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***شناخت‌نامۀ نویسندۀ مسؤول:**

نام و موقف نویسنده مسوول: غلام ربانی حبیبی، دیپارتمنت یورولوژی، شفاخانه حوزوی هرات، هرات، افغانستان.

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چکیده

زمینه و هدف: هدف از این مطالعه، ارزیابی روش‌های مختلف تداوی درد و علائم عفونت کلیه چپ است. این روش‌ها شامل جراحی باز و بسته و همچنین استفاده از روش‌های مدرن طبی است که هر کدام مزایا و معایب خاص خود را دارند. این بررسی به عنوان یک مطالعه کلینیکی در شفاخانه حوزوی هرات انجام شده است. توجه به اینکه هایدرونفروز می‌تواند از یک درجه خفیف هایدرونفروز تا عدم کفایه کامل کلیه و حتی مرگ مریض را به دنبال داشته باشد، این تحقیق به بررسی دقیق این موضوع می‌پردازد.

معرفی موضوع: این تحقیق یک مطالعه کلینیکی است که در شفاخانه حوزوی هرات انجام شده است. مریض مورد مطالعه، یک خانم ۲۲ ساله، متاهل، صاحب دو فرزند، بی‌سواد و خانه‌دار بود که با مشکل ذهنی خفیفی همراه بود. هدف از این مطالعه موردی بررسی موارد هایدرونفروز و ارزیابی خطراتی است که می‌تواند بر زندگی مریض تأثیر بگذارد. به طورکلی، هایدرونفروز به معنای تجمع ادرار در بخش‌های مختلف کلیه و حالب به دلیل انسداد مسیرهای ادراری است که به دو نوع اولیه و ثانویه تقسیم می‌شود.

نتیجه‌گیری: مطالعه حاضر نشان داد که هایدرونفروز می‌تواند به دلایل مختلفی از جمله اختلالات ولادی، ساختاری، سنگ‌های کلیوی، تومورها، و انتانات شدید ایجاد شود. روش‌های مختلفی برای تشخیص شدت هایدرونفروز از جمله سونوگرافی، سی‌تی اسکن و تست‌های وظیفوی کلیه وجود دارد. همچنین، تداوی‌های متنوعی بسته به شدت و علت هایدرونفروز مطرح است که شامل رفع انسداد، جلوگیری از ورود انتان، بهبود عملکرد کلیه و تداوی‌های حمایتی می‌باشد. بی‌توجهی به تداوی مناسب هایدرونفروز می‌تواند به عدم کفایه کلیه، انتانات مکرر و فشار خون بالا منجر شود. بنابراین، استفاده از روش‌های مدرن و کارآمد در تشخیص و تداوی هایدرونفروز اهمیت ویژه‌ای دارد.

واژه‌گانِ کلیدی: هایدرونفروز گسترده، انسداد محل اتصال حالب به حویضه، برداشتن کلیه

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A Case Report of Giant Hydronephrosis with a 12-liter volume in a 22-Year-Old married woman

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Abstract

Background: The objective of this study was to evaluate different treatment approaches for pain and symptoms associated with left kidney infection. These approaches include open or minimally invasive surgery as well as modern medical techniques, each with its own advantages and disadvantages. This clinical case was managed at Herat Regional Hospital. Since hydronephrosis can range from mild swelling to complete kidney failure and even death, we aimed to investigate this condition in detail.

Case presentation: A 22-year-old married woman with two children, illiterate, a housewife, and with mild intellectual delay, presented to Herat Regional Hospital. The purpose of this case report is to describe a rare presentation of massive hydronephrosis and assess the potential risks it poses to patients' lives. Hydronephrosis is generally defined as the accumulation of urine within the renal collecting system due to obstruction of the urinary tract, and it can be categorized into primary and secondary types.

Conclusion: This case highlights that hydronephrosis may be caused by several factors, including congenital anomalies, structural abnormalities, kidney stones, tumors, and severe infections. Various diagnostic modalities such as ultrasound, CT scans, and renal function tests can be used to determine its severity. Treatment options depend on the underlying cause and the degree of hydronephrosis, and may include surgical removal of blockages, infection control, preservation of kidney function, and supportive care. Delay or neglect in proper management can lead to irreversible renal failure, recurrent infections, and hypertension. Therefore, the use of modern and effective diagnostic and therapeutic methods is essential in the management of hydronephrosis.

Key words: Giant Hydronephrosis, UPJ Obstruction, Nephrectomy

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Introduction

Hydronephrosis is defined as the distension of the renal calyces and pelvis due to obstruction of urinary outflow, and it may be either unilateral or bilateral [1]. Giant hydronephrosis is a rare condition often presenting as a cystic abdominal mass [2]. The condition can be congenital, secondary to functional obstruction caused by neuromuscular incoordination, or the result of mechanical obstruction due to stones, benign strictures, or tumors [3].

Hydronephrosis also occurs in children, where it may cause serious complications and irreversible renal damage. One of the most common etiologies in this population is obstruction at the ureteropelvic junction [4].

Several imaging modalities are available for the diagnosis of hydronephrosis, including ultrasonography, CT scan, and MRI. Among these, ultrasonography and MRI are generally preferred. On sonographic examination, the renal pelvis appears markedly dilated, and evaluation of the ureter up to the level of obstruction is essential [5].

The optimal treatment of hydronephrosis involves addressing the underlying cause. For infectious etiologies, antibiotics are indicated, whereas surgical intervention is often required in cases of urinary tract obstruction. In rare and extensive presentations such as the current case, surgery remains the only definitive option.

Case presentation

A 22-year-old woman from Shindand district, Herat province, presented with abdominal distension, abdominal pain, and fever of 38 °C. On admission, her vital signs were: temperature 38 °C, blood pressure 110/70 mmHg, respiratory rate 20 breaths/min, and pulse rate 110 beats/min. The patient was admitted and managed conservatively with intravenous fluids and prophylactic antibiotics.

On physical examination, the abdomen was markedly distended. Palpation revealed a mass occupying the entire abdomen, while percussion demonstrated diffuse dullness. A CT scan showed massive hydronephrosis of the left kidney with loss of renal cortex, compressing adjacent abdominal organs.

Laboratory investigations revealed hemoglobin of 10 g/dL, blood urea of 28 mg/dL, creatinine of 1.2 mg/dL, and blood urea nitrogen (BUN) of 20 mg/dL. The patient was weak and anemic, with a white blood cell count of 10,000/µL. Renal function tests were performed to evaluate kidney performance and the severity of renal impairment, and urinalysis was conducted to help identify possible underlying causes

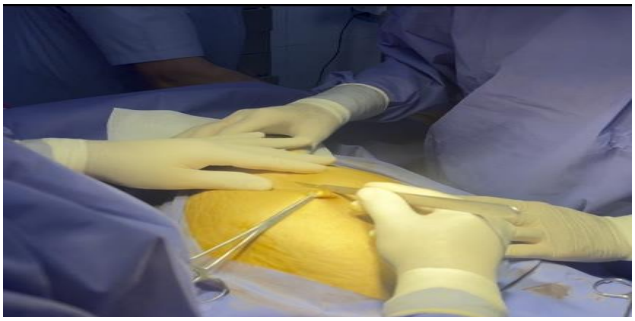

Figure 1. Preoperative image showing the patient's distended abdomen.

Following clinical findings, laboratory tests, and imaging, the patient was prepared for open surgery. The abdomen was opened with a midline incision.

A large hydronephrotic mass was found, which affected all abdominal organs. The mass was removed, and the left kidney was excised.

We removed the mass entirely and, due to the open surgical approach, avoided puncturing and draining the mass.

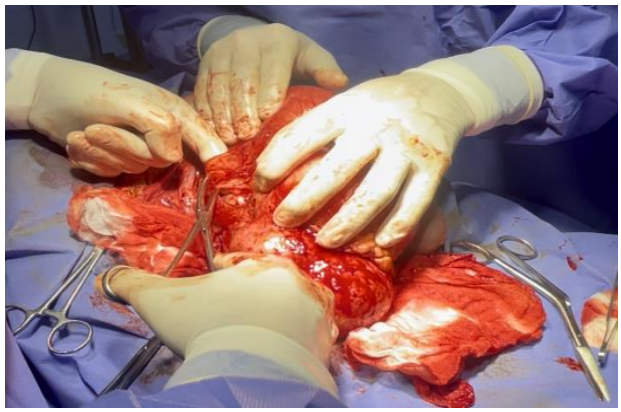

Figure 2. Intraoperative image illustrating the process of removing the hydronephrotic mass from the patient's body

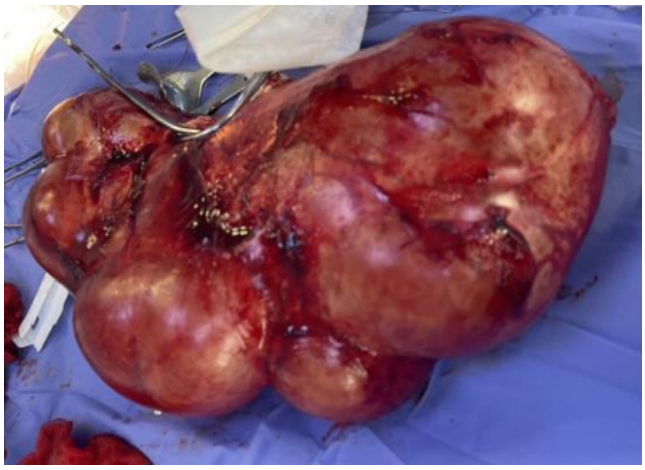

Figure 3. Postoperative image showing the removal of a hydronephrotic mass containing 12 liters of fluid from the patient's body.

After removing the mass, the remaining area was repaired, the abdomen was cleaned, and proper closure of the abdomen was performed. Postoperative care was provided, and the patient was successfully discharged from the hospital three days later.

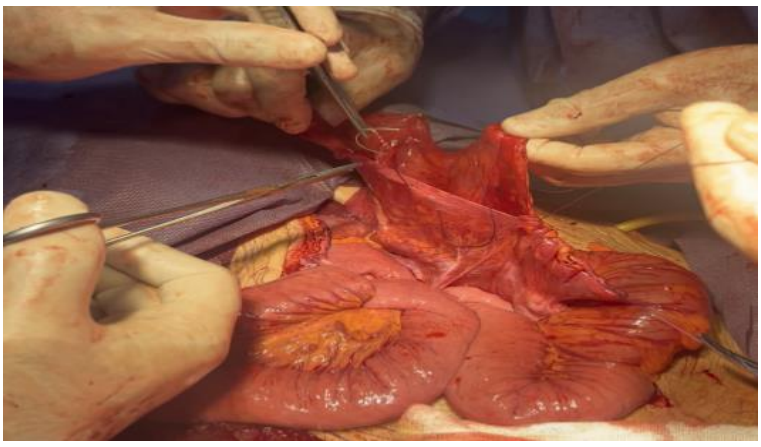

Figure 4. Postoperative image illustrating the repaired site of the removed organ.

One month later, the patient was called back for follow-up. Her general condition was good and healthy. The follow-up was successful, and she resumed her normal life.

Figure 5. The patient, one-month post-operation, returning for follow-up.

Discussion

Stirling first defined giant hydronephrosis in 1939 as the accumulation of more than 1000 mL of fluid in the excretory system of either kidney. The first case was described in 1746, and more than 600 cases have been reported worldwide to date [6].

Reports in the medical literature have documented giant hydronephrosis across different age groups and genders, with variability in fluid volume and underlying etiology. The present case of a 12-liter mass in a 22-year-old married woman with two children represents a particularly rare presentation.

The most common cause of giant hydronephrosis is ureteropelvic junction (UPJ) obstruction. Other etiologies include urinary calculi, trauma, renal ectopy, ureterovesical junction obstruction, and, less frequently, malignancy [7]. Common sites for stone impaction include the pelvi-ureteric junction, the pelvic brim, and the vesico-ureteric junction [8]. Obstructive lesions may arise within the lumen, from the urinary tract wall, or from external compression. Regardless of the origin, such obstruction leads to dilatation of the renal pelvis and/or ureter, which is termed hydronephrosis [9].

Management strategies for giant hydronephrosis vary depending on patient presentation, renal function, and underlying pathology. Previous case reports describe both conservative and surgical approaches. In this case, open surgery was performed to excise the entire mass in a single procedure. The patient recovered uneventfully, was discharged on the third postoperative day, and remained in good condition at a one-month follow-up.

Conclusion

Hydronephrosis can arise from a wide range of causes, including congenital anomalies, structural abnormalities, urinary stones, tumors, and severe infections. Its severity can be evaluated using ultrasonography, CT scans, and renal function tests. Management depends on the underlying cause and degree of obstruction, and may include surgical removal of obstructions, infection control, renal function preservation, and supportive therapy. Failure to provide timely and appropriate treatment can result in irreversible renal failure, recurrent infections, and hypertension.

Reviewing the literature since Stirling's definition in 1939 reveals approximately 600 reported cases of giant hydronephrosis, each differing in patient demographics, fluid volume, and etiology. The present case, with a massive 12-liter hydronephrosis in a young married woman, represents an exceptionally rare occurrence. Surgical intervention was successful and led to full recovery.

Early diagnosis and prompt treatment of hydronephrosis are crucial to prevent severe complications. Public awareness of early management of urinary tract problems is strongly recommended, as timely intervention is far more effective than delayed treatment.

Conflict of Interest

The authors of this article, Asst. Pro. Dr. Ghulam Rabbani Habibi, Chief of Urology Surgery at Herat Regional Hospital and the surgeon of this rare surgical case, and Dr. Ghulam Farooq Fayez, general practitioner and co-author of this report, confirm that the publication of this case report aims to inform research topics published in the Ghalib Medical Journal. The costs of preparing this report were borne by the authors, and they believe that the publication and reporting of such research and scientific topics can be beneficial and valuable to the public.

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