

You're in the Chest? A Rare Case of Urinothorax

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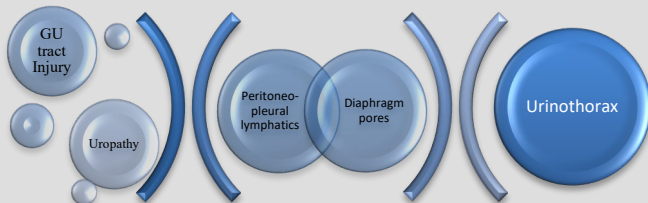
Introduction

Urinothorax is the presence of urine in pleural space. It is a rare complication of obstructive uropathy and an under-recognized cause of transudative pleural effusion. Diagnosis of urinothorax relies on high index of suspicion and pleural fluid analysis.

Case Presentation

A 79-year-old male presented with complaints of abdominal pain, distension and urinary incontinence after recent surgery. Upon admission, the patient had acute renal failure with serum creatinine of 5.57 mg/dl. Chest x-ray revealed a large left-sided pleural effusion. (Fig.1) A subsequent CT scan of the abdomen and pelvis, showed a large left pleural effusion with adjacent atelectasis, left hydronephrosis with perinephric fluid collection and thickening of the proximal left ureter and prostatic enlargement. (Fig.2,3) A bladder ultrasound showed a post void residual of approximately 1000 mL of urine. A Foley catheter was placed and immediately drained about 2 L of urine. Thoracentesis of the left pleural effusion was performed. On pleural fluid analysis, the fluid was yellow in color, with 0.8 g/dl protein, 128 mg/dl glucose, 60 U/L LDH and creatinine of 2.57mg/dl. The fluid was transudative in nature by Light's criteria. Pleural fluid creatinine to serum creatinine ratio of 1.73 was suggestive of urinothorax. Repeat imaging reported resolution of left pleural effusion. This was followed by normalization of creatinine over the course of 48 hours.

Pathophysiology



Imaging

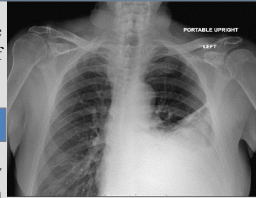


Fig.1

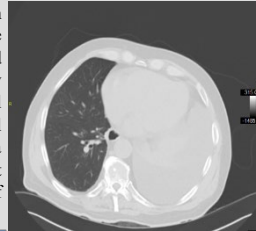


Fig.2

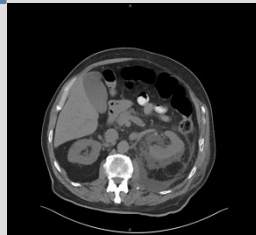


Fig.3

Discussion

Urinothorax is described as a clear yellow, paucicellular, transudative pleural effusion with total fluid protein <1.0 mg/dl.

Etiology

It is most commonly seen with obstructive uropathy or genitourinary (GU) trauma. Rare etiologies include renal cyst, renal transplant, ureteral valves, ileal conduits.

Diagnosis

- Dyspnea along with presence of ipsilateral GU tract injury/obstructive uropathy.
- Pleural fluid analysis: transudate, pH<7.4, pleural fluid to serum creatinine ratio >1.0.
- CT and ultrasound abdomen help in identifying GU tract pathology. A technetium 99m renal scan confirms diagnosis by demonstrating translocation of 99Tc labeled albumin from GU tract into the pleural space.

Management

- Thoracentesis provides diagnostic and therapeutic benefits.
- Correction of underlying GU pathology provide rapid resolution of urinothorax.

Conclusion

In a 2017 systematic review by Toubes et al. 88 cases of urinothorax were reported thus making it a rare entity, the diagnosis challenging and often requiring a multidisciplinary approach. Detailed history can be helpful. In our patient presence of urinary symptoms along with findings of acute renal failure, unilateral pleural effusion with evidence of hydronephrosis and prostate enlargement prompted us to pursue urinothorax as a differential diagnosis. Diagnosis should be considered in the differential diagnosis of pleural effusion associated with urinary obstruction, recent GU manipulation or renal trauma.

References

- Austin A, Jogani SN, Brasher PB, Argula RG, Huggins JT, Chopra A. The Urinothorax: A Comprehensive Review With Case Series. Am J Med Sci. 2017 Jul;354(1):44-53. doi: 10.1016/j.amjms.2017.03.034. Epub 2017 Apr 7. PMID: 28755732.
- Freitas A, Coelho T, Beça S, Gregório T. Pleural Effusion Secondary to Obstructive Uropathy: A Case of Urinothorax. Eur J Case Rep Intern Med. 2020 Sep 16;7(12):001865. doi: 10.12890/2020_001865. PMID: 33312995; PMCID: PMC7727635.
- Toubes ME, Lama A, Ferreiro L, et al. Urinothorax: a systematic review. J Thorac Dis. 2017;9(5):1209-1218. doi:10.21037/jtd.2017.04.22