

Received: 2012.04.25
Accepted: 2012.06.14
Published: 2012.07.04

Pulmonary thromboembolism presenting with abdominal symptoms

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Summary

Background:

Abdominal pain is rarely reported as the presenting complaint of pulmonary thromboembolism.

Case Report:

We report a case of a 42 year old white male with no known past medical problems except a left humeral fracture two weeks prior who presented to the emergency department with acute onset of right flank and lower abdominal pain. Initial evaluation including abdominal CT suggested cholecystitis. Lack of improvement with empiric antibiotics and symptomatic therapy prompted further evaluation revealing the patient to have a pulmonary thromboembolism (PTE).

Conclusions:

Pulmonary thromboembolism (PTE) can be effectively treated once diagnosed. Abdominal pain as a presenting complaint in PTE is rarely reported as a cause of PTE. We believe that clinicians should consider PTE in their differential of abdominal pain in patients with risk factors for VTE.

key words:

pulmonary thromboembolism • abdominal pain • pulmonary embolism

Full-text PDF:

<http://www.amjcaserep.com/fulltxt.php?ICID=883240>

Word count:

867

Tables:

–

Figures:

–

References:

20

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BACKGROUND

Pulmonary thromboembolism (PTE) is a significant cause of morbidity, and may prove fatal if missed early in the presentation [1]. PTE is a leading cause of unexpected deaths in hospitalized patients [2,3]. Unfortunately the manifestations can be very nonspecific [4] rendering diagnosis and therapy difficult. One source estimates that greater than 50% of fatal PE cases are not suspected by medical providers [5] with autopsy studies revealing rates of up to 70% [2,6–10]. When physicians do consider PTE, it is only present in 25% to 35% of cases [2,11,12]. This disparity between clinical suspicion and diagnosis presents a significant challenge. We report the case of a young male with pulmonary embolism presenting with right flank and abdominal pain.

CASE REPORT

A 42 year old white male with an uncomplicated medical history except recent left humeral fracture following a fall, which was treated with a fixation cast two weeks earlier, presented to the emergency department with right flank and lower abdominal pain of acute onset associated with transient loose, brown, non-bloody bowel movements. On arrival, the patient normotensive with blood pressure of 130/83, heart rate 102, temperature of 100.8F and transcutaneous oxygen saturation of 97% on room air. Physical exam revealed right lower and right upper quadrant tenderness with positive Murphy's sign, and diminished breath sounds at the right lung base.

Labs were significant for a WBC of 16,000 with 90% neutrophils, along with normal chemistry profile, liver function studies, amylase and lipase levels.

An abdominal/pelvic CT scan showed distended gall bladder with sludge and/or stones, bilateral small pleural effusions, and right lower lobar atelectasis but was otherwise unremarkable. The patient was admitted to the medical floor for presumed sepsis secondary to possible cholecystitis and started on ciprofloxacin and metronidazole along with other symptomatic treatment. Follow up gall bladder ultrasound was negative for cholecystitis. However, the patient continued to have abdominal discomfort with resolution of his diarrhea. PTE was considered in the setting of persistent abdominal pain exacerbated by deep breathing unrelieved with analgesia given history of recent humerus fracture. Patient underwent CT angiogram of chest, which revealed pulmonary embolism in the lower branch of right lower lobar pulmonary artery. Doppler ultrasound evaluation of the left upper extremity was limited due to the presence of overlying cast. Antibiotics were discontinued and he was started on anticoagulation with lovenox and warfarin. His symptoms remarkably improved and subsequent hospital course was otherwise uncomplicated. The patient was later discharged to the care of his primary physician for follow up on anticoagulation. Follow up CT angiogram 4 weeks later showed resolution of pulmonary embolism.

DISCUSSION

The causes of our patient's right flank pain and transient loose stools were not known. His symptoms resolved before stool studies could be collected. The nonspecific CT scan

findings upon presentation further confounded our ability to make the diagnosis [13]. His pleuritic right abdominal wall pain with splinting in the setting of recent upper extremity fracture raised suspicion of PTE.

Pulmonary thromboembolism has a myriad of presentations [14], and often no cardiopulmonary manifestation. So high index of suspicion is necessary for diagnosis. Virchow's triad described risk factors for thrombosis including hypercoagulability, hemodynamic changes, and endothelial injury/dysfunction. Risk factors such as immobility, surgery, trauma, obesity, paralysis, history of venous thromboembolism, malignancy, and central venous instrumentation [12,15–19] serve as clues at the time of presentation of an acute PTE. New onset dyspnea is the most frequent symptom and tachypnea the most frequent sign of PTE according to the data from PIOPED II [12], but PTE has earned the title of the "great masquerader" for a good reason and should not be easily discounted from the differential.

Previous literature has not identified flank pain as one of the presentations of PTE [19]. There have been a handful of case presentations that describe abdominal pain as the presenting complaint for PTE, but the association has not been incorporated into medical literature.

Speculation exists regarding the mechanism [20]. However no subsequent literature exists to further clarify the source of the abdominal pain. Henderson et al suggest that abdominal pain involves, a) diaphragmatic pleurisy from basal lung infarction, but admits that this theory does not explain why abdominal pain is the initial presentation of PTE, b) An element of hepatic congestion related to right sided heart failure has also been described as the source of abdominal pain [20]. The exact mechanism is still unclear.

CONCLUSIONS

Medical literature should include abdominal and flank pain to the plethora of symptoms that can result from PTE. Though potentially fatal, PTE can be effectively treated once diagnosed. The challenge lies in efficiently making the diagnosis. Abdominal pain as a presenting complaint in PTE is only reported in occasional cases of PTE in adults. Clinicians should always consider PTE in their differential diagnosis of patients with recognized risk factors for venous thromboembolism in the setting of non-specific abdominal symptoms and unexplained flank pain. It is our hope that including abdominal and flank pain as potential presenting symptoms of PTE that possible delay of diagnosis can be avoided. At this point we are unable to provide further insight as to the association of abdominal pain and flank pain in PTE. Further investigations of mechanism are necessary.

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