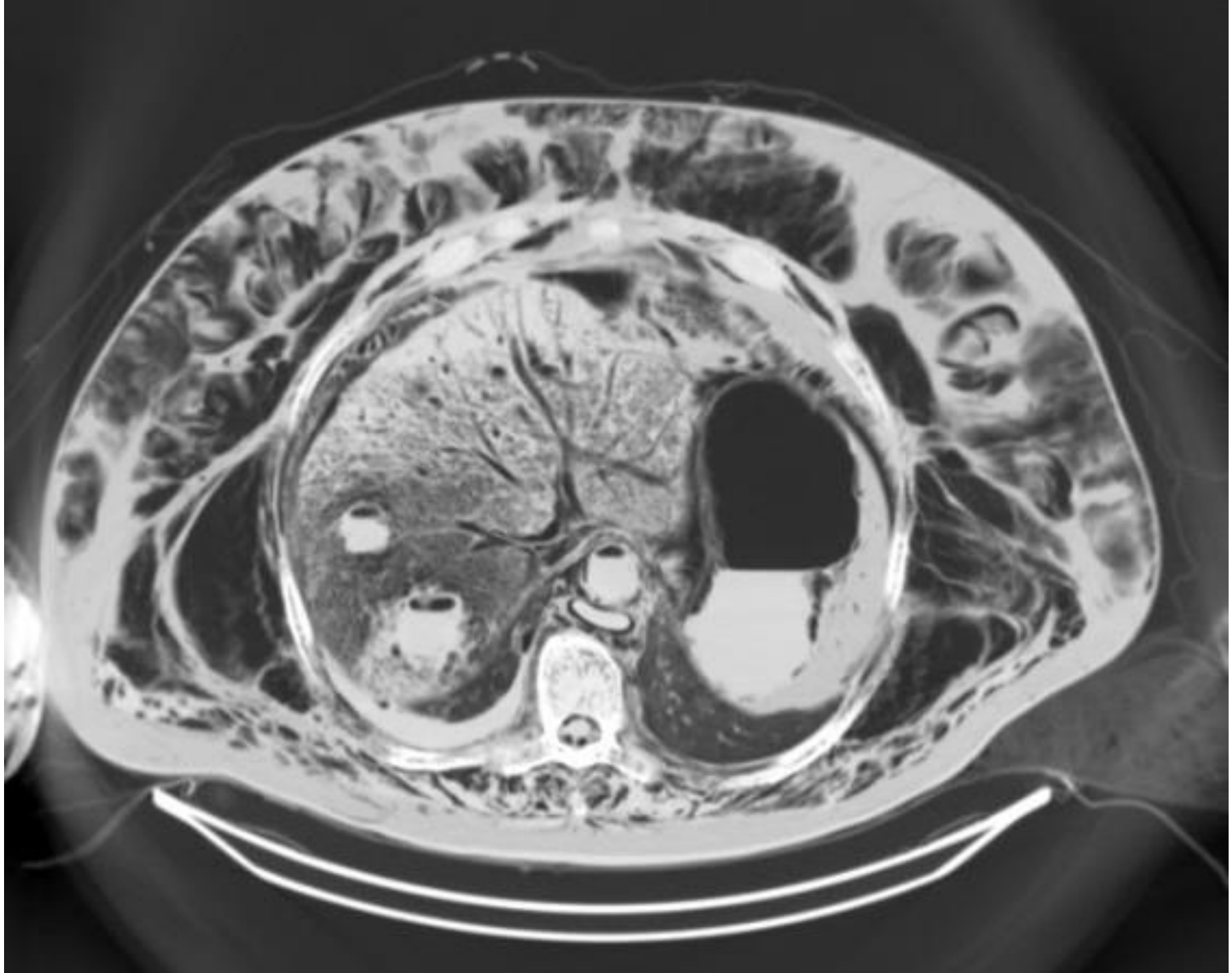
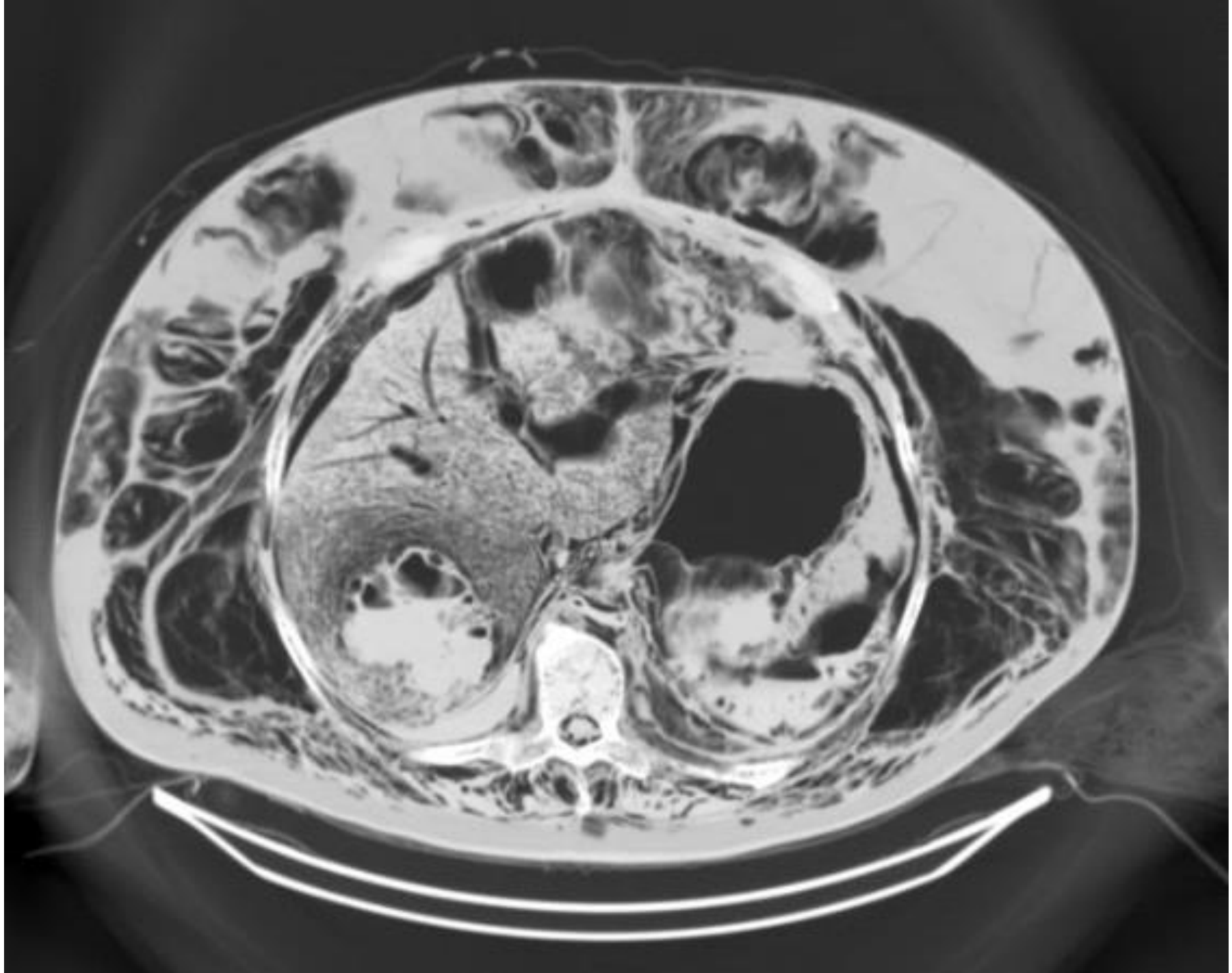




1. A 60-year-old man with recent cancer diagnosis underwent a surgical procedure and one round of chemotherapy. He began to feel generally unwell and developed a low-grade fever; several days later, sudden onset of chest pain and shortness of breath prompted a call to emergency medical services, but he expired. His body was temporarily stored under suboptimal conditions by a funeral home before going to autopsy.

   Postmortem CT was performed. Which of the following procedures in the decedent's surgical history would predispose him to the findings shown?

- ◯ Nephrectomy
- ◯ Whipple
- ◯ Colectomy
- ◯ Cholecystectomy

Answer...

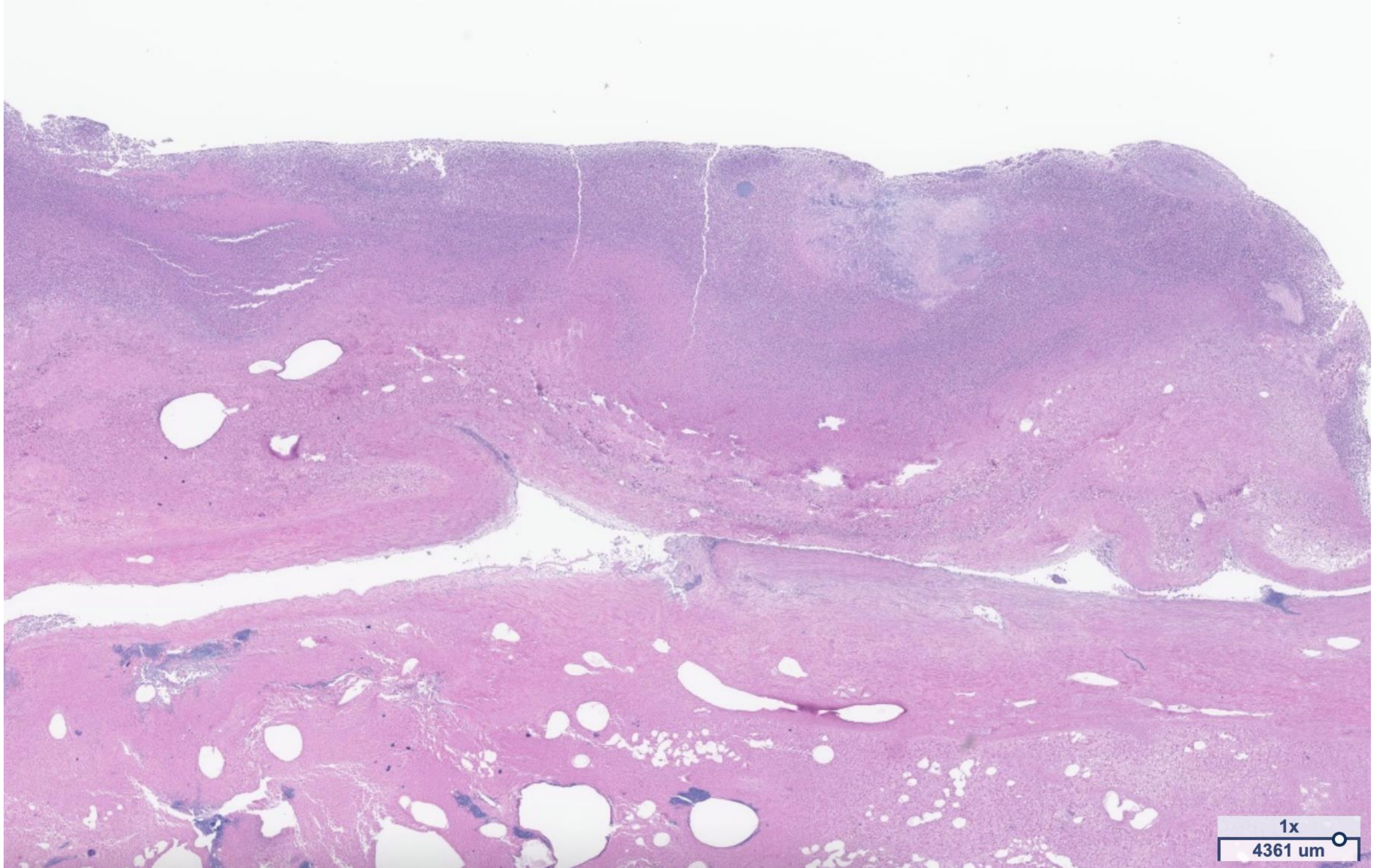
B. Whipple (CORRECT ANSWER, 42.59 % of responses)

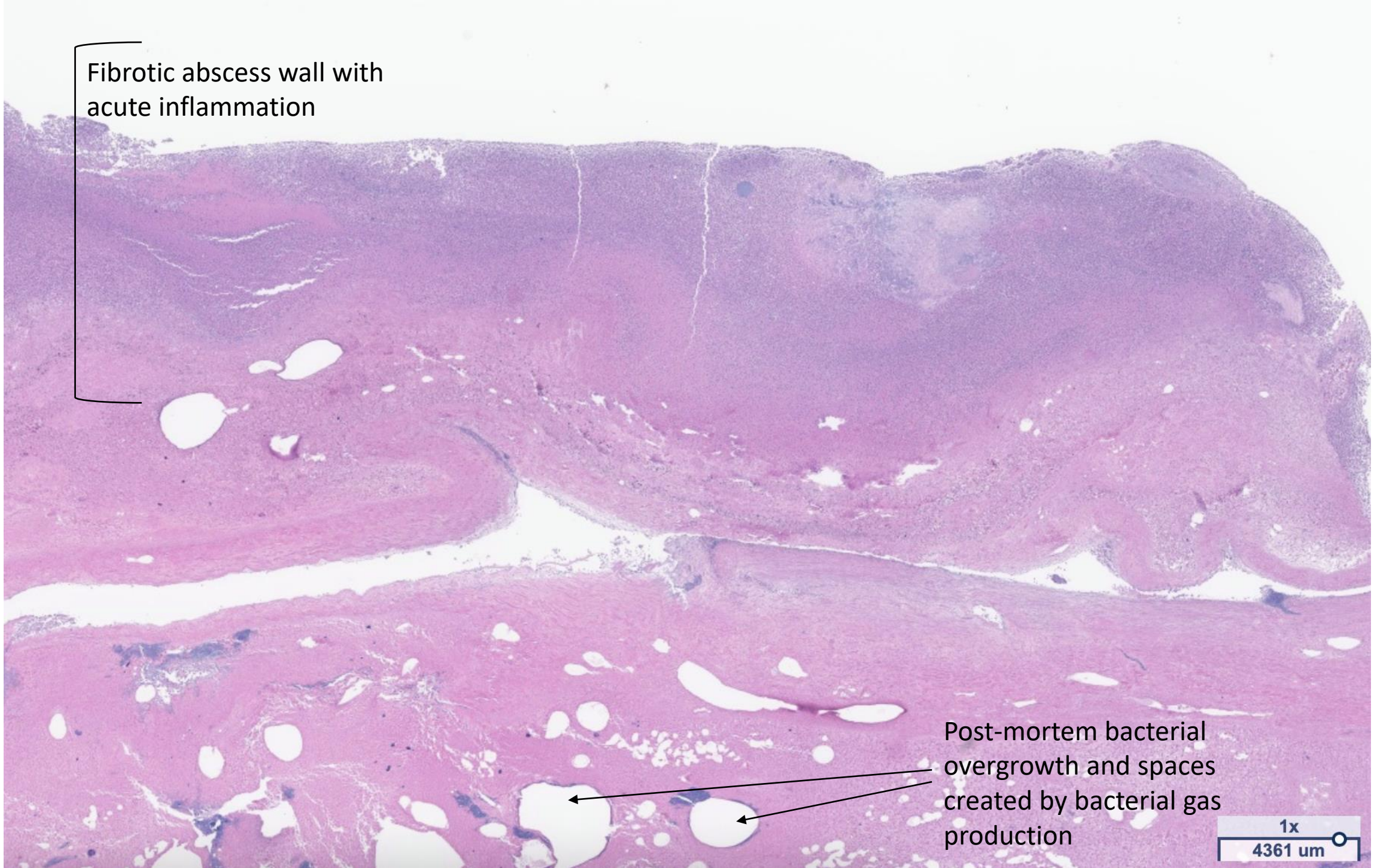
This decedent underwent a Whipple procedure, or pancreaticoduodenectomy, for cancer in the pancreatic duct approximately four months before his death. He received one dose of chemotherapy a couple weeks before his death, after which he started to feel unwell, with his death immediately preceded by symptoms of chest pain and shortness of breath.

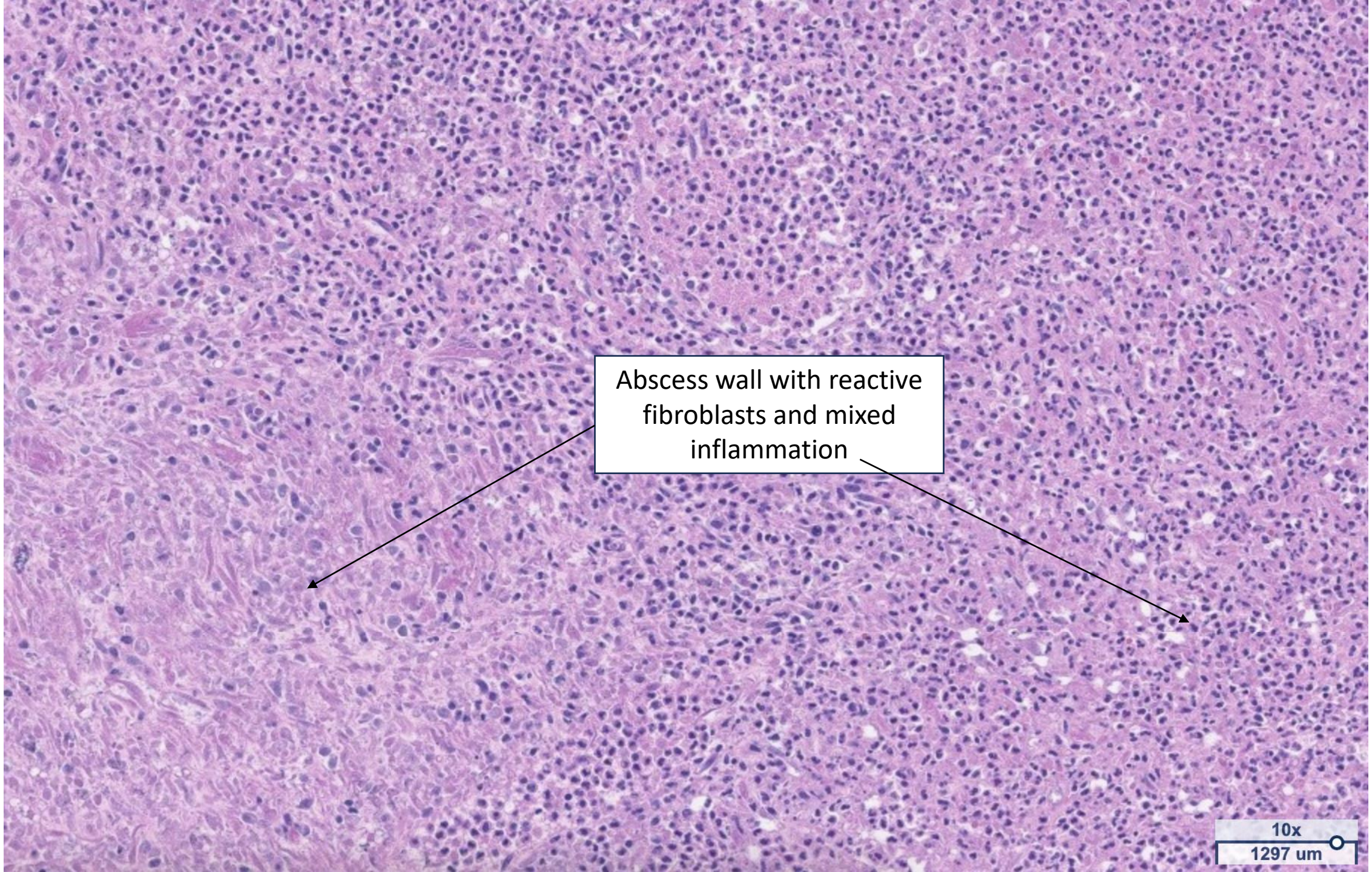
In normal anatomy, the sphincter of Oddi allows bile to mix with the food in the duodenum but prevents enteric contents from entering the biliary tree. In a Whipple procedure, a biliary-enteric anastomosis (or fistula) is created; this direct connection between the intestinal lumen and bile ducts increases the risk of bacterial migration and ascending infection, including formation of pyogenic liver abscesses. Of note, biliary-enteric fistulas can also occur from infection or chronic inflammation (including cholecystitis or peptic ulcer disease), or from neoplastic infiltration.

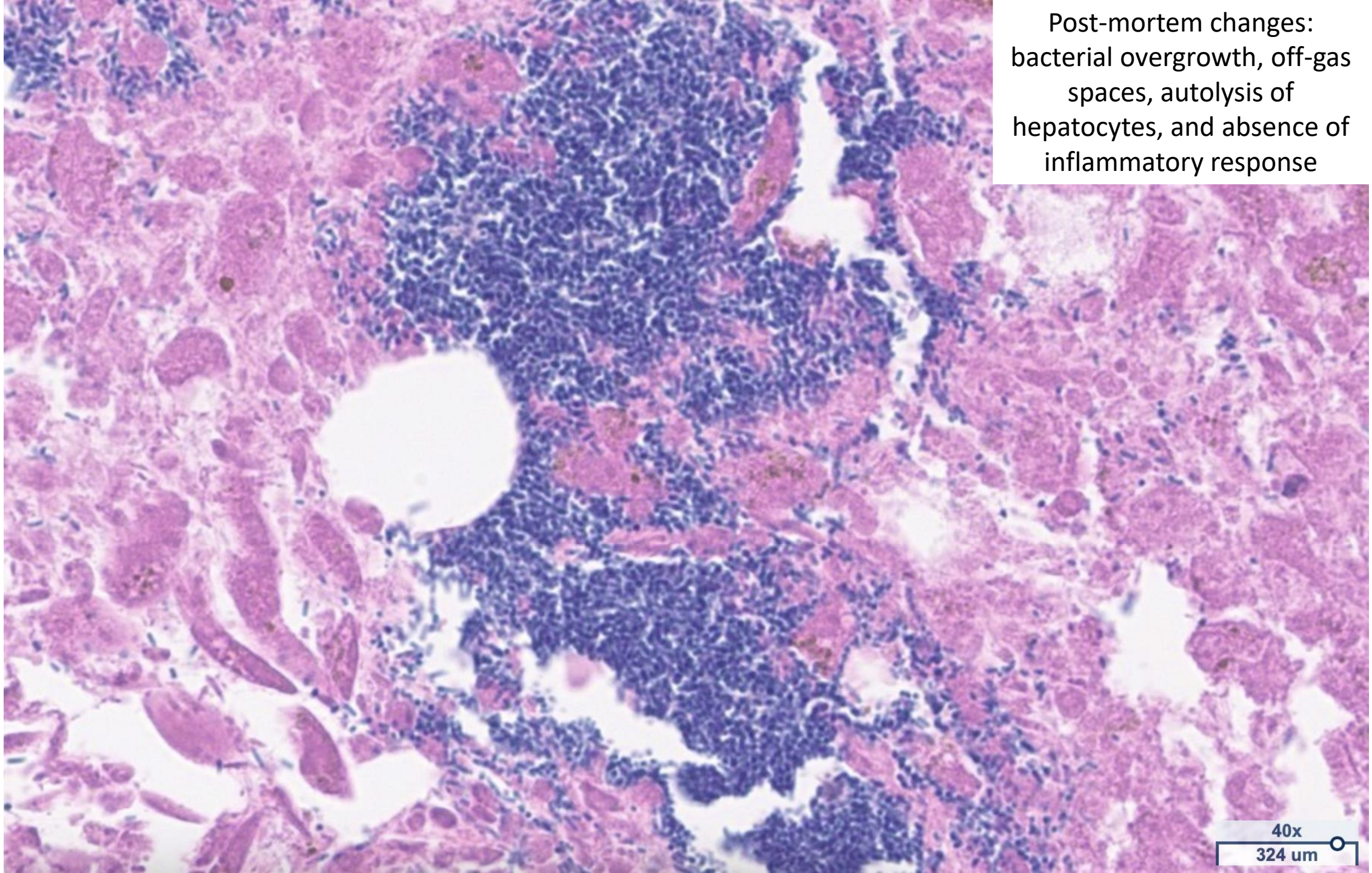
Although the decedent has started to decompose, the PMCT is still able to reveal two cavities containing fluid and foci of gas in the liver, both with adjacent hepatic parenchymal hypoattenuation (darker tissue immediately surrounding the cavities/collections compared to the remaining liver parenchyma). These are hepatic abscesses. Histological examination revealed inflammatory changes in response to the abscess cavities, effectively distinguishing them from postmortem bacterial overgrowth.

Gross images of the sectioned liver demonstrate the two abscess cavities, which contain opaque, purulent material.


1x
4361 um


Fibrotic abscess wall with acute inflammation
Post-mortem bacterial overgrowth and spaces created by bacterial gas production
1x
4361 um


Abscess wall with reactive fibroblasts and mixed inflammation
10x
1297 um


Post-mortem changes: bacterial overgrowth, off-gas spaces, autolysis of hepatocytes, and absence of inflammatory response
40x
324 um

Other responses…

A. Nephrectomy (9.78 % of responses)
C. Colectomy (15.46 % of responses)
D. Cholecystectomy (32.18 % of responses)

The other procedures (nephrectomy, colectomy, and cholecystectomy) do not involve the creation of a biliary-enteric anastomosis/fistula.

REFERENCES

1. Chen W, Ma T, Bai X, Zhang X, Shen Y, Lao M, Li G, Liang T. Pyogenic Liver Abscess After Pancreaticoduodenectomy: A Single-Center Experience. J Surg Res. 2019 Jul;239:67-75. doi: 10.1016/j.jss.2018.12.004. Epub 2019 Feb 25. PMID: 30818080.
2. Kim W, Clark TW, Baum RA, Soulen MC. Risk factors for liver abscess formation after hepatic chemoembolization. J Vasc Interv Radiol. 2001 Aug;12(8):965-8. doi: 10.1016/s1051-0443(07)61577-2. PMID: 11487677.
3. Stagnitti F, Stagnitti A, Tarcoveanu E. Spontaneous Biliary-Enteric Fistulas and Associated Complications: An Overview. Chirurgia (Bucur). 2021 Dec;116(6 Suppl):S28-S35. PMID: 35274609.