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RESEARCH ARTICLE

SYNCHRONOUS TRANSITIONAL CELL CARCINOMA AND RENAL CELL CARCINOMA PRESENTING WITH HYDRONEPHROSIS: A RARE CASE REPORT

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ABSTRACT

The simultaneous occurrence of Renal Cell Carcinoma (RCC) and transitional cell carcinoma (TCC) in the same kidney is unusual. We report a 60-year-old man with ipsilateral synchronous renal adenocarcinoma and renal pelvic transitional cell carcinoma with severe hydronephrosis and a huge staghorn calculus in the ipsilateral kidney. The patient was admitted to the hospital because of right flank pain and hematuria which he had had for 4 months. X-ray and USG revealed a huge stone in the renal pelvis and hydronephrosis of the right kidney and IVP suggested a non-functional kidney. Right radical nephrectomy was done. A section of the specimen revealed a renal cell carcinoma located at the middleof right kidney and a papillary transitional cell carcinoma arising from the renal pelvis. This is a rare case of combined renal malignancies presenting in an atypical manner as hydronephrosis.

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INTRODUCTION

Renal cell carcinoma (RCC) and urothelial carcinoma (UC) of the upper urinary tract are not uncommon urological malignancies, taken individually. Renal cell carcinoma is a well-known tumor, accounting for approximately 3 percent of adult malignancy and approximately 85 percent of all primary renal neoplasms; the tumors are usually adenocarcinomas. The second most common primary neoplasm is of the renal pelvis or ureter, accounting for 7 to 8 percent. The majority of these are transitional cell carcinomas. Their simultaneous occurrence in a patient is, however, extraordinarily rare. To our knowledge there are only 47 cases of synchronous renal adenocarcinoma and TCC reported in the literature (Fernandez Arjona *et al.,* 2005; Demir *et al.,* 2004). Pre or intraoperative recognition is important so that ureteral resection is peformed. We report a case of synchronous RCC and UC of the ipsilateral renal unit in a patient operated for unilateral hydronephrosis with pelviureteral junction (PUJ) calculus.

CASE REPORT

The patient was a 65 year old male who presented with a history of pain in the right flank for the past 4 months along with sudden onset hematuria and increased frequency. His medical history included hypertension with medication for past 15 years along with laparoscopic cholecystectomy, and with no history of smoking or chemical exposure. He was hemodynamically stable and did not require bladder irrigation. Physical examination revealed a an irregular palpable mass in the right side of abdomen alongwith tenderness in the right costovertebral angle. Lab tests revealed neutrophilic leucocytosis with raised ESR, mild elevation in blood urea and serum creatinine levels along with normal serum electrolyte levels. X-ray KUB and Ultrasonography were suggestive of hydronephrotic right kidney with mutilple renal pelvic calculi and normal contralateral kidney (Fig.1). Intravenous pyelogram revealed right nephrolithiasis with no excretion of contrast suggesting a non-functional right kidney. Urine cytology revealed only epithelial cells and RBCs.

The patient was scheduled for laparoscopic right radical nephrectomy, Per-operative findings revealed a grossly hydronephrotic kidney with a large calulus in the renal pelvis along with a mass in the PUJ .Whole of the kidney was excised along with the mass. On gross examination, kidney measured 17 x 6 x 4 cm with a greyish growth at the PUJ measuring 7.5 x 5 x 4 cm having an outer shiny and bosselated surface. Another firm white globular mass measuring 4 x 3 x 1 cm was identified near the middle part of right kidney (Fig.2). On microscopic examination, sections from different parts of multicystic kidney

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showed features of chronic pyelonephritis and presence of an invasive carcinoma of transitional type (TCC grade II/III) with tiny foci of squamous metaplasia (Fig.3). There was also one focus in the renal capsular area of clear cell carcinoma (RCC) (Fig.4).

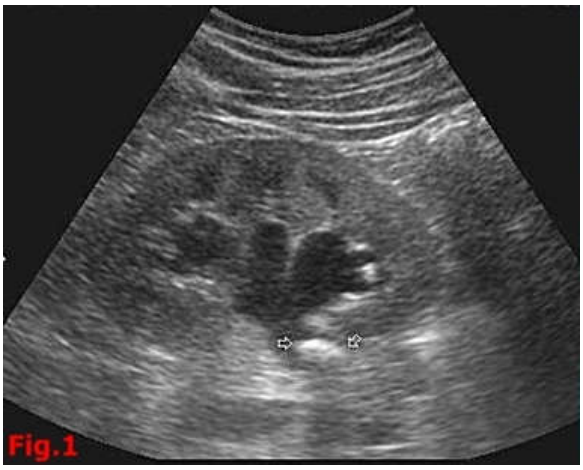

Fig.1. Ultrasonogram showing hydronephrotic right kidney with multiple renal calculi

Fig. 2. Gross picture showing a globular mass at the PUJ (red arrow) and another small growth at the middle of right kidney (yellow arrow)

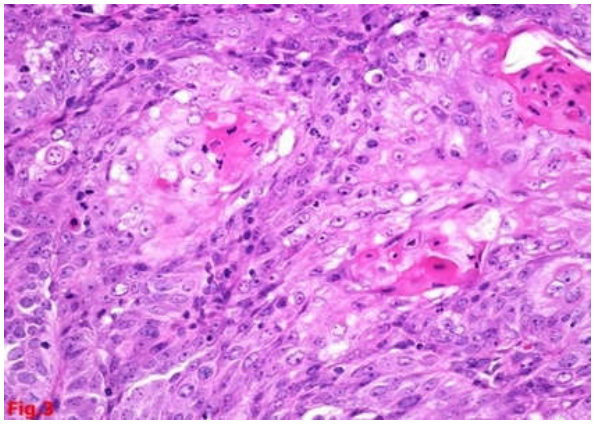

Fig. 3. Photomicrograph of PUJ mass showing invasive transitional cell carcinoma with squamous metaplasia (H&E x 200X)

Thereby, a diagnosis of synchronous multifocal transitional cell carcinoma with single focus of clear cell carcinoma with chronic pyelonephritis and nephrolithiasis was made with pathological stage pT3NxMx. The immediate post operative period of the patient was uneventful however, the patient was lost to follow up 1 month after surgery.

DISCUSSION

Renal cell carcinoma represents 3% of adult cancers, with 20% invading the collecting system or capsule (Novick, 2002). Ten percent of renal tumours arise in the renal pelvis, of which 90% are UC (Messing, 2002). The documented occurrence of both of these types of tumours in the same kidney is extremely rare, with the literature limited to a few small series and case reports. In the English-language literature, the first report was by Graves and Templeton in 1921 and the most recent by Mucciardie and colleagues in 2015 (Graves and Templeton, 1921; Demir *et al.,* 2004; Lee *et al.,* 1994; Mucciardi *et al.,* 2015). A Spanish-language review and case series reported 47 described cases, and suggested no worse prognosis associated with this dual pathology (Fernandez, *et al.,* 2005). The authors' review suggested that there were no readily identifiable risk factors for the simultaneous occurrence of both tumours, although 24% of the patients were smokers. Ninety percent of patients presented with hematuria, 19% with flank pain and 14% with a palpable flank mass. Twenty-four percent of patients in this review had evidence of metastatic disease at presentation (in their case report, the patient presented with intracranial metastatic disease 3 months after nephroureterectomy).The prognosis for a patient with dual malignancies is likely most influenced by the more aggressive of the 2 tumours. Our patient's RCC was pathologically a pT1 lesion with no evidence of metastatic disease. Our patient's UC was pathologically high grade and a pT3 lesion, with involvement of renal sinus fat via invasion through muscle. A renal pelvic location has improved survival in UC versus a ureteral primary, (Guinan *et al.,* 1992; Park *et al.,* 2004) though Holmang and Johansson (Holmang and Johansson, 2005) have suggested only 25% survival in high-grade pT3 upper tract UC. The UC was likely the more ominous primary lesion in this patient. Hematuria is one of the classic findings of RCC but is usually a late symptom. Although CT scan would have likely found this lesion, it was declined by the patient in favour of expedited treatment. The treating surgeon agreed with this course of action as the clinical presentation and pre-operative findings were in favour of a non-neoplastic lesion. The patient had an uneventful in-hospital course, and was well at his first follow-up clinic visit after surgery. Further follow-up will combine aspects of recommended follow-up for both RCC and UC, as per published guidelines (National Comprehensive Cancer Network, 2008).

Conclusion

To summarise, one should be aware of the possibility of synchronous renal tumours, as they do rarely occur, including there coexistence with other non-neoplastic renal lesions and to request intraoperative pathology consultation in the setting of nephrectomy for unusual renal lesions. In this case, 2 cancers presented together as an incidental per-op finding in a surgically unrelated lesion, in an atypical manner, but their simultaneous presence was even more unexpected.

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