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Case Report

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Different types of kidney tumors together in the same kidney: Is it rare condition?

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ABSTRACT

Renal cell carcinoma (RCC) is the most common solid lesion of the kidney and comprises 2-3% of all cancers. Bilateral synchronous benign and malignant renal tumors have been reported in some studies. However, unilateral concordance of malignant renal tumors of different histologic subtypes are very rare and only a few such cases have been reported involving different subtypes of malignant renal tumors arising within the same kidney. Herein, we describe a 59-year-old man with malign tumor of synchronous clear-cell and papillary subtypes RCC in the same kidney that were successfully treated with radical nephrectomy.

1. Introduction

Renal tumors which are usually categorized clear-cell, papillary, chromophobe, collecting duct, and unclassified carcinomas constitute 2% of general cancer mortalities and 3% of malignant tumors (Rothman et al., 2008). Two different types of synchronous malignant tumors are very rare. The most commonly reported renal cell carcinoma (RCC) subtype combinations are oncocytoma, angiomyolipoma and dissimilar histological subtype RCC (Klatte et al., 2007). There are only a few cases in which unilateral synchronous malignant tumors of different histologic subtypes have been reported (Klatte et al., 2007; Ustuner et al., 2014; Tele et al., 2015).

We report the case of a 59-year-old man with malign tumor of clear-cell and papillary subtypes of kidney tumors.

2. Case

A 59 -year-old man presented to our outpatient urology clinic with right flank pain with a duration of than three month. Physical examination and laboratory examination were normal and his serum creatinine is 1.1 mg/dl. An ultrasonographic examination revealed a mass in the right kidney. His magnetic resonance imaging (MRI) revealed a mass on the lower pole of right kidney with 3cm diameter, and with exophytic and solid character suggestive for malignancy. MRI scan also showed another 2.5 cm diameter mass on the upper pole of right kidney with solid character suggestive for malignancy (Fig. 1).

The tumor was clinically diagnosed as a right renal tumor and classified as T1aN0M0, according to tumor node metastasis system. Patient underwent right laparoscopic

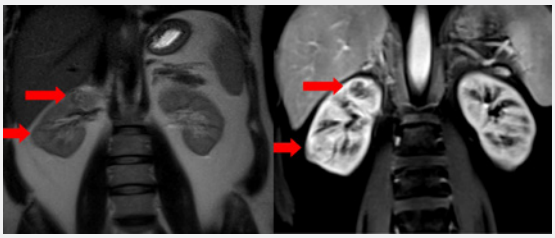

Fig. 1. Preoperative MRI image of the patient. Upper arrows show papillary RCC type 1. Lower arrows show clear cell type RCC.

radical nephrectomy (RN) and adrenalectomy. He was discharged at postoperative second day, without any complication. The patient was followed up. The patient was free from the disease according to sixth month and first year follow-up.

Pathology

Two different tumors on the lower and upper pole of the right kidney on macroscopic examination. The cut surface of the bigger one was at 3 cm diameter and its color was yellow. The smaller one was 2.5 cm diameter and its color was grey (Fig. 2).

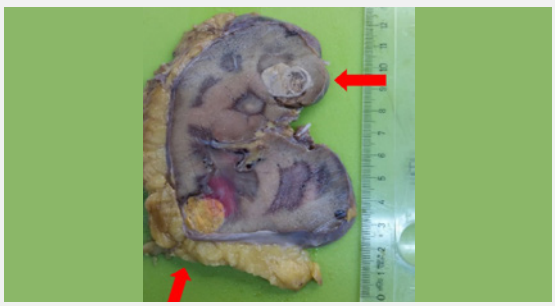

Fig. 2. Teo different tumors on the lower and upper pole of the right kidney on macroscopic examination. Upper arrow shows papillary RCC type 1. Lower arrow shows clear cell type RCC.

Microscopy revealed two different tumor patterns. The bigger tumor was diagnosed as clear cell type RCC with a diameter of 3 cm and smaller one was diagnosed as type 1 papillary RCC with a diameter of 2.5 cm on microscopic examination. The tumors which were restricted in the kidney did not invade the perihilar, perirenal, lymph vessels and blood. Pathologic examination revealed a normal adrenal gland.

Clear cell type of kidney tumors' region has composed of nests of cells with clear cytoplasm, sheets of carcinoma cells surrounded by plenty of blood vessels. The tumor's cell morphology was Fuhrman grade 2 with fine-grained chromatin containing small nucleoli which was not visible at 10x magnification (Fig. 3).

Papillary type of kidney tumors' region has tightly packed tubulopapillary structures. The Fuhrman nuclear grade was 2 (Fig.4).

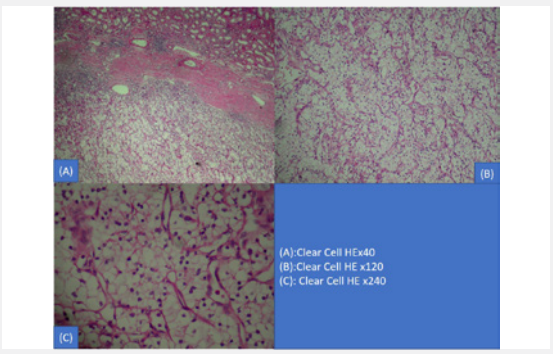

Fig. 3. Clear cell RCC, Fuhrman nuclear grade 2.

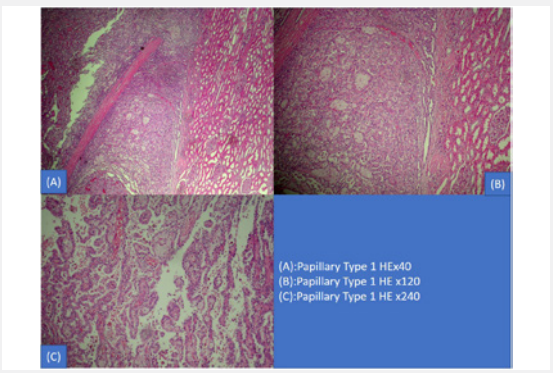

Fig. 4. Papillary RCC, type 1 with Fuhrman nuclear grade 2

3. Discussion

RCC accounts for 2-3% of all cancers. Smoking, obesity and hypertension are best known etiological factors for all types of RCC. Smoking depends on the dose to increase in risk with associated RCC (Hunt et al., 2005). The incidence of small asymptomatic renal masses has also increased over the last few decades. The widespread use of abdominal ultrasound and CT scan increased the diagnosis of renal tumor (Kuroda et al., 2011). Depending on the imaging modalities, renal tumors have cystic or solid character in generally. Radical or partial nephrectomy are recommended for all localized RCCs (Kang et al., 2010).

RCC has several subtypes with specific histopathology and genetic characteristics. Clear cell, papillary and chromophobe cell types are diagnosed mostly. Both clear cell type renal tumor and papillary type renal tumor are originated from the proximal tubules. Histopathological clear cell type renal tumor has clear cytoplasm with tubular, solid or cystic growth pattern. Papillary type renal tumor has two subtypes. Small cells and pale cytoplasm are called Type 1, and large cells and eosinophilic cytoplasm are called Type 2 (Ustuner et al., 2014).

There are some recent studies that describe benign and malignant tumors together in the same kidney. In a recent study the authors mentioned a case report containing clear

cell type renal tumors and angiomyolipoma at 86-year-old woman (Richstone et al., 2004). In another study on the subject the authors described two different types of clear cell carcinoma containing conventional clear cell and clear cell papillary type renal tumors. They reported a case of a 57-year-old male patient with a left renal tumor. They found three tumors in the same kidney after performing the left radical nephrectomy. The authors mentioned that clear cell papillary type is different from conventional clear cell or papillary type renal tumors after genetic evaluation (Kuroda et al., 2011). In another study the authors mentioned a 43-year-old female with the diagnosis of AML and suspicion of RCC who underwent left radical nephrectomy revealed multiple AML with chromophobe RCC and clear cell RCC (Kang et al., 2010). Richstone et al. reported a retrospective study focusing renal tumors in terms of multifocality (Richstone et al., 2004). They analyzed 1071 patients who underwent radical nephrectomy. According to their analysis they declared 57 cases of multifocality. Six of these cases had bilateral synchronous renal tumors. They also reported that papillary subtype RCC was significantly associated with the multifocality. However, they did not report any patient that had these different subtypes of tumors within the same kidney (Richstone et al., 2004).

According to the literature, as in our case, there are some studies reporting synchronous clear cell type and papillary type renal tumors in the same kidney (Capaccio et al., 2009; Simhan et al., 2013; Ustuner et al., 2014; Tele et al., 2015). In a recent study showing a 56-year-old male patient with coexistent clear cell RCC and papillary RCC in his left kidney (Tele et al., 2015). Ustuner et al. reported a 67-year-old male patient who had clear cell RCC and papillary RCC in his right kidney (Ustuner et al., 2014). According to a recent study, the author mentioned seven patients containing unilateral synchronous tumors with different subtypes. One of them had oncocytoma and one had clear cell RCC with synchronous AML (Capaccio et al., 2009). In another study,Simhan et al. analyzed the information of 97 patients who had multifocal RCC. The author declared eight patients with mixed renal tumors containing clear cell type and papillary type (Simhan et al., 2013). Radical nephrectomy was performed to treat these patients. In fact, there is not adequate information to evaluate the different types of renal tumors in the same kidney containing unifocal vs bilateral multifocal tumors. There is also not adequate data to compare these tumors in terms of survival or oncologic survey. On the other hand, there is no such data for unilateral synchronous different type of RCC (Ustuner et al., 2014).

In conclusion, we report a case of malign renal tumors containing clear cell type and papillary type which are rarely seen together in the same kidney. However, having different types of multiple kidney tumors in the same kidney does not affect the way of treatment. Radical nephrectomy is the best treatment option in these patients. Radiofrequency ablation therapy may be considered in selected cases for the treatment of more than one small kidney tumors (Karaköse et al., 2013; Yuksel et al., 2013).

Conflict of interests

None declared.

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