



CASE REPORT

Urinothorax as an unusual type of pleural effusion – Case report and review[☆]

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KEYWORDS

Urinothorax;
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PALAVRAS-CHAVE

Urinotórax;
Derrame pleural;
Uropatia obstrutiva

Abstract

Background: Despite the fact that there are a great number of established etiologies for pleural effusion, there are grounds for believing that there are also causes from unusual pathophysiological mechanisms, seen in certain clinical contexts and from potential iatrogenic interventions. Urinothorax is such a rare type of pleural effusion as there are fewer than 70 cases reported worldwide.

Clinical case: A patient with a persistent left pleural effusion was admitted to the Urology ward for a lithiasic obstructive uropathy with hydronephrosis. A left percutaneous nephrostomy was performed. The effusion was unclassified at the initial workup and recurred after first drainage. A second approach confirmed a citrine fluid with borderline criteria for exudate, ammoniacal odor and an elusive pleural fluid-to-serum creatinine ratio. A retroperitoneal urinoma was recognized on CT, and the patient underwent a left nephrectomy with resolution of the pleural effusion.

Conclusions: Urinothorax most frequently develops in patients with excretory uropathy or blunt abdominal trauma, although other mechanisms have been reported. Traditionally, a pleural fluid to serum creatinine ratio higher than one is a hallmark of this condition. In certain settings, taking this diagnosis into account at an early stage might be crucial for a good outcome.

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Urinotórax como causa rara de derrame pleural – Revisitação a propósito de caso clínico

Resumo

Contexto: Apesar da multitude de etiologias de derrame pleural, algumas causas decorrentes de mecanismos patofisiológicos incomuns podem ser suspeitadas com base em determinados

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contextos clínicos sugestivos ou intervenções com potencial iatrogénico. O urinotórax é um tipo raro de derrame pleural com menos de 70 casos mundialmente reportados.

Caso clínico: Um doente que fora internado na Urologia por uropatia obstrutiva litiásica com hidronefrose, é diagnosticado com derrame pleural esquerdo persistente. Havia sido sujeito à colocação ipsilateral de nefrostomia percutânea. Após a primeira toracocentese diagnóstica a causa do derrame não era aparente. Uma segunda abordagem confirmou a presença de líquido citrino com critérios *borderline* para exsudato, odor amoniacal típico e um *ratio* evocativo entre creatinina pleural e sérica. A tomografia computadorizada (TC) realizada diagnosticou presença de urinoma retroperitoneal, tendo o doente sido submetido a nefrectomia esquerda com resolução do derrame pleural.

Conclusões: O urinotórax encontra-se mais frequentemente em doentes com uropatia excretora ou trauma abdominal contuso, apesar de outros possíveis mecanismos já reportados. Tradicionalmente, um *ratio* de creatinina pleural/sérica superior a um é um traço distintivo desta condição. Em determinados contextos, a consideração desta possibilidade diagnóstica pode ser determinante para um melhor prognóstico final.

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Background

The study of pleural effusion is not often straightforward and a significant percentage of effusions remain unclassified after the initial fluid study. While there are a great variety of likely etiologies to consider initially, there are also some cases that come from rare pathophysiological mechanisms, in these cases we need to look for relevant clues from particular clinical contexts or potential iatrogenic interventions. Urinothorax, urine accumulation in the pleural space, is an unusual cause of pleural effusion that is often overlooked; fewer than 70 cases have been reported worldwide. Although various leading mechanisms have been reported, it most frequently develops in patients with kidney or excretory uropathy or blunt abdominal trauma.

Traditionally, a pleural fluid-to-serum creatinine ratio higher than one is a hallmark of this condition, and there are some other features that can assist in this diagnosis.^{1,2}

Case report

A 77-year-old male patient, with a history of obstructive chronic renal failure, nephrolithiasis and chronic alcoholism but no previous respiratory disease, was treated in the emergency department for recurrent macroscopic haematuria. He had recently had a left ureteral catheter removed following a renal colic with evidence of radiolucent calculi and ipsilateral hydronephrosis. He was admitted to the Urology ward, and a right ureteral catheter was inserted and a percutaneous nephrostomy catheter positioned on the left side.

On the sixth day after admission he was found to have a moderate size left pleural effusion. Under clinical observation he was afebrile, eupneic, with SaO₂ 97%, blood pressure 108/60 mmHg, normal heart sounds, 82 bpm, with no murmurs; chest expansion was symmetric, with no breath sounds and vocal fremitus on the left lung base, and accompanying dullness to percussion; there were no peripheral edemas or adenopathies. He presented abdominal

discomfort on the left iliac quadrant. The left percutaneous nephrostomy catheter presented serous residual drainage.

The patient did not present cough, chest pain or orthopnea, and was under standard thromboembolic prophylaxis. He was medicated with losartan, calcium, epoetin-alpha, alopurinol and tamsulosin as an outpatient. He had not been put on any other medication apart from the antibiotic and there was no recent known respiratory infection. He had an occupational history of agriculture, without recognizable asbestos exposure.

The first chest radiograph (Fig. 1) presented an increased homogeneous opacification on the left lower hemithorax, suggestive of a small to moderate-sized pleural effusion. A contralateral T-tent hemidiaphragm was present. Thoracic ultrasound showed a mobile effusion with no pleural nodules or thickening.

Blood test showed a creatinine of 2.4 mg/dL (patient's normal base value of 1.7), hypoalbuminaemia of 2.0 g/dL, DHL 322 U/L, CRP 11.2 mg/dL, procalcitonine 0.2 mg/dL, hemoglobin 9.4 g/dL, 5.1 white cells/L, proteins 5.3 g/dL, and normal serum amylase and amylasuria.

Prior to the pleural fluid study there had been several possible etiologies, such as cardiogenic effusion,

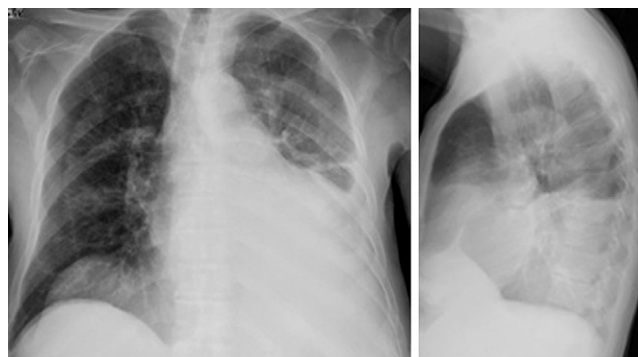


Figure 1 Chest radiograph at first observation.

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