

Bilateral Giant Hydronephrosis Secondary to Ureteropelvic Junction Stricture: a Case Report

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Research Article

Keywords: Giant hydronephrosis, pyeloplasty, ureteropelvic junction stricture

Posted Date: October 20th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-647749/v1>

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Abstract

Introduction: Giant hydronephrosis, which implies a collecting system containing more than one liter of fluid, is becoming increasingly rare with the widespread availability of imaging facilities. We aimed to report a case and management of bilateral giant hydronephrosis due to bilateral ureteropelvis stenosis.

Case presentation: A 45-year old male presented at the Emergency Department with the complaint of difficulty passing stools. On computed tomography (CT), bilateral giant hydronephrosis was determined covering the whole abdomen. After bilateral nephrostomy, 8 liters of urine was drained from the right kidney and 10 liters of urine from the left kidney after bilateral nephrostomy in the patient whose serum creatinine level was 1.06 mg/dl at the time of admission. Bilateral pyeloplasty was applied to the patient who was diagnosed with bilateral ureteropelvis stenosis after dynamic renal scintigraphy. After 4 years of follow-up, serum creatinine level was 1.3 mg / dl. Hydronephrosis was still present despite being smaller than its previous condition and the presence of bilateral double J stents.

Conclusions: An interesting finding of the current case was that the creatinine level might be normal despite the fact that bilateral giant hydronephrosis. So rather than nephrectomy, pyeloplasty was applied and to date there has been no need for hemodialysis.

Introduction

Giant hydronephrosis is characterized by the accumulation of more than 1 litre of urine in the pelvicalyceal system. It is generally seen more often in children. Patients can have symptoms such as abdominal pain, a palpable mass and inability to urinate, but there may also be asymptomatic patients. Nephrectomy is the treatment most often applied for giant hydronephrosis developing secondary to ureteropelvic junction stricture [1–3].

Case Presentation

A 45-year old male presented at the Emergency Department with the complaint of difficulty passing stools. In the routine tests, as microscopic hematuria was determined in the urine analysis, the Urology Department was consulted. The patient had no urological complaints. In the physical examination, a smooth mass was palpated within the abdomen (Fig. 1). On computed tomography (CT), bilateral giant hydronephrosis was determined covering the whole abdomen (Fig. 2). At the time of diagnosis, the serum creatinine value was 1.06 mg/dl. Under sterile conditions, bilateral nephrostomy was applied and gradually drainage was obtained. A total of 8 litres of urine was drained from the right kidney and 10 litres from the left kidney (Fig. 3). After the hydronephrosis receded, the nephrostomies were clamped and dynamic renal scintigraphy was applied (TC-99m DTPA).

The time of blood circulation starting in the kidneys was observed to be below normal. Even at the end of the 3rd hour of prolonged bilateral concentration and excretion function of the kidneys, no passage to either of the two ureters was observed. Participation in renal function was 53% on the right side and 47%

on the left. In a later separate session, pyeloplasty was applied to the patient for the bilateral ureteropelvic junction stricture. At the end of the first year, the bilateral hydronephrosis recurred. Throughout a 4-year follow-up period, the serum creatinine level has been 1.3 mg/dl and a double J stent has been changed yearly with antibiotic prophylaxis. On the most recent CT, although the hydronephrosis is very small compared to the previous status, it is still continuing despite the stent (Fig. 4).

Discussion

Giant hydronephrosis is characterized by the accumulation of more than 1 litre of urine in the pelvicalyceal system and the first case was reported in 1746. Although giant hydronephrosis is most often secondary to congenital ureteropelvic stricture, it can also develop secondary to urinary system stones, tumours and more rarely to adjacent organ pressure [1, 4].

The most commonly seen symptom is pain in the flank region, but there may also be a palpable mass in the abdomen or flank region, recurrent urinary tract infections, hematuria and kidney failure [5]. As the course of the disease is slow, many cases are diagnosed late, and as the kidney is non-functioning at the time of diagnosis, nephrectomy has become the most preferred treatment option [1].

There are studies that have reported that nephrectomy is the most appropriate option because of malignant changes and potential dysplasia in the collecting system and kidney parenchyma associated with chronic irritation caused by the giant hydronephrosis. Especially in elderly patients and in more uncommon causes of giant hydronephrosis, obstructions associated with malignancy, although rare, must be kept in mind [4, 6]. Current imaging methods have become highly advanced. Ultrasound in particular shows parenchyma thickness in addition to hydronephrosis. Other helpful tests are abdominal radiography which shows radio-opaque stones, intravenous urography in the visualization that there is no kidney excretion, and CT [7]. In most patients, there are no symptoms or they are non-specific, and this is reflected in delays in diagnosis. In the current case, the complaint of the patient on presentation at the Emergency Department was difficulty in passing stools.

Conclusion

Giant hydronephrosis is a condition which is rarely seen, is characterized by pain in the flank region, is diagnosed late and generally results in nephrectomy. An interesting finding of the current case was that despite bilateral giant hydronephrosis, the creatinine level was 1.06 mg/dl, so rather than nephrectomy, pyeloplasty was applied and to date there has been no need for hemodialysis.

Declarations

Funding:

The author(s) received no financial support for the case.

Conflicts of Interest:

The authors report no conflicts of interest.

Ethics Approval:

Ethics approval was waived off, in view of the ongoing pandemic and relevance of the study in mitigating the same. However, all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to participate:

All the participants in the study were included after provision of informed written consent.

Consent for publication:

Not applicable

Availability of data and material:

All relevant data and material is available with the corresponding author.

Code availability:

Not applicable

Authors' contributions:

Conception and design: SS, YK; **Data acquisition:** ST; **Data analysis and interpretation:** YK, SS; **Drafting the manuscript:** SS, ST; **Critical revision of the manuscript for scientific and factual content:** ST; **Supervision:** ST

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Figures



Figure 1

Palpable bilateral giant hydronephrosis filling the whole abdomen.



Figure 2

CT image of the bilateral giant hydronephrosis



Figure 3

The kidneys with receded hydronephrosis following bilateral nephrostomy

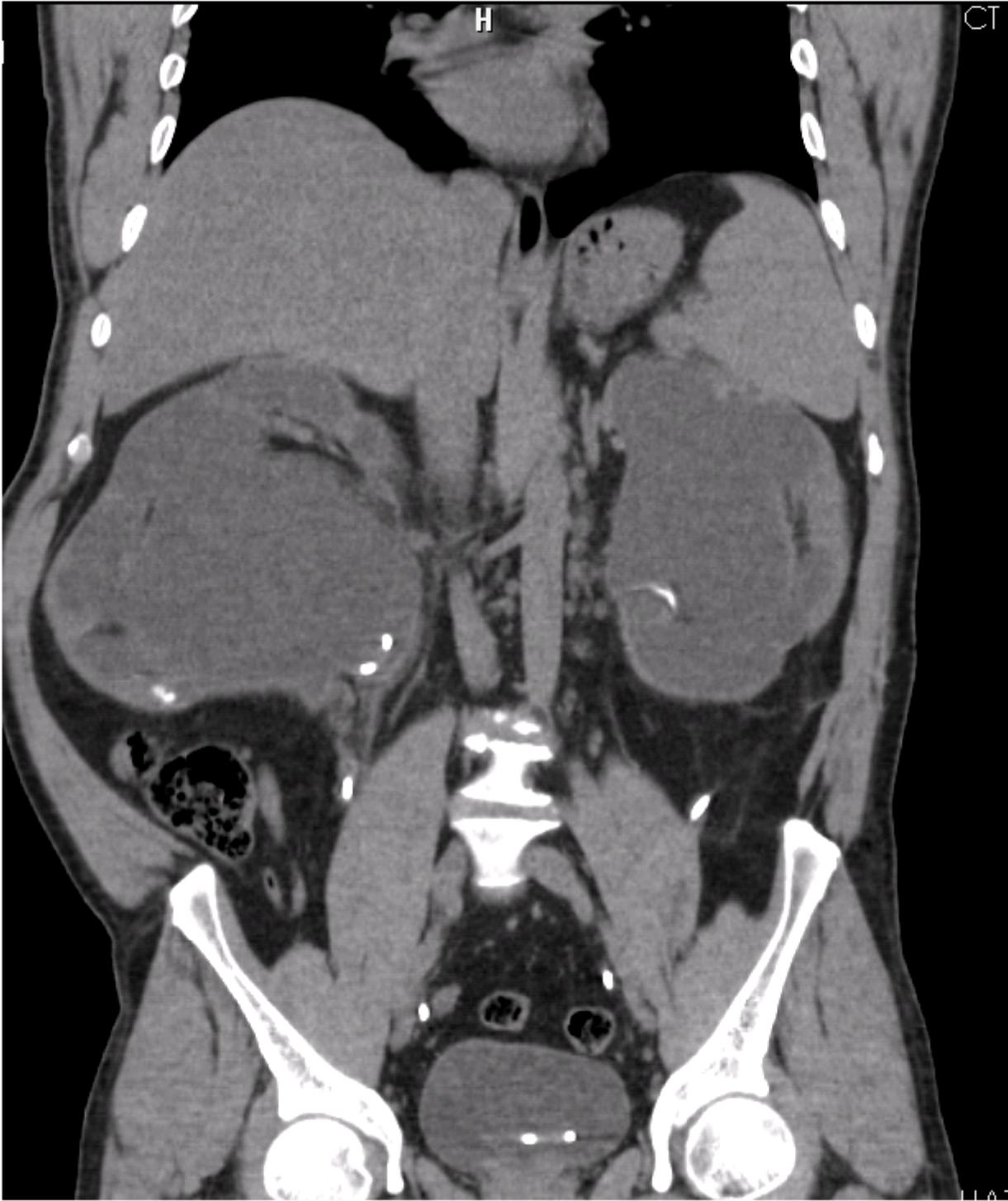


Figure 4

CT image showing the double J catheter in the 4th year after pyeloplasty