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Case Report

Urology Section

Haemorrhagic Cystitis in a Case of Secondary Pelviureteric Junction Obstruction: A Rare Case Report

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ABSTRACT

Haemorrhagic cystitis ranges in severity from a transient condition to a life-threatening condition which may quickly resolve or require intervention on a priority basis. It is characterised by bleeding from the bladder mucosa and diffuse inflammation. Case of fungal haemorrhagic cystitis with secondary Pelviureteric Junction Obstruction (PUJO) is relatively rare. Hereby, the authors present a case of 57-year-old male who presented to Emergency Department with painful haematuria and increased frequency of micturition, found to have bladder clots and right secondary PUJO on diagnostic investigation. Clot evacuation and bleeder fulguration with right Double J (DJ) stenting was done. Urine culture and sensitivity report was suggestive of budding yeasts. Uncontrolled diabetes mellitus, with an HbA1c of 8.1%, could explain it. He was discharged on postoperative day two with oral cephalosporins and oral antifungals with Foley catheter in-situ. It was followed by Diethylene Triamine Penta Acetic Acid (DTPA) scan 15 days later, which revealed an enlarged, poorly functioning hydronephrotic obstructed right kidney with Glomerular Filtration Rate (GFR) of 5.7 mL/min, and satisfactorily functioning hydroureteronephrotic left kidney with GFR of 54.6 mL/min. Right open simple nephrectomy was done through the 11th rib flank incision to prevent future complications. Haemorrhagic cystitis should be kept as a differential diagnosis in patients with haematuria not responding to conservative management with multiple co-morbidities. Management of underlying cause remains the key to treatment.

Keywords: Haematuria, Hydronephrosis, Inflammation, Nephrectomy, Pyeloplasty

CASE REPORT

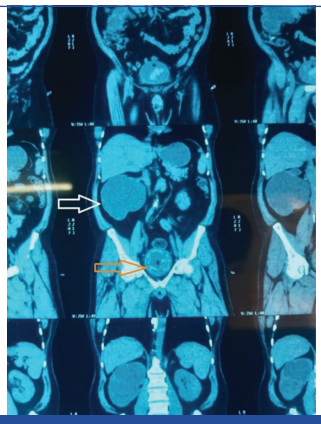
A 57-year-old male patient presented in the emergency department with chief complaints of pain in the lower abdomen, dysuria, haematuria, increased frequency of micturition (approximately every twenty minutes), and incomplete emptying of micturition since last six hours. Suprapubic pain was dull, aching, continuous, and not relieving on any medications. Haematuria was associated with pain and was throughout micturition. Patient had storage symptoms, in the form of increased frequency of micturition daytime (10-12 times night 3-4 times) and urgency three weeks ago, for which he was taking α-blocker and β3 agonist as prescribed.

He had a past history of right laparoscopic pyeloplasty four years ago, and right silicone double J stenting a year later post pyeloplasty which was exchanged after one year and subsequently removed.

Patient is a known case of type two diabetes mellitus and on oral medications since 15 years, but blood sugar levels were irregularly checked.

On examination, patient was vitally stable, with a palpable suprapubic bladder palpable with tenderness and on digital rectal examination there was grade I prostatomegaly, which was non-tender and firm in consistency. After obtaining informed consent, patient was catheterised with 14 fr Foley catheter under local. Stat urine output was 350 ml and brownish-red. At the same time, a urine sample was sent for urine examination and urine culture sensitivity. Patient was admitted in the ward, and routine blood investigations were sent. His haemoglobin was 8.6 gm%, serum creatinine was 3 mg/dl, HbA1c was 8.1%, coagulation profile and X-ray Kidney Ureter Bladder (KUB) were within normal limits.

The urine examination report noted protein present, pus cells 20-22/hpf, Red Blood Cells (RBCs) abundant/hpf and leukocyte esterase present. Patient was started on intravenous ceftriaxone 1 gm twice daily with analgesics. An ultrasound of the abdomen was suggestive of right-sided gross hydronephrosis with paper thinning of renal parenchyma. Urinary bladder had Foley bulb, in-situ with multiple hyperechoic shadows suggestive of blood clots. Computed tomography of the KUB had impression of gross hydronephrosis on the right-side probably suggesting severe PUJO. Severe thinning of renal parenchyma, with maximum thickness measuring 8 mm at upper pole [Table/Fig-1].

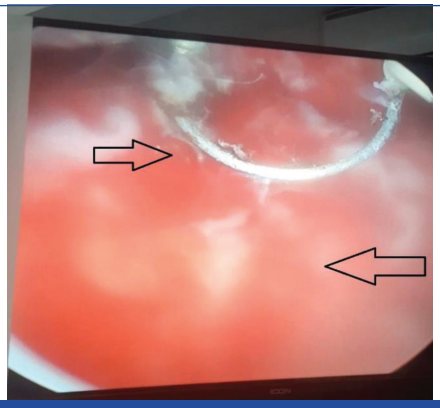


[Table/Fig-1]: White arrow demonstrates gross hydronephrosis of right kidney with severe thinning of renal parenchyma. Orange arrow demonstrates a bladder filled with blood clots with Foley bulb in-situ.

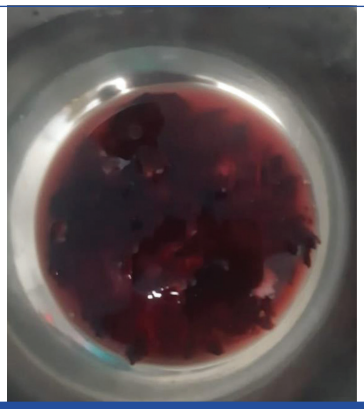
Urinary bladder was partially distended, with multiple irregular hyperdensities within its lumen suggesting blood clots. Intermittently patient had a blockage of 14 Fr Foley catheter, for which 22 fr 3-way was kept and irrigation with normal saline was started. After a pre-anaesthetic check-up, the patient was scheduled for cystoscopy with bladder wash with bleeder fulguration, right retrograde pyelography, and right DJ stenting, SOS right percutaneous nephrostomy if, (DJ stent doesn't go).

Intraoperatively, well-formed bladder clots of approximately 100 cc were evacuated from urinary bladder, and diffuse multiple sites oozing from bladder walls were seen, which were fulgurated [Table/Fig-2,3]. Right ureteric orifice was cannulated with 6 Fr ureteric catheter under the guidance of a 0.035" Terumo guide wire. Right

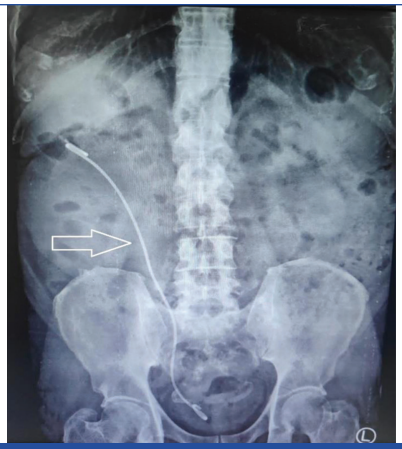
retrograde pyelography was done with diluted non ionic contrast, which depicted jet at pelviureteric junction and huge baggy kidney, suggesting severe recurrent PUJO. Right DJ stenting was done with 6 fr×26 cm DJ stent [Table/Fig-4].



[Table/Fig-2]: Bottom arrow shows urinary bladder with multiple sites of oozing. Top arrow shows cautery loop coagulating the bleeders.



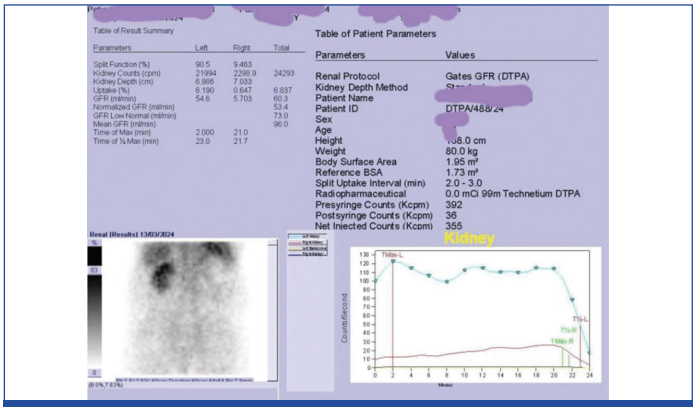
[Table/Fig-3]: Bladder clots evacuated from the urinary bladder.



[Table/Fig-4]: X-ray Kidney Ureter Bladder (KUB) showing double J stent in-situ (white arrow).

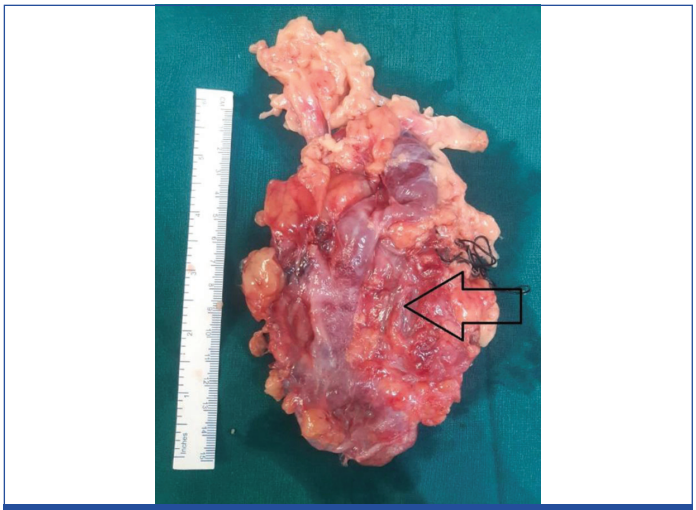
A 16 fr Foley catheter was placed post-procedure. On postoperative day one, patient had pyuria. Urine culture and sensitivity report was available after three days suggestive of budding yeasts grown. Uncontrolled diabetes mellitus, with Glycated Haemoglobin (HbA1c) level of 8.1%, could explain it. The patient, already on intravenous ceftriaxone 1 gram twice a daily, was added with prescribed a tablet fluconazole 300 mg twice daily for seven days. Being vitally stable, he was discharged on postoperative a day two with oral cephalosporins and oral antifungals, with Foley catheter remaining in-situ.

On follow-up visit after seven days, pyuria was still present, leading to a delay in removing the Foley catheter removal was delayed for another one week. Once urine was clear in tubing after 15 days postoperatively, Diethylenetriamine Pentaacetic Acid (DTPA) scan was done and the Foley catheter was removed. DTPA scan showed enlarged poorly functioning hydronephrotic obstructed right kidney with GFR of 5.7 mL/min, and satisfactorily functioning hydroureteronephrotic left kidney with GFR of 54.6 mL/min [Table/Fig-5].



[Table/Fig-5]: The DTPA scan showing poorly functioning right kidney with satisfactorily functioning left kidney.

Given that the GFR of right kidney was less than 10 mL/min, and after providing proper counselling, obtaining written informed consent, and performing a pre-anaesthetic check-up, patient was taken for right open simple nephrectomy through 11th rib flank incision. After mobilising right kidney and identifying renal artery and renal vein, both were doubly ligated and cut respectively. Haemostasis was confirmed, and after putting an abdominal drain, abdomen was closed in layers [Table/Fig-6].



[Table/Fig-6]: Specimen of right kidney with severe thinning of renal parenchyma (black arrow).

The postoperative course was uneventful. Eventually patient recovered well. Histopathology report was suggestive of end-stage kidney disease with chronic pyelonephritis.

DISCUSSION

Haemorrhagic cystitis ranges in severity from a transient condition to a life-threatening condition which may quickly resolve or require intervention on a priority basis. It is characterised by bleeding from the bladder mucosa and diffuse inflammation [1]. Various causes for this condition include infections in the form of bacterial, viral, fungal, and parasitic-exposure to chemotherapeutic drugs, specifically oxazaphosphorine class of agents, and radiation therapy for pelvic malignancy, all of which may result in haemorrhagic cystitis [1-3].

The PUJO is a condition where surgical intervention is often required depending on symptomatology or progressive impairment of ipsilateral renal function. Though the success of endopyelotomy and pyeloplasty is good, many patients develop secondary PUJO [4].

Severe secondary PUJO resulting in urinary tract infection is a known fact, but it resulting in haemorrhagic cystitis is rare. It is important to have a differential diagnosis before performing the

study and then to interpret findings in conjunction with patient history, examination, and other diagnostic data [5]. Simple maneuver in the form of insertion of large-bore three-way Foley catheter to decompress the urinary bladder and the initiation of saline irrigation, may help slow down or stop the bleeding from urinary bladder altogether. Urine sample collection during catheterisation for examination and culture sensitivity may provide infectious cause, in the form of bacterial or fungal. It is important to know the cause for haemorrhagic cystitis. In yeast infection, fluconazole works by altering the fungal cell membrane by selectively inhibiting 14-alpha demethylase [6].

In certain instances, it may be necessary to do cystoscopic clot evacuation to know the source of bleeding, fulgurate it, and, if required, do biopsies of suspected malignant areas. In our case, due to a sizeable volume of clots in urinary bladder and blockage of the catheter multiple times, cystoscopy was done and blood clots were evacuated. Bleeders were fulgurated, and right DJ stenting was done in view of severe PUJO, antifungals were initiated based on the urine culture report, to which patient responded positively. Patients with diffuse bleeding and not responding to clot evacuation may require supplemental treatment with intravesical or systemic agents [1].

In a case of secondary PUJO, open or laparoscopic nephrectomy may be the mode of treatment in patients with poor renal function (GFR <10 mL/min) associated with recurrent pyelonephritis or pyuria [7]. In our case, due to poorly functioning kidney with pyuria, we counselled the patient regarding nephrectomy to prevent further complications. In the case of secondary PUJO with haemorrhagic cystitis, various surgical options are discussed, with the patients, but it is equally important to discuss the treatment modalities for primary surgical failure. Options for management of secondary PUJO and their follow-up strategies also need to be discussed with the patients.

CONCLUSION(S)

Primary or secondary PUJO associated with haemorrhagic cystitis is rare, but may be encountered in one's surgical career. Treating the root cause of associated conditions would help to resolve the problem. GFR of less than 10 mL/min, combined with multiple co-morbidities and risk of recurrent renal infections, would be an indication for nephrectomy. Further studies are required to know the cause of haemorrhagic cystitis in the case of PUJO.

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