Urinothorax, another complication of bladder tumor: case report

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Abstract

Background: Rupture of the fornix is a rare and serious urological complication of obstructive pathologies. The main cause is ureteral stone, but rarely a bladder tumor. Described complications of fornix rupture are superinfection, perirenal abscesses and even sepsis, but not urinothorax.

Case presentation: Patient of 56 years old, active and chronic smoker, was hospitalized for anemia and obstructive renal failure on a non-documented bladder tumor; clinically, he was presented with hematuria and an intense right loin pain associated with homolateral basithoracic pain and dyspnea. The CT scan without injection showed a right perirenal collection with bilateral renal dilatation on endo-vesical tumor and a right pleural effusion of less abundance. The ratio of pleural fluid creatinine to blood creatinine was greater than 1, confirming urinothorax. As an emergency, a percutaneous nephrostomy was performed. After clinical stabilization, the patient underwent a trans-urethral resection of the bladder and derivation by a double j stent. The ultimate evolution was favorable.

Conclusions: Beyond the metabolic complications secondary to obstructions, mechanical complications, which can also be fatal, must be included.

Keywords: Bladder, Tumor, Fornix rupture, Urinothorax, Case report
pleural effusion. A CT scan without injection of iodinated contrast confirmed the presence of a right perirenal collection with bilateral ureterohydronephrosis (Fig. 1) on a heterogeneous intravesical tumor (Fig. 2) and a right sided pleural effusion of a small amount (Fig. 3).

The emergency management plan started by bladder catheterization and declotting, an intravenous access for rehydration and antibiotic therapy, transfusion and bilateral percutaneous nephrostomy. After pneumological evaluation, a pleural puncture for diagnostic purposes (biochemical, bacteriological and cytological study) was performed. After clinical stabilization, a transurethral bladder tumor resection was performed with bilateral double J-tube stent. The histopathological study of the resection cuts confirmed a high-grade urothelial bladder carcinoma infiltrating the lamina propria.

3 Discussion
To our knowledge, this is the first reported clinical case of urinothorax secondary to fornix rupture due to bladder tumor. Based on the various data in the literature, we will discuss our case.

Spontaneous fornix rupture is a rare urological emergency and is one of the possible complications of excretory tract obstructions [1]. Obstruction of the upper urinary tract causes pressure in the renal pelvis that would lead to possible rupture of the fornix [2]. In most cases, it manifests itself by the sudden appearance of an intense loin pain. Diagnosis can be made by CT scan [3]. Total clotting gross hematuria associated with acute low back pain was the clinical manifestation in our patient. Chest pain was present.

It is a predominantly male entity (70% of men) that can lead to acute renal failure in 30% of cases. Urine culture was positive in 6 patients (15%) [4]. In this study, the patient was 56 years old. A renal insufficiency was found, the bacteriological examination of the urine isolated a germ, a multi-sensitive Escherichia Coli.

Out of 162 patients, urolithiasis was found in 60% of cases as the cause and in 28% of cases no cause was found for fornix rupture. Other causes were isolated but not the bladder tumor [1]. Urinothorax is a rare complication of blunt kidney trauma, ureteral instrumentation or ureteral surgery. Leakage from the urinary tract causes a urinoma (retroperitoneal accumulation of fluid) which can lead to a urinothorax [5]. The most specific biochemical aspect of urinothorax is the presence of a ratio of pleural fluid creatinine to blood creatinine greater than 1 [6]. The management of urinothorax requires a multidisciplinary
approach based on the correction of the underlying genitourinary obstructive pathology, which allows for a rapid and spontaneous resolution of the pleural effusion [7]. We are reporting a case of ruptured fornix due to bladder tumor leading to an urinothorax. The biochemical analysis allowed us to consolidate the diagnosis.

Conservative management is a valid option in uncomplicated cases. Urinary derivation should be reserved for complicated cases or cases with significant urinoma [4]. Specifically, the emergency treatment consisted of a bilateral nephrostomy, urinary diversion which has a double interest in this patient (urinoma and obstructive renal failure). The definitive treatment consisted of endoscopic resection of the tumor with bilateral double J-tube stenting. Since our patient was asymptomatic on the respiratory level and the effusion was of low abundance, the urinothorax was respected. On the time of control by chest X-ray, we did not notice any pleural effusion. The consequences were simple by the improvement of clinical signs and symptoms and the normalization of biological parameters.

4 Conclusions
Although rare or even unknown, the authors draw attention to the possibility of a urinothorax which may be due to a rupture of fornix in front of any obstructive pathology of the excretory tract. Beyond the metabolic complications secondary to obstructions, mechanical complications, which can also be fatal, must be included.

Abbreviations

g/dl: Gram per deciliter; /mm3: Per millicubic meter; mEq/l: Milliequivalent per liter.

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Declarations

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Not applicable.

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Competing interest
The authors declare that they have no competing interests.

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