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Hydronephrosis due to bladder carcinoma

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Abstract

Giant hydronephrosis is a rare entity that most often develops due to obstruction at the ureteropelvic junction. The other etiologic factors include bladder and ureter tumors. Giant hydronephrosis can cause long-term complications such as hypertension, renal failure, rupture of the kidney, and malignant change if left undiagnosed or diagnosed late. A 73-year-old male patient was admitted to the hospital with complaints of difficulty in urination and brown colored urine. The patient's hemoglobin and hematocrit levels were low. Radiologically, there was widespread cystic development in the right kidney, a giant hydronephrosis, and a mass in the bladder. In the surgical material sent after the diagnosis of urothelial carcinoma by bladder biopsy, there was urothelial carcinoma in the bladder and right ureter. Since hydronephrosis may develop due to bladder and ureter tumors, which may result in nephrectomy, the early diagnosis of these tumors will reduce such serious complications. The early diagnosis and treatment of a giant hydronephrosis will increase the patient's quality of life by minimizing complications such as hypertension, kidney failure, and kidney rupture.

Keywords: Bladder, Kidney, Carcinoma, Hydronephrosis

Introduction

Hydronephrosis is defined as the enlargement of the pelvicalyceal system due to obstruction and stasis of urinary flow [1]. Congenital ureteropelvic junction obstruction is the most common cause of giant hydronephrosis in children and adults [2, 3]. A rare cause of hydronephrosis is bladder and ureter cancer [4, 5]. Giant hydronephrosis is defined as a kidney containing more than 1000 ml of urine in the renal collection system [6]. It has been also defined as a kidney that holds more than 1.6% of the body fluid in the renal collecting system [7]. In our patient, the hydronephrotic kidney was 21x10 cm in size. We aimed to contribute to the literature with this rare case.

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
No conflict of interest was declared by the authors.

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Case presentation

Written informed consent was obtained from the patient. A 73-year-old male patient was admitted to the hospital with complaints of difficulty in urination and brown-colored urine. The patient's hemoglobin and hematocrit levels were low. Radiologically, there was widespread cystic development in the right kidney, a mass in the bladder, and a mass in the lower part of the right ureter.

In the macroscopic examination of the nephroureterosistoprostatectomy material sent to the pathology laboratory, the right kidney was cystic, 21x14x9 cm in size. The distal ureter was 3.5 cm in diameter and there was a mass in the bladder (Figure 1). Approximately 1500 cc of brown-colored fluid was drained. The parenchyma of the kidney had almost completely disappeared. The wall of the cyst was 0.1 cm in the thinnest part and 0.5 cm in the calyceal area where it was the thickest. There was chronic pyelonephritis in the cyst wall (Figure 2). There was a mass containing papillary structures that almost filled the bladder. There was also a papillary tumoral mass narrowing the lumen in the distal ureter. Paraffin blocks were prepared from tissue samples taken from tumoral masses in the bladder and ureter. Four-micron sections taken from tissue samples were stained with hematoxylin and eosin. Histopathological examination revealed a papillary high-grade invasive urothelial carcinoma in both the bladder and the ureter. Hydronephrosis of the right kidney was considered secondary to a malignant tumor in the bladder and right ureter.

Figure 1: Giant hydronephrosis in the right kidney (left), a mass in the ureter, and a mass in the bladder

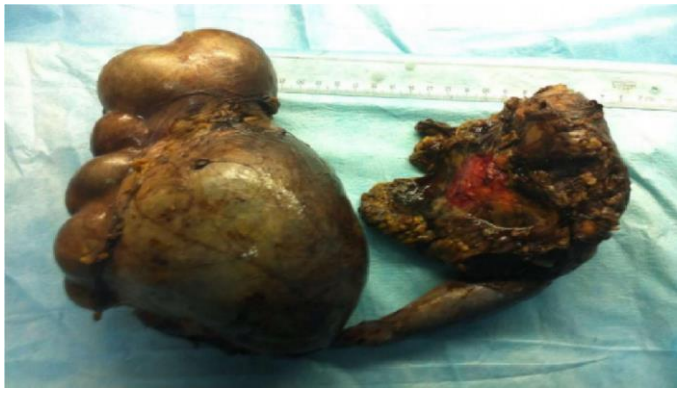
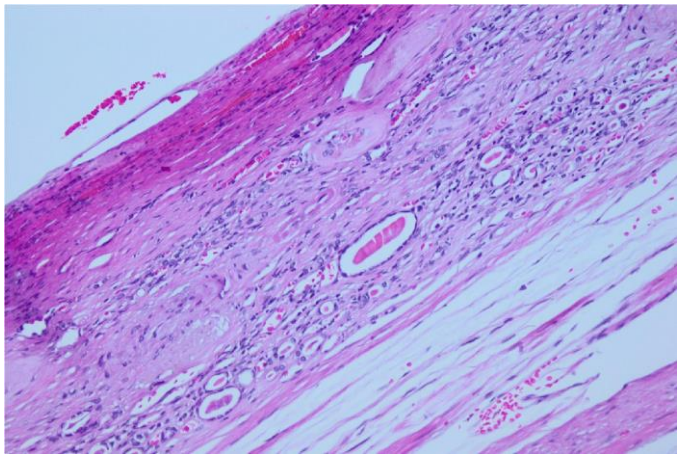


Figure 2: Chronic pyelonephritis findings in the cyst wall of the hydronephrotic kidney



Discussion

Hydronephrosis is the enlargement of the pelvicalyceal system due to blockage and stasis of urine flow [1]. While giant hydronephrosis is frequently encountered in developing countries, it is rare in developed countries [8]. So far, only around 500 cases of giant hydronephrosis were reported in the literature [2]. The incidence of hydronephrosis due to bladder carcinoma ranges between 7.2-54.1% in the literature [9]. The number of tumor cases causing hydronephrosis was 9 in a study of 100 patients performed by Ilgi et al. [5]. Of these 9 cases, 7 were in the ureter and 2 were in the bladder.

The patient usually remains asymptomatic until late due to the slow progression of the disease [10]. The most common symptom of giant hydronephrosis is an abdominal mass. Less common symptoms are flank pain, hematuria, fever, acute abdominal pain, and recurrent urinary tract infections [10-12]. Rare symptoms are intestinal obstruction, respiratory distress, hypertension, pedal edema, obstructive jaundice, and contralateral ureteropelvic junction obstruction [13].

Giant hydronephrosis can cause long-term complications such as hypertension, renal failure, rupture of the kidney, and malignant transformation if left undiagnosed or diagnosed late. Difficulties in treatment will also increase over time due to the delay in diagnosis [8].

Conclusion

Since hydronephrosis may develop due to bladder and ureter tumors, which may result in a nephrectomy, the early diagnosis of these tumors will reduce such serious complications. The early diagnosis and treatment of a giant hydronephrosis will increase the patient's quality of life by minimizing complications such as hypertension, kidney failure, and kidney rupture.

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