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Chromophobe Renal Cell Carcinoma: Pathologic and Imaging Features

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Background

Chromophobe renal cell carcinoma may be a rare sort of kidney cancer that forms within the cells lining the tiny tubules within the kidney. These small tubules help filter waste from the blood, making urine. As the differing kinds of kidney cancer are very distinct, characterizing and understanding each type is significant. Renal cell cancer (RCC) constitutes a gaggle of epithelial tumors that are highly heterogeneous with reference to morphology and clinical behavior during which Chromophobe Renal Cell Carcinoma is one among them. CRCC is usually related to a positive prognosis. However, to the authors' knowledge, only few clinical data are available regarding this variant of tumor. In the current study, the authors report their experience with CRCC over the last 14 years.

Chromophobe renal cell carcinoma (CRCC) could also be a rare variant of renal carcinoma, with distinct histochemical, ultrastructural, and genetic characteristics. CRCC accounts for about 4% of all kidney neoplasms.1, 2. Although the pathologic features and molecular genetic characteristics of this tumor are described extensively, to our knowledge there's little information available regarding the clinical outcome of patients with CRCC. To analyze the clinical behavior of CRCC further, we reviewed the data from 61 consecutive patients treated in the study institution for this type of tumor. Chromophobe RCCs generally have a bent to grow very slowly in vitro as compared to all or any other sort of renal tumors. This may be a reason why cytogenetic reports are scarce and typically few metaphases of poor quality were available for investigation. A low chromosome number is ranging between32-39, without discernible structural changes was the foremost frequent cytogenetic finding. Chromophobe renal cell carcinoma (RCC) is a rare neoplasm of the kidney that represents about 5% of RCCs. This malignant tumor of kidney is clinically diagnosed with an earlier stage and better prognosis than conventional clear-cell RCC. The 5-and 10-year survival rates of this cancer are reported 100 and 90%, respectively. This neoplasm is more common within the 6th decade of life. The incidence of chromophobe RCC is equal in male and feminine population. The symptoms include flank pain and mass, hematuria, weight loss, renal dysfunction, and pain from metastatic sites.

Pathologic Features

The mean tumor dimension was 6.9 cm (range, 1.5–25 cm). Sixty tumors were solitary. One patient had 2 CRCC foci measuring 5 cm and a couple of .5 cm, respectively. Macroscopically, all tumors had a homogeneous, light brown (54.1%) or white (45.9%) surface. Light microscopy showed that the tumors were comprised of sheets or trabeculae with variable proportions of clear cells and eosinophilic cells; 21 (34.4%) were classified as predominantly eosinophilic, 9 (14.8%) were classified as predominantly clear cell, and 31 (50.8%) tumors were found to be comprised of equal numbers of clear and eosinophilic cells. In no case did the tumor have a sarcomatoid component. Some areas of necrosis were present in 36% of tumors. Hale colloidal iron stain was found to be positive altogether cases. At the beginning of the present series, ultrastructural investigation of seven tumors showed the presence of intracytoplasmic vesicles altogether cases, thereby confirming the diagnosis of CRCC. Of the 61 patients, 3 had undergone renal biopsy before undergoing nephrectomy; however, in no patient had this led to a suspected diagnosis of CRCC. The TNM stage and nuclear grade of all the tumors are summarized. Tumors were confined to the kidney in 96.7% of patients and were of low grade in 88.5% of patients.

Imaging Features

Tumors were located within the right kidney in 54% of patients and within the left kidney in 46% of patients; there have been no bilateral tumors detected. The ultra-sonographic and tomodensitometric appearance of CRCC was similar to that of other renal solid tumors; enhancement was observed in 93.4% of patients, necrosis was present in 31% of patients, calcification was present in 21.3% of patients, and cystic foci were present in 6.5% of patients. Two tumors (3.3%) were suspected to be oncocytomas due to the presence of a central scar. The vena renalis was involved in just one case and therefore the caval vein was normal altogether cases. MRI was performed in five patients with suspected renal angiomyolipoma; the tumor was considered to be a usual solid carcinoma in four patients and an oncocytoma in one patient.