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Case Report

Pericardial Effusion Presenting as Unclear Abdominal Pain: A Case Report

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Abstract

Pericarditis typically presents with characteristic chest pain, but atypical presentations can lead to diagnostic challenges and delays. We report an unusual case of pericardial effusion presenting primarily as left-sided flank pain, mimicking abdominal pathology in an 83-year-old woman. The physical examination revealed minimal abdominal findings but elicited left thoracic discomfort upon palpation of the left colon. Imaging revealed a significant pericardial effusion with a 5 cm rim requiring therapeutic pericardiocentesis. This case highlights the importance of considering cardiac etiology in patients with atypical abdominal presentations, particularly in elderly patients with multiple comorbidities.

Keywords: *Pericarditis; Pericardial Effusion; Atypical Presentation; Abdominal Pain; Diagnostic Challenge*

Introduction

Acute pericarditis typically presents with characteristic chest pain in 85 - 90% of cases, often described as sharp, pleuritic, and positional in nature. However, atypical presentations occur and can pose significant diagnostic challenges. Atypical symptoms include shoulder discomfort, abdominal discomfort, or even nausea, which can lead to misdiagnosis and delayed treatment.

Point-of-care ultrasonography can provide critical information in patients with vital sign abnormalities, and cardiac tamponade can present as abdominal pain [1]. The incidence of atypical presentations of pericarditis with predominant abdominal symptoms is rare, occurring in less than 10 - 15% of cases based on available literature [2]. Constrictive pericarditis can present with vague abdominal symptoms, emphasizing the need for high clinical suspicion [3].

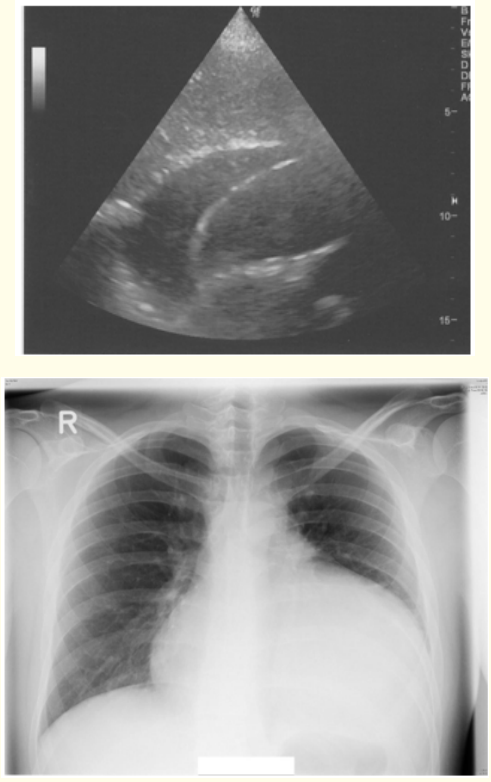
Case Presentation

An 83-year-old female was transferred by emergency medical services from her primary care physician with the preliminary diagnosis of "unclear abdominal discomfort". The patient reported a one-week history of constant left-sided flank pain, rated 5/10 on the visual analog scale, without radiation. She denied nausea, vomiting, fever, or changes in bowel or urinary habits, maintaining good appetite throughout the illness.

Her past medical history was complex and consisted of hypertension, heart insufficiency NYHA III, chronic kidney disease stage III, and atrial fibrillation for which she was on Warfarin. She had undergone cholecystectomy in 1998.

On examination, the patient appeared in an age-appropriate general condition with a slender habitus and normal mental status. The abdominal examination revealed a soft, non-tender abdomen with no peritoneal signs, guarding, or rebound tenderness. A 2 cm umbilical hernia was present with a reducible content and no signs of incarceration. Bowel sounds were diminished. Kidneys were no tender bilaterally, and no inguinal hernias were detected. Notably, palpation of the left colon elicited left thoracic discomfort, which was the only significant finding linking the abdominal complaints to a potential thoracic etiology. Some tenderness could be provoked on lateral compression of the rib cage.

The laboratory results came back as quite unremarkable. The complete blood count showed leukocytes 10,000/µL (normal), C-reactive protein < 5 mg/L (normal), normal liver function tests, creatinine 1.2 mg/dL, and also a normal troponin T.



Figure

The abdominal ultrasonography demonstrated homogeneous upper abdominal organs, normal kidneys, no free fluid in the pelvis, and normal peristalsis of the bowl. The epigastric views, however, revealed a pericardial effusion. Chest radiography revealed an enlarged cardiac silhouette, unusual even for a supine radiograph. The transthoracic echocardiography identified a significant pericardial effusion with a 5 cm circumferential rim. The ECG showed a sinus rhythm without typical pericarditis changes.

Given the large pericardial effusion, ultrasound-guided pericardiocentesis was performed, yielding 500 ml of amber-coloured fluid. The procedure was successfully conducted and without complications.

The aspirated fluid was sent for comprehensive analysis including: Syphilis serology (*T. pallidum* IgG/IgM antibodies), Hepatitis C virus IgG antibody, Hepatitis B surface antigens, HIV p24 antigen and antibodies, Bacterial cultures (aerobic and anaerobic), *Mycobacterium tuberculosis* cultures and QuantiFERON test, cytological examination for malignant cells.

Any infectious or malignant etiologies could be ruled out based on the negative results of the fluid analysis. The patient's abdominal pain resolved following pericardiocentesis, confirming the cardiac origin of her symptoms. She received a course of Aspirin, which was recommended over a period of 3 weeks with regular lab follow-ups.

Discussion

This case represents an unusual presentation of pericardial effusion, where the primary complaint was left-sided flank pain rather than typical chest symptoms. The diagnostic challenge was compounded by the patient's age, multiple comorbidities, and the absence of classic pericarditis symptoms such as chest pain, fever, or positional variation.

The differential diagnosis for left-sided flank pain in an elderly patient includes renal pathology (nephrolithiasis, pyelonephritis, renal infarction), gastrointestinal causes (colitis, bowel obstruction, splenic pathology), musculoskeletal disorders, vascular causes (aortic pathology), and cardiac causes (pericarditis, myocardial infarction with atypical presentation) The mechanism underlying abdominal pain in pericardial disease is multifactorial. In patients with subacute tamponade, a prominent presenting symptom can be right upper quadrant pain due to hepatic venous congestion and peripheral edema [4]. In our patient, the left-sided nature of the pain may have resulted from diaphragmatic irritation or referred pain from the pericardial inflammation.

The amber-coloured appearance of the pericardial fluid in our patient provided important diagnostic information. Normal pericardial fluid is typically clear and pale yellow, containing less than 50 ml. The amber coloration suggests several possible etiologies and characteristics: Amber-coloured pericardial fluid typically indicates an exsudative effusion with elevated protein content (> 3.0 g/dL) and increased cellularity [5]. This distinguishes it from transudative effusions, which are usually clear or pale yellow and associated with heart failure or other systemic conditions.

Differentials can be based on fluid colour. The amber appearance helps narrow the differential diagnosis. While bloody or serosanguineous fluid might suggest malignancy, trauma, or recent cardiac intervention, amber fluid is more commonly associated with inflammatory conditions, including idiopathic pericarditis, autoimmune disorders, or chronic inflammatory processes [3].

Currently, 40% to 85% of pericarditis cases have no identified etiology and are classified as idiopathic, with most presumed to have viral origins [2]. 12% to 23% of patients with pericardial effusion can have an underlying malignant condition, with lung cancer accounting for 37% of malignant effusions, breast cancer 22%, and leukaemia/lymphoma 17% [3]. 5 - 15% of cases are found to be due to infectious diseases either bacterial or tuberculous [5], 5 - 10% autoimmune/connective tissue disorders [4], 2 - 5% after post-cardiac injury [1], and 2 - 8% due to uraemia [3].

The amber coloration may also suggest a subacute or chronic process rather than acute pericarditis, which would typically produce clearer fluid. This is consistent with our patient's one-week symptom duration and the absence of acute inflammatory markers such as fever or significantly elevated CRP.

Amber-coloured effusions, when inflammatory in nature and without malignant cells or infectious organisms, generally have a more favourable prognosis compared to purulent or hemorrhagic effusions [1].

In our elderly patient with multiple comorbidities and amber-coloured fluid negative for infectious and malignant etiologies, an idiopathic inflammatory cause was most likely, representing the most common category in contemporary series.

Similar cases have been reported in the medical literature, though they remain uncommon. Purulent pericarditis is rapidly fatal if untreated, and cases have been documented where children presented with purulent pericarditis mimicking acute abdomen [5]. However, cases in elderly patients presenting primarily with flank pain are exceedingly rare. Constrictive pericarditis can present with vague abdominal symptoms [3]. Anaemia and elevated liver function tests are common laboratory abnormalities. Indirect CT findings of dilated IVC and/or hepatic veins, ascites, or cirrhosis should prompt inspection of the pericardium. This emphasizes the importance of considering cardiac pathology in patients with unexplained abdominal symptoms.

Based on current evidence-based guidelines, the treatment of viral or idiopathic pericarditis follows a standardized approach [2]. The first-line treatment consists of: Ibuprofen 600 mg three times daily for 1-2 weeks, usually with a proton pump inhibitor for gastroprotection [5], alternatively Aspirin 750-1000 mg three times daily.

The use of colchicine for the initial episode is reported to show an approximately 50% lower recurrence rate [2]. The dosage consists of 0.5 mg twice daily (0.5 mg once daily if <70 kg or intolerant) over a period of 3 months for first episode

Besides, the patient is advised to restrict exercising until symptom resolution and normalization of inflammatory markers have been achieved [5].

Treatment duration is symptoms-and-CRP guided, but generally takes one to two weeks for uncomplicated cases [2]. Symptom resolution and normalization of inflammatory markers should be achieved.

Corticosteroids are second-line therapy for those who do not respond, are intolerant, or have contraindications to NSAIDs and colchicine [3]. Low to moderate doses of prednisone (0.2-0.5 mg/kg/day) may be prescribed, but steroids have been linked with increased recurrence rates.

Pericarditis may recur in as many as one-third of patients who present with idiopathic or viral pericarditis [1]. Patients with acute pericarditis treated with colchicine in combination with traditional anti-inflammatory therapy experience significantly reduced rates of incessant or recurrent pericarditis [2].

This case shows the diagnostic challenges and clinical implications. The rarity of this presentation underscores several important clinical points: In elderly patients with multiple cardiac comorbidities presenting with atypical abdominal pain, pericardial disease should be considered in the differential diagnosis. The key physical finding in our case was the reproduction of thoracic discomfort rather than abdominal findings. The standard imaging included chest radiography showing cardiomegaly and ultrasound with clear evidence of pericardial effusion highlighting the importance of cardiac imaging in patients with unexplained symptoms. Finally, the instant resolution of abdominal pain following pericardiocentesis confirmed the cardiac etiology and emphasized the therapeutic as well as diagnostic value of this procedure.

Conclusion

Our case illustrates a rare but important presentation of pericardial effusion manifesting as left-sided flank pain in an elderly patient. With atypical presentations of pericarditis occurring in approximately 10-15% of cases [Imazio and Gaita 2015], clinicians must maintain a high index of suspicion, particularly in patients with significant cardiac comorbidities. The combination of careful physical examination, appropriate imaging, and therapeutic intervention led to successful diagnosis and treatment.

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