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Ureteral stents, sepsis and acute kidney injury: Iatrogenic imperfecta!

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Case presentation

A 62-year-old woman with a past history of placement of bilateral ureteral "JJ" stents, presented to the hospital complaining of fever, chills, abdominal pain, oliguria and was found to be hypotensive. She was admitted to the intensive care unit (ICU), with the diagnosis of sepsis secondary to a urinary source. Her white blood cell count (WBC) was 21,200/mm3, blood urea nitrogen (BUN) 40 mg/dL, and serum creatinine 2.1 mg/dL. Her systolic blood pressure was 75 mmHg after administration of bolus of intravenous fluid (30 ml/Kg). She was then started on norepinephrine with improvement in her mean arterial blood pressure. An emergency ultrasound of her abdomen showed severe left hydronephrosis, and a non-obstructive right mid renal calculus. The urinary bladder was mildly distended. No free fluid was identified. She underwent placement of a Foley catheter and was started on ciprofloxacin intravenously. Eight hours after placement of the Foley catheter, she developed gross hematuria and she was initiated on bladder irrigation. Her serum creatinine worsened to 4.2 mg/dL.

An emergency computed tomography (CT) scan of abdomen and pelvis demonstrated left kidney hydronephrosis (**Figure 1**). The patient's left sided JJ stent coursed into the urinary bladder. Air was visualized in the right renal collecting system, in the pelvis as well as within ureter. The right sided JJ stent terminated around the Foley catheter in the distal ureter. In addition, the bladder demonstrated significant thickening with irregular margins. She responded to antibiotic therapy and hydration and eventually was weaned off vasopressors. She was discharged home few days later with urology outpatient follow up.

Key words: Hydronephrosis, Foley catheter, hematuria, JJ ureteral stent.

Discussion

Bladder catheterization is occasionally needed in some cases of complications after JJ stent placement. With increased use of these devices, encrustation, stent migration, fragmentation, as well as stone formation, can be seen. (1,2) Other complications that can be seen include occlusion and spontaneous fracture of the stent. Migration, such as in the case of our patient, has been reported to either the kidney or the bladder. This migration is usually related to the shape and material of the stent. (3)

Our patient also presented encrustation of the stent. This is usually related to the indwelling time, persistent urinary sepsis, chemotherapy, chronic renal failure, pregnancy, stone disease, as well as, metabolic or congenital abnormalities. This can be prevented by exchanging the stent every 2-4 months. (4)

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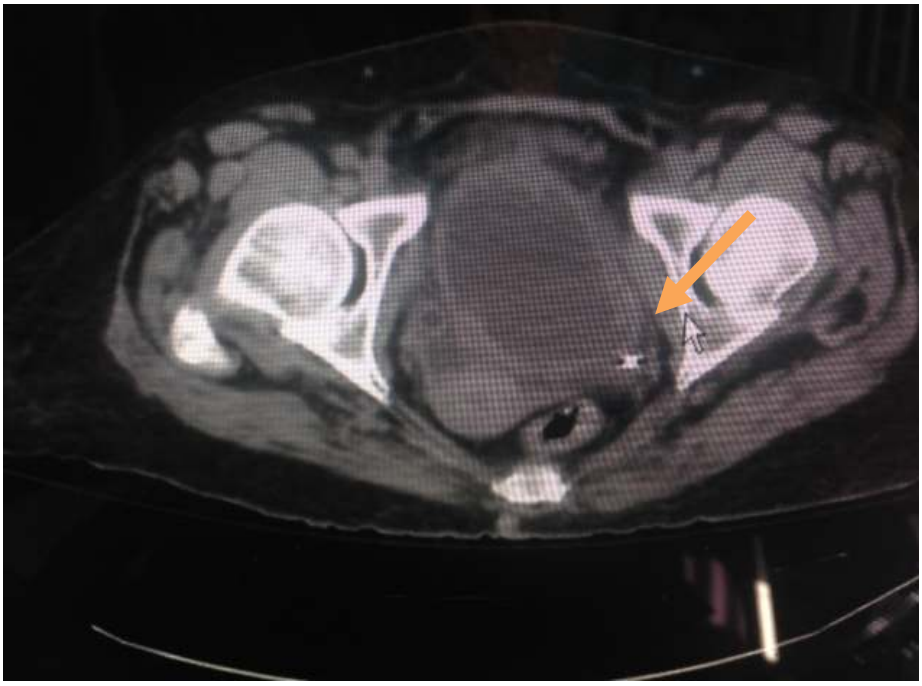
Figure 1. Computed tomography (CT) scan of abdomen and pelvis



Legend: Computed tomography (CT) scan of abdomen and pelvis demonstrated distal migration of JJ stent into the bladder (arrow). In addition, the bladder has significant thickening with irregular margins.

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