

An Unusual Complication of Ureteral Stone: Massive Gastric Dilatation and Duodenal Obstruction Due to Giant Hydronephrosis

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Abstract A 42 year old man, was admitted to emergency service who suffered from nausea and vomiting for two days. In his physical examination the right side abdomen was severely distended, that had been lasting for a month. Distension was tender and cystic tough mass lesion was palpable. Plain abdominal radiography showed a 3 cm radiopaque shadow in the pelvic area. Ct scan revealed massive gastric dilatation and duodenal obstruction due to giant hydronephrosis with the ureteric stone placing on the right lower ureter with a dimension of 3,5 to 3 cm. Nasogastrical decompression and right percutaneous nephrostomy catheter was performed, 5000 ml of gastric fluid and 5300 ml of nephrostomy catheter drainage was measured in the first six hours. ^{99m}Tc-dimercaptosuccinic acid (DMSA) scan showed non-functioning right kidney and the patient finally underwent open simple nephroureterectomy. To the best of our knowledge the present patient represents one of the rarest complications of giant hydronephrosis cases reported to date.

Keywords: giant hydronephrosis, gastric dilatation, ureteral stone

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1. Introduction

Hydronephrosis and flank pain due to ureteral stones is an expected antinatal outcome and flank pain is the most frequently appealing reason as a cause of hydronephrosis. However, giant hydronephrosis, duodenal obstruction and massive gastric dilatation is a very rare and unusual complication of ureteral stone. According to Tombari et al, approximately 2000 cases of giant hydronephrosis have been reported, since its first description in 1968 [1]. Giant hydronephrosis is defined as the collecting system of kidney containing more than one liter of urine or 1.6% of body weight or a kidney occupying a hemiabdomen [2,3]. We present a case report with duodenal obstruction and massive gastric dilatation caused by ureteral stone and giant hydronephrosis, without flank pain and with abnormal complaints.

2. Case Report

A 42 year old man, was admitted to emergency service who suffered from nausea and vomiting for two days. Patient has no known disease and medical history. In his physical examination the right side abdomen was severely distended, that had been lasting for a month. Distension was tender and cystic tough mass lesion was palpable.

Bowel sounds were hyperactive. The patient was not constipated or anuric. Body temperature was 37.8^o C. In urinalysis microscopic hematuria and pyuria was detected. In hemogram analysis leukocytosis was detected. The serum creatinine level was 1.3 mg/dl. Abdominal ultrasound evaluation did not differentiate a hydronephrotic kidney or an abdominal mass lesion either its origin. Because of the gastric complaints an IV opaque CT scan was performed. And it revealed massive gastric dilatation and duodenal obstruction due to giant hydronephrosis (grade V) with lower ureteral stone (Figure 1). Also the kidney, ureter, and bladder X-Ray (KUB) evaluation showed the round ureteric stone placing on the right side pelvic bone with a dimension of 3,5 to 3 cm. Following that nasogastrical decompression and right percutaneous nephrostomy catheter was performed, 5000 ml of gastric fluid and 5300 ml of nephrostomy catheter drainage was measured in the first six hours. Cytology and urine culture was also sent from nephrostomy catheter drainage. Thickness of renal cortex was 2 mm or immeasurable. ^{99m}Tc-dimercaptosuccinic acid (DMSA) scan showed non-functioning right kidney and the patient finally underwent open simple nephroureterectomy using flank incision and the ureteral stone was taken out (Figure 2). The kidney tissue were very adhesive to liver and other organs. At postoperative follow up no complication or blood transfusion were needed. Postoperative first day internal

urinary catheter, and the second day drainage tube was taken off.

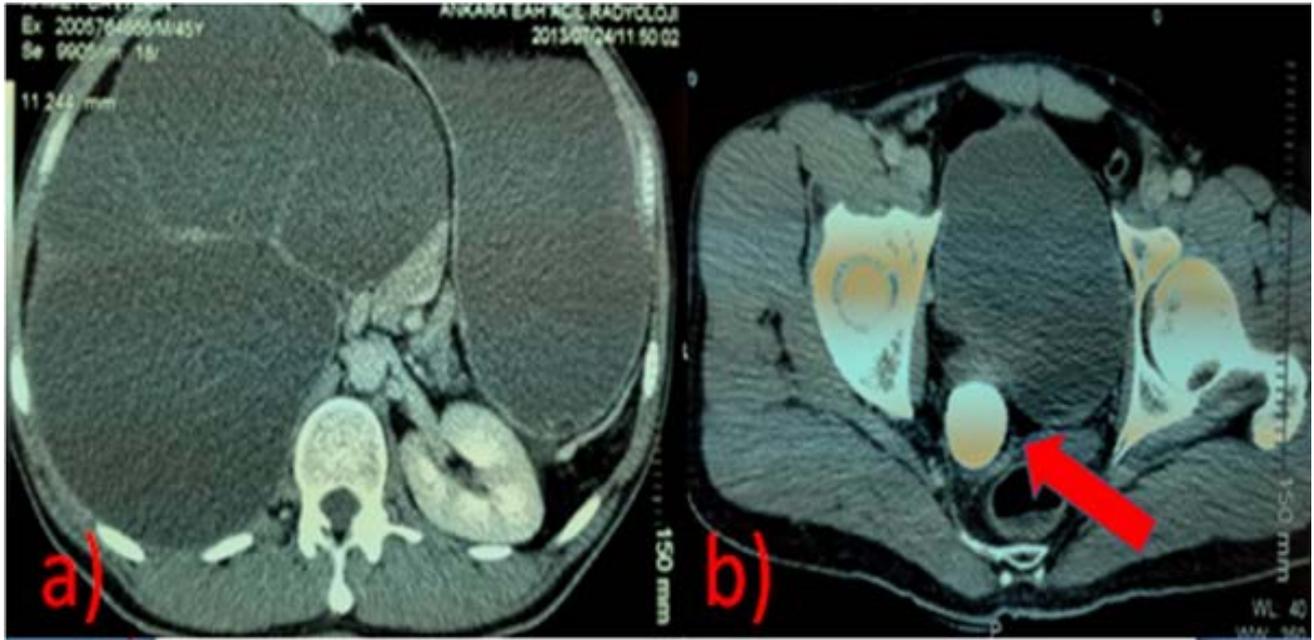


Figure 1. Abdominal computed tomography a) Massive gastric dilatation and duodenal obstruction due to giant hydronephrosis b) 3,5x3cm giant ureteral stone



Figure 2. Giant ureteral stone [3,5x3cm]

3. Discussion

Mild hydronephrosis caused by ureteral stones is common and we experience often in our daily practice. Patients may refer with flank pain, disuria, hematuria, acute abdomen and recurrent urinary tract infections [4,5]. Most cases of giant hydronephrosis results from the development of a lesion in upper urinary tract which is thought to be because of lower urinary tract lesion as were ported in our case like a huge ureteral stone. However, giant hydronephrosis is a very rare complication and

according to Morimutsu et al, uretero pelvic junction (UPJ) narrowing, ureteral stones, congenital ureteral narrowing and ureteral or UPJ tumors in elder ages are the most common reasons of giant hydronephrosis [6]. Duodenal obstruction and gastric dilatation in adults are also rare. In literature there are limited reported cases of intestinal obstruction due to giant hydronephrosis [7,8]. This case seems to be the first that massive gastric dilatation and duodenal obstruction caused by giant hydronephrosis due to ureteral stone. In our case primarily, we assumed that the patient might had an undiagnosed primary obstructive megaureter (POM) because of the dilated hydro ureter until the lower segment and results as a giant ureteral stone. Megaureter with a adynamic segment in the distal ureter generally, presents symptoms in the third or fourth decades of life. It is also usually unilateral; however, in 15-25% of cases it can be bilateral. Because the distal ureter is adynamic, it is obstructed functionally. Normal upper ureter dilatation occurs secondary to functional obstruction [9].

4. Conclusion

Alternatives for ureteral stones treatment vary from endourologic techniques to laparoscopic surgery and open surgery. Extracorporeal shock wave lithotripsy (ESWL) is also a non-invasive alternative for selected cases. However, giant hydronephrosis is usually related with impaired renal function and cortical thickness loss is determined in radiological evaluations. DMSA scan was performed to this patient and revealed that no cortical up take of radionuclide substance of the hydronephrotic kidney. Hoffman stated that nephrectomy is often the only therapy for giant hydronephrosis because there is no feasible prospect of improvement in renal function especially if the function of the contralateral kidney is normal [10].

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