

## Bilateral Spontaneous Urinoma in a Cyanotic Child

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**Background:** Urinoma is an encapsulated collection of extravasated urine, secondary to trauma or obstructive uropathy. Spontaneous bilateral urinoma is rare. **Case characteristics:** 7-year-old boy with cyanotic heart disease and fever of unknown origin. **Observation:** The ultrasound abdomen and CT abdomen revealed bilateral spontaneous urinoma which was aspirated and was found to be infected. Following intravenous antibiotics the child became afebrile, with subsequent renal scans showing no recurrence. **Message:** Hypoxia and consequent polycythemia may be responsible for perinephric leaks leading to Non-traumatic spontaneous urinoma.

**Keywords:** Cyanotic heart disease, Genitourinary system, Perinephric collection.

Urinoma is a collection of extravasated urine, lying encapsulated in the perirenal space [1] – obstructive uropathy and abdominal trauma are the commonly implicated causes. Bilateral spontaneous urinoma is rare and uncommonly reported in literature. We are reporting a case of bilateral spontaneous urinoma in the setting of a cyanotic congenital heart disease in a child.

### CASE REPORT

A 7-year-old boy presented with bluish discoloration of body since birth with history of squatting for the past 4 years. He was admitted on account of worsening of cyanosis along with increased frequency of cyanotic spells for the past two months. Examination findings revealed central cyanosis with clubbing with a faint ejection systolic murmur. Abdomen was soft with no organomegaly. Other organ systems were normal. Hemogram and biochemical workup were within normal limits except for polycythemia. 2D echocardiography confirmed the diagnosis of Double outlet right ventricle with pulmonary stenosis.

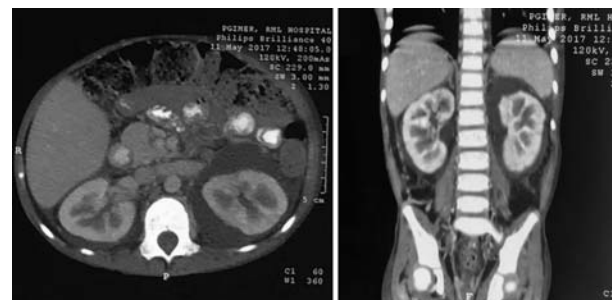
The patient was managed for cyanotic spells and partial exchange transfusion was done for polycythemia. The patient started having fever spikes following exchange for which broad spectrum intravenous antibiotics were started. The hemogram showed raised counts with neutrophilia; however, blood and urine cultures were sterile.

Urinalysis twice showed the presence of candida for which intravenous liposomal amphotericin B was added.

Despite treating with broad spectrum antibiotics for more than a week the child continued to have high spiking fever.

Widal Test, Malaria card test and peripheral blood smear for malarial parasite, Weil felix test, Dengue and chikungunya serology, Blood and urine culture, Urine for fungal hyphae, and Chest X-ray were non-contributory. The ultrasound scan showed bilateral loculated perinephric fluid collection with thin septa. Contrast-enhanced computed tomography (CECT) scan of the abdomen with a delayed phase was performed to rule out any causes of leak due to obstructive uropathy like calculi, PUJ or VUJ obstruction. MCU was also performed to rule out the presence of posterior urethric valve in the patient.

From the perinephric area, 50 mL of pale yellow color fluid resembling urine was aspirated under ultrasound



**FIG. 1** Contrast CT (CECT) abdominal scan showing bilateral perirenal fluid (white arrows) with scalloping of left kidney (white arrow head), thickened bilateral lateroconal fascia with pararenal fat stranding.

guidance (**Fig. 1**). The biochemical analysis revealed that the fluid was comparable to urine. The creatinine level in the fluid was 5 mg/dL (concurrent serum sample 0.5 mg/dL). The glucose level was nil in the aspirated fluid (serum glucose 95 mg/dL). A diagnosis of bilateral urinoma was made.

Microbiological analysis of the aspirated fluid showed bacteria and 20 WBCs with cultures that were sterile. Intravenous antibiotics were further administered for 14 days. Following percutaneous aspiration of the infected fluid the child became afebrile within 10 days. On serial renal ultrasound, small amount of perinephric fluid was persisting and the child was asymptomatic. Subsequently, he was discharged on oral antibiotics.

## DISCUSSION

Urinoma is an encapsulated collection of extravasated urine in the perinephric space that leaks over a period of weeks into the perirenal space [2]. It develops from disruption of the calices, infundibuli or renal pelvis leading to leakage of urine in the perinephric space, usually resulting from increase in intrapelvic pressure following renal trauma, surgical procedures or obstructive uropathy [3,4]. The fornices of the calyx are the usual site of leaks in non-traumatic urinoma and the leak acts as a pop-off mechanism to relieve intrapelvic pressure [5]. There are very few cases of spontaneous perinephric urinoma in the literature. Rao, *et al.* [6] described a 4-year-old boy with tetralogy of Fallot, who developed bilateral spontaneous asymptomatic large urinoma [6]. The association of severe cyanotic heart disease with polycythemia was postulated as the pathogenesis [6].

The most likely other differentials in our case were perirenal abscess and lymphangiectasia. In the absence of nephropathies in our child the possibility of any post nephritic/nephrotic transudate was ruled out. Although hematomas are usually common following trauma, spontaneous non-traumatic hematomas may be associated with angiomyolipoma, renal cell carcinoma, polycystic kidney disease, and bleeding diathesis which were not present in our case. CECT scan is the imaging of choice in perinephric hematoma. Ultrasound guided aspiration of pus confirms its diagnosis. Renal

lymphangiectasis is another rare disorder which results from failure of renal lymphatic drainage into the retroperitoneal lymphatics. Aspiration of chylous fluid confirms the diagnosis [7]. CECT is the investigation of choice for the diagnosis of urinoma. Urine leak on delayed excretory phase with fluid attenuation confined to the perinephric space is confirmatory [7].

On percutaneous aspiration, fluid shows considerable elevation of creatinine levels and decreased glucose levels relative to serum levels in urinoma [3]. Since the urinoma was not causing any renal compression it was managed with percutaneous ultrasound guided tap with subsequent renal scans showing no recurrence.

Pediatricians need to be aware of this rare entity in patients with predisposing conditions.

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