



Non dilated obstructive uropathy secondary to tur-syndrome in patient with solitary kidney

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ABSTRACT

Non-dilated obstructive uropathy (NDOU) is a condition of renal insufficiency characterized by functional kidney failure and inability of collective system to dilate because of several causes, e.g. hypotension, severe oliguria or dehydration. TUR-syndrome is a complication of bladder resection possibly leading to this condition through electrolytic disequilibrium after fluids reabsorption. We present the case of a patient with solitary kidney suffering from this uropathy regardless of mild electrolytic disorders and small bladder perforations. Prompt diagnosis and management with ureteral stent or nephrostomy tube are imperative in this setting.

1. Introduction

Non dilated obstructive uropathy (NDOU) is an uncommon manifestation of renal insufficiency characterized by acute kidney failure and inability of collecting system to dilate.

Among the most common causes of this nephropathy, we can account hypotension, hydro electrolytic disorders and renal hypoperfusion, leading to functional renal damage with no dilation.¹

One predisposing condition that might lead to NDOU is TUR-syndrome, a complication of endourologic surgery secondary to irrigating fluids absorption.²

Here we present a case of a patient with solitary kidney, affected by non-dilated obstructive uropathy (NDOU) secondary to TUR-syndrome with mild hyponatremia, following small bladder extraperitoneal perforation.

2. Case presentation

A 72 years old male patient with solitary right kidney was referred to our institution for a 1.0 cm papillary lesion on the right bladder wall. Preoperative creatinine level was 1.2 mg/dl with Sodium 140 mMol/l and GFR 60 ml/min/1.73 mc.

Irrigation was conducted with saline solution and generator was a bipolar one.

During resection, obturator jerk was stimulated and bladder deep resection was accidentally carried out. Perivesical fat was visible through the hole, that measured about 1 cm in width.

Urethral catheter was maintained for 4 days without bladder irrigation.

Patients was asymptomatic during the postoperative course and was discharged on the 4th day with spontaneous micturition.

One week later he was referred to our emergency department for anuria. Blood creatine was 4,3 mg/dl, urea 123 mg/dl, blood urea nitrogen (BUN) 57,47, Sodium 132 mMol/l, blood pH 7,39, HCO₃- 16,3 mmol/l, pCO₂ 27 mmHg. Ultrasound and CT abdominal scan did not detect hydronephrosis or abdominal fluid collections. Nephrologist managed the patient with 1000 ml of hypertonic solution administered intravenously, followed by a single administration of furosemide 20 mg. due to further rising of blood creatinine (5,9 mg/dl) without hydronephrosis, non dilated obstructive uropathy was suspected and ureteral double J stent was placed, with following improvement of both creatinine and diuresis.

Patient was discharged on 10th postoperative day with blood creatinine at 1.3 mg/dl.

3. Discussion

Non-dilated obstructive uropathy (NDOU) is a condition

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characterized by functional kidney failure and inability of collective system to dilate because of several causes, e.g. hypotension, severe oliguria, dehydration, acute obstruction or oncologic disease.¹

These hypovolemic and hydro electrolytic disorders can be associated to TUR-syndrome, a complication of bladder wall perforation possibly bringing to hypovolemia, hypotension, oliguria, acute renal impairment, and metabolic acidosis secondary to electrolytic disequilibrium.^{2,3} NDOU has to be strongly suspected in patients presenting with acute onset of severe oliguria/anuria and relative dissociation of very high admission serum creatinine in the setting of minimal or absent uremic symptoms without hydronephrosis.^{1,4} No dilation of urinary tract is the cornerstone in radiological diagnosis of NDOU.¹ When this condition is suspected, early decompression therapies (e.g. ureteral stents or nephrostomy tubes) are the only and imperative management required.¹ On the other hand, TUR-syndrome and bladder perforation management depend on severity of symptoms and electrolyte disorders, ranging from catheter placement to surgical management.⁴ In cases of severe electrolytic disequilibrium (sodium concentration ≤ 125 mmol/with or without neurologic symptoms), active treatment is required with hypertonic saline solution and loop diuretics.⁵ Diuretics must be carefully administered before intravascular volume is adequately replenished, for the risk of suddenly renal perfusion worsening.²

4. Conclusions

Our case suggests that non dilated obstructive uropathy (NDOU) could be the only manifestation of TUR-syndrome and small bladder perforation in patients with solitary kidney. The key teaching is that even mild hyponatremia (>125 mMol/l) must be considered a warning bell in special settings of patients as those with solitary kidney.

About treatment, if such a clinical scenario is suspected, immediate management with ureteral stent or nephrostomy tube must be carried

out.

In order to prevent NDOU, we suggest prolonged catheterization in patients with solitary kidney and bladder perforation, even small in width. Medical management with diuretics, if advised, must be administered in a setting of restored volemia to avoid worsening kidney hypoperfusion.

Authors contribution

Writing: Edoardo Agostini, Maria Vittoria De Angelis.

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Declaration of competing interest

None.

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