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Renal Squamous Cell Carcinoma due to Staghorn Kidney Stone-Case Report

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Abstract

Renal squamous cell carcinoma (SCC) is a rare malignancy of the urinary system, which normally spreads from its origin to the renal parenchyma. So far, various reasons, including stones, infections, and urinary tract radiotherapy have been considered for this type of malignancy. These tumors are usually diagnosed at an advanced stage; thus, the life expectancy of these patients is not long. This report tends to present a 52-year-old patient with a staghorn kidney stone and subsequent renal SCC in the right kidney.

Keywords: Kidney Stones, Squamous Cell Carcinoma, Renal Cancer

1. Introduction

Renal squamous cell carcinoma (SCC) is one of the rare malignancies of the urinary system, which usually originates from the renal pelvis and spreads to renal parenchyma. Renal SCC is very aggressive, high grade, and poor prognostic and is usually diagnosed at an advanced stage (1, 2) Kidney stones, infections, hormonal imbalance, lack of vitamin A, radiotherapy, hydronephrosis, and unusual use of analgesics cause this type of malignancy (3). Patients generally complain of vague abdominal pain or hematuria, and usually, there is no remarkable point in the examination. Sometimes, like the SCC of other organs, paraneoplastic protests, such as hypercalcemia, may exist (3). In this article, we report a middle-aged man with SCC after the presence of long-term staghorn nephrolithiasis.

2. Case Presentation

The patient was a 52 years-old man who presented by complaining of fever and pain in the right side. He also reported lower back pain that lasted for about two years ago and intensified pain a month before referral. The patient had no history of specific clinical disease or previous surgery. During this period, the patient consistently took non-steroid anti-inflammatory drugs (NSAID). Examinations only revealed brief generalized abdominal tenderness, preferably on the right side. Microscopic hematuria was obvious in primary examinations. Creatinine was normal, and urine culture was *Escherichia coli* (*E. coli*). computed tomography (CT) scan showed staghorn stone with severe hydronephrosis and a decrease in right kidney cortex and several Paracaval lymph nodes (up to 15 mm).

Antibiotic treatment began for the patient. Once the fever was reduced, double j (DJ) was installed for the patient. The patient was discharged in a good general condition. Ten days after discharge, the patient was admitted again with fever and pain in the flank area. Urine culture reported *E. coli*, and antibiotic treatment began again. Diethylenetriaminepentaacetic acid (DTPA) scan was requested. Differential renal function was reported at 91% in the left kidney and 9% in the right kidney. Due to recurrent infections and results of DTPA scan, the patient was a candidate for right nephrectomy and underwent surgery. A pathology report suggested SCC of renal parenchyma (large cell keratinizing type), which was associated with kidney cortex involvement. There was no lymph node in the sample. The patient was discharged with good general condition. He was referred to an oncologist, but he died two months later due to lung metastasis.

3. Discussion

The most common subtypes of renal cancer are clear cell carcinoma and chromophobe, respectively, and SCC

is the rarest subtype. Urothelial SCC is more common in cases aged 50 - 70 years and in women (1). Disease demonstrations and signs are nonspecific and include fever, weight loss, pain in the flank area, obstructive uropathy, hematuria, and paraneoplastic syndromes (4, 5). According to the non-specificity of Xantogranolomatous pyelonephritis (XGP), symptoms, pyonephrosis, and chronic pyelonephritis are in the differential diagnosis list of this disease (6, 7). Simultaneous prevalence of kidney stones and renal SCC has been 18 to 100% in various studies (8). Ultrasound diagnosis of the disease is difficult due to non-specific findings, such as hydronephrosis and calcification. For this reason, it is helpful to use CT scans in suspected cases (5, 9). Renal SCC is usually seen as a large, necrotic, and ulcerative mass with a clear invasion to surrounding tissues on gross specimens (9, 10). Pathologically and microscopically, it is seen as keratotic, pearl-form debris (11). Renal SCC is the worst prognosis among the different types of kidney tumors (12).

DTPA scan and generally isotope scans are used for definite diagnosis of renal differential function. They could measure the function of each kidney separately and in case of a decrease in the function of a kidney, a nephrectomy can be planned. because in the presented case, the pathology was not predicted before the operation, the nephrectomy was planned based on recurrent infection in nonfunction kidney, as an indication for nephrectomy (13). After the pathology report, we found that SCC was presented in this kidney. Most patients are unfortunately at advanced stages at the time of diagnosis. Their life expectancy after surgery is 7 months, on average, and less than 10% have a 5-year survival rate (4). Renal SCC treatment usually involves radical nephrectomy and radiotherapy and neoadjuvant/adjuvant systemic chemotherapy. However, adjuvant radiotherapy and chemotherapy are usually ineffective (4).

3.1. Conclusions

Although renal SCC is a rare disease, it could be associated with nephrolithiasis. Early treatment of kidney stones can prevent the development of this mortal neoplasm in patients.

Footnotes

Authors' Contribution: Study concept and design: NB and HD. Analysis and interpretation of data: FN and AFY. Drafting of the manuscript: MS. Critical revision of the manuscript for important intellectual content: HD and FB.

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