

GIANT HYDRONEPHROSIS: AN UNUSUAL CAUSE OF INTRAABDOMINAL MASS

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Giant hydronephrosis is defined as the collection of more than 1 liter of fluid within renal pelvi-calyceal system. When it exists the kidney and renal pelvis can extend across the midline and may occupy the entire abdomen resulting in several symptoms or may still remain asymptomatic. The number of giant hydronephrosis cases reported in literature is not greater than a few hundreds, thus it remains to be an unusual clinical picture that has to be noticed. In the present case we report a 23-year-old woman with giant hydronephrosis presenting with a huge abdominal mass.

Key words: Giant hydronephrosis, stone, nephrectomy

Dev hidronefroz: nadir bir intraabdominal kitle nedeni

Dev hidronefroz, renal pelvi-kalisiyel sistem içerisinde 1 litreden daha fazla sıvı birikimi olarak tanımlanır. Dev hidronefroz olan olgularda böbrek ve renal pelvis orta hattı geçip tüm batını kaplayabilir ve çeşitli semptomlar verebileceği gibi asemptomatik de kalabilir. Literatürde bildirilen dev hidronefroz olguları sayısı olarak birkaç yüzü geçmez, dolayısıyla hala nadir bir klinik antite olarak önemini sürdürmektedir. Bu çalışmada dev bir intraabdominal kitle nedeniyle kliniğimize başvuran 23 yaşında dev hidronefrozlu bayan hasta incelendi.

Anahtar kelimeler: Dev hidronefroz, taş, nefrektomi

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Hydronephrosis is used as a descriptive term referring simply to the presence of dilatation of the pelvis and calyces¹. Urinary tract obstruction with subsequent hydronephrosis is a common clinical occurrence. However, giant hydronephrosis which is defined as a kidney containing more than

1000 ml fluid in the collecting system is a rare phenomenon and approximately 180 cases have been reported in the world since it was first described in 1746^{2,3,4}. The most common cause is ureteropelvic junction obstruction, which is the etiology in 80% of the cases².

Most of these kidneys are nonfunctioning at the time of diagnosis and nephrectomy is the treatment of choice in the majority of the cases². Patients may present with vague symptoms, several urological manifestations or may even be asymptomatic^{2,3}. In the present case we report a case of giant hydronephrosis presenting as an abdominal mass and flank pain that is subsequently treated with nephrectomy.

CASE

A-23-year-old woman presented with a 6-months history of left flank pain and progressive abdominal distension. There had been no recent operative procedure concerning the abdomen and the patient had no constipation prior to admission. On inspection the abdomen was grossly distended. Physical examination revealed a huge mass of which the upper margin was at the level of epigastrium and extending down to the symphysis pubis. Both the abdomen and flank area were tender on examination and the mass was dull to percussion.

Laboratory data revealed a normal blood count with serum urea 32 mg/dl (10-50 mg/dl) and creatinine 0.8 mg/dl (0.6-1.2 mg/dl). Urinalysis showed no abnormality. Plain abdominal X-rays showed multiple calculi of which the largest measured 4-cm, located at the level of L-2 vertebral process. Additionally the plain X-ray revealed a soft tissue mass in the left extending down and across the midline. Ultrasonography revealed compensatory hypertrophy of right kidney with normal parenchymal thickness and size. The diameters of the left kidney were measured as 268x141x199 mm with no parenchyma. It was found to be extended down to the iliac fossa and crossing the midline. There were multiple

calculi of which the largest was found to be located at the ureteropelvic junction with a diameter of 39mm on ultrasound. The other calculi were mobile within the calyceal system. The left ureter was not dilated and no other point of obstruction was detected along the ureter. Intravenous pyelography revealed a mildly hypertrophied right kidney with only poor visualization of the contours of the left kidney. Retrograde pyelography showed a grossly distended renal pelvis and a 4-cm stone in the renal pelvis obstructing the ureteropelvic outlet. Computed tomography confirmed a normal right kidney and a grossly enlarged left kidney with no parenchyma extending into the abdomen and across the midline. The diagnosis was consistent with giant hydronephrosis secondary to obstruction of the ureteropelvic junction by a 4-cm stone. The patient underwent an exploration via a subcostal incision (Chevron) and with transperitoneal approach the hydronephrotic kidney was exposed (Figure 1). The intraabdominal organs neighboring the massively dilated left kidney were normal and after dissection the ureter was identified and there was no evidence of ureteropelvic junction stenosis.

The ureter was observed to be normal along its entire length and there were no obstructive pathology concerning the ureter. After completely identifying the hydronephrotic kidney, nephrectomy was performed. The diameters of the left kidney was measured as 27x20x14 cm and containing 4 L fluid within the pelvicalyceal system (Figure 2). Subsequent histopathological examination revealed severe distortion of the pelvicalyceal system, multiple (over 30) calculi within the kidney and hydronephrosis with no parenchyma. On the first day after the surgery the patient was mobilized having normal haemoglobin, serum urea and creatinine values. Postoperatively on third day the drain was removed and the patient was discharged on the fourth day with the appropriate medication.

Giant hydronephrosis: an unusual cause of intraabdominal mass



Figure 1. Giant hydronephrosis of the left kidney.



Figure 2. The diameters of the hydronephrotic kidney after nephrectomy

DISCUSSION

Giant hydronephrosis is a rare condition, defined arbitrarily as over 1.0 L of fluid in the collecting system of an adult⁵. Hydronephrosis or massive dilatation of pelvicalyceal system is generally caused by ureteropelvic junction obstruction. Other causes include stone disease, obstructive megaureter, ureteric atresia, trauma and renal ectopia^{2,4,6}. In the present case the factor contributing to such an obstruction was a 4-cm stone located at the renal pelvis and obstructing the ureteropelvic junction. Hemal et al, in a series of 16 patients with giant hydronephrosis reported flank pain as the most common presenting symptom². However patients may have flank mass, recurrent urinary tract infection, hematuria, renal insufficiency or may present with an abdominal mass^{2,3,7,8}.

Because the disease may progress slowly, some patients remain asymptomatic until late stages, and in such kidneys the relief of the

obstruction alone may not be the adequate treatment modality³. Most of these kidneys are nonfunctioning and nephrectomy is the treatment of choice².

Giant hydronephrosis in a solitary kidney should be tried to salvage by percutaneous nephrostomy, several pyeloplasty techniques and nephroplasty or nephropexy as an adjunct to primary surgery^{2,3,4}. We performed a transperitoneal approach for the nephrectomy procedure since there was loss of the total parenchyma but a well functioning contralateral kidney.

In giant hydronephrosis, the collecting system is grossly dilated and kidney becomes a fluid-filled sac with a thin cortex. As a result the ineffective drainage of the kidney may result in urinary stasis and the complications of stone formation and infection may ensue^{3,9}. In the present case the large stone obstructing the pelvicalyceal system was the initiating factor for the development of giant hydronephrosis. However, with total obstruction of the urinary output there became a vicious cycle in which the components were obstruction and the stasis leading to the development of multiple calculi within the pelvicalyceal system. Whatever the reason or the initiating factor it is essential to make an early diagnosis before the parenchyma loss. As soon as the nonfunctioning kidney is detected, laparoscopic or open surgical nephrectomy are the treatment of choices.

Despite the development of advanced diagnostic techniques it may not still be possible to detect a giant hydronephrosis, in the early period with an adequate cortical thickness. In the present case, giant hydronephrosis leading to an unusual cause of intraabdominal mass was presented and the incidence, symptoms and treatment modalities were reviewed in regard to the current literature.

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