

Diagnostic Conundrum in Peritoneal Pathology - A Case Report on Mucinous Carcinoma Peritonei

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Abstract: A 53-year-old postmenopausal woman presented with subacute abdominal pain and imaging findings suggestive of peritoneal pathology. Radiological investigations demonstrated ascites, omental caking, and diffuse peritoneal thickening, raising possibilities including abdominal tuberculosis, inflammatory disease, and peritoneal malignancy. Colonoscopic biopsy revealed chronic colitis, while PET-CT findings favored a malignant process. Despite extensive non-invasive evaluation, the diagnosis remained uncertain. Diagnostic laparoscopy with peritoneal biopsy was subsequently performed and confirmed mucinous carcinoma peritonei. This case highlights the significant diagnostic overlap among infectious, inflammatory, and malignant peritoneal diseases and emphasizes the importance of histopathological confirmation in establishing a definitive diagnosis.

Keywords: Moderate ascites; Omental caking; TB peritoneum; Diagnostic laparoscopy; Peritoneal carcinomatosis; Pseudomyxoma peritonei; Histopathological diagnosis.

1. Introduction

Diffuse abdominal pain with features suggestive of peritoneal involvement associated with ascites leads to a significant diagnostic challenge due to overlapping inflammatory, infectious, and malignant clinical and radiological features leading to various differential diagnosis.^{1,2}

2. Case Presentation

Chief complaints- abdominal pain for 15 days

A 53-year-old post-menopausal woman with no known comorbidities presented with abdominal pain for the past 15 days, continuous, gradually progressive, more over the lower abdomen and paraumbilical region. Pain partially relieved on medications.

No h/o vomiting, loose stools, constipation, fever, bladder symptoms, hematemesis or trauma. Rare consumption of alcohol history was present

On examination the patient was poorly nourished and anaemic

Tenderness present over the lower abdomen

Mild guarding (+)

3. Investigations

- CBC showed anemia (corrected by 1 unit PRBC) and thrombocytosis.
- USG, CECT showed moderate ascites, omental caking and diffuse peritoneal thickening, mild to moderate circumferential thickening in sigmoid colon, splenic flexure and transverse colon with clumping of distal ileal loops and features suggestive of TB peritoneum
- PET-CT

Impression

- Moderate ascites noted with FDG avid multiple omental mesenteric peritoneal and serosal deposits.
- Focal FDG avidity in the collapsed ascending colon with no demonstrable wall thickening.
- No other abnormal metabolic activity noted elsewhere.

Imaging possibilities-

- Primary peritoneal carcinomatosis
- Undetectable primary with metastasis (cryptogenic ovarian carcinoma)
 - Endoscopy- esophageal candidiasis +
 - Colonoscopy- revealed multiple healed ulcers in rectal mucosa with kinking seen at the rectosigmoid junction.
 - Biopsy sent showed chronic colitis
 - Tumour markers
 - CEA 19.72ng/ml ; CA-125 276.1U/ml
 - Serum ADA- 43.8 U/L (elevated)
 - Mantoux test negative
 - TruNat (CBNAAT) negative

Differential diagnosis considered at this stage –

- Primary peritoneal carcinomatosis
- Occult ovarian malignancy
- Pseudomyxoma peritonei
- GI malignancy with peritoneal metastasis
- Abdominal tb
- Peritoneal mesothelioma

As each investigation modality prompted different etiologies such as CT suggesting infectious cause like TB, biopsy suggesting inflammatory pathology and PET-CT suggesting malignancy, we went forward with diagnostic laparoscopy and sent biopsy from parietal wall deposits.



Biopsy impression- features suggestive of mucinous carcinoma peritonei

Suggested IHC correlation CK7 CK20 (to differentiate the primary site of adenocarcinoma of unknown origin-primary ovarian mucinous tumors /metastatic gastrointestinal adenocarcinoma)

Final Diagnosis: Mucinous carcinoma peritonei.

Management and Outcome

The patient was managed symptomatically during the journey of coming to a definitive diagnosis. The treatment mainly consisted of various i.v antibiotics sequentially, i.v painkillers and i.v antispasmodics.

Due to ambiguities around noninvasive modalities of diagnosis, the patient was taken up for diagnostic laparoscopy with biopsy, results of which were suggestive of probable carcinomatosis for which the patient was referred to higher center for more targeted management but unfortunately, as the patient feels completely drained because of this repetitive cycle she currently chooses to focus on symptomatic management rather than the cause.

4. Discussion

Peritoneal diseases can be multifaceted causing immense diagnostic dilemma due to non specific & overlapping clinical and radiological features.^{1,2}

- Though tumor markers & imaging may be suggestive, they lack specificity, further reinforcing the importance of histopathological confirmation.^{3,4}
- Diagnostic laparoscopy is often considered the gold standard in such scenarios as it offers more direct visualization of the peritoneal pathology.^{2,5}

The rationale behind highlighting this case,

- Wearisome & complex diagnostic journey
- Diligence & dedication of the treating team who went on with step by step evaluation resisting a premature diagnostic closure.

- The unavoidable emotional & psychological turmoil experienced by the patient due to the prolonged uncertainty & tedious investigations.

5. Summary

Peritoneal diseases frequently present with overlapping infectious, inflammatory, and malignant features, making definitive diagnosis challenging. In cases where non-invasive investigations remain inconclusive, diagnostic laparoscopy with histopathological examination remains a highly valuable tool for establishing the correct diagnosis and guiding further management.

6. Learning Points

- Abdominal pain with ascites indicating peritoneal involvement has a wide range of differential diagnosis & requires a systematic stepwise approach.
- Imaging findings of peritoneal thickening & omental caking could be suggestive of both infectious & malignant conditions.
- Prompt escalation into invasive techniques like diagnostic laparoscopy with biopsy should be considered as per the patient's condition as it remains the definitive track to the right diagnosis in cases of prolonged uncertainty
- IHC markers play a crucial role in recognising the primary origin of the pathology.

To conclude, clinical commitment, multidisciplinary collaboration & proper patient reassurance are crucial components when confronted with such challenges.

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