Case Report

Chromophobe renal cell carcinoma in 76 years old female: A case report

Aviral Chandra*

PG Student, Pathology Department, SBKSMI & RC, Sumandeep Vidyapeeth, Vadodara, Gujarat, India

*Corresponding author email: **draviralchandra@gmail.com**

International Archives of Integrated Medicine, Vol. 4, Issue 8, August, 2017.

Available online at http://iaimjournal.com/

ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**

Received on: 10-07-2017 **Accepted on:** 22-07-2017

Source of support: Nil **Conflict of interest:** None declared.

How to cite this article: Chandra A. Chromophobe renal cell carcinoma in 76 years old female: A case report. IAIM, 2017; 4(8): 139-142.

Abstract

The current World Health Organization classification of renal epithelial tumours recognises malignant lesions such as, clear cell, papillary, chromophobe and collecting duct renal cell carcinomas (RCCs), and benign entities such as oncocytoma and angiomyolipoma. Chromophobe renal cell carcinoma (RCC) is a rare variety of kidney neoplasm that represents approximately 5% of RCC. As the prognosis of chromophobe RCC depends upon early detection and typing of the RCC, meticulous histopathological examination of nephrectomy specimen is must.

Key words

Renal cell carcinoma, Chromophobe, Nephrectomy.

Introduction

Renal cell carcinoma is the most common neoplasm of the kidney [1, 2]. This malignant neoplasm accounts about 2-3% of all cancers. Chromophobe renal cell carcinoma (RCC) is a rare variety of kidney neoplasm that represents approximately 5% of RCC. It is a clinically identified malignant neoplasm of kidney with an earlier stage and a more favorable prognosis than conventional clear-cell RCC. Chromophobe RCC was first described in 1985 by Thoenes and Colls [3], who depicted 12 cases of renal tumor consisting of chromophobe cells showing slightly opaque or finely reticular cytoplasm with hematoxylin and eosin staining. Here in we are presenting a case of female patient with diagnosis of Chromophobe renal cell carcinoma where we are able to find and document the typical features of Chromophobe renal cell carcinoma.

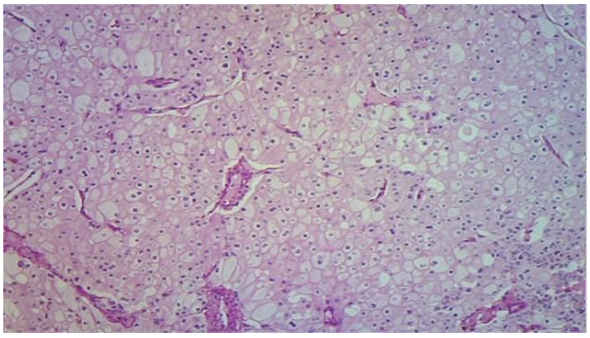
Case report

A 76 years old woman came to surgery OPD with chief complain of pain in the abdomen. On

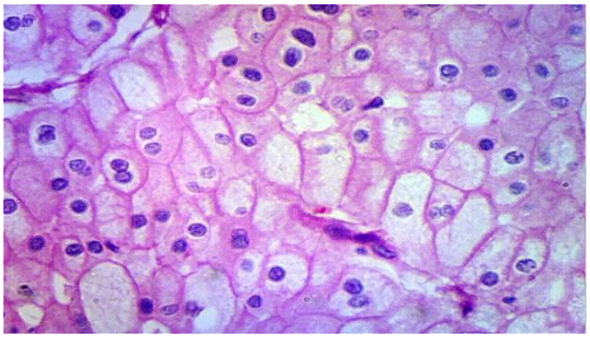
examination there was presence of left sided abdominal mass. On abdominal ultrasonography, a regularly isoechoic solid mass was seen in the left kidney. Abdominal contrast-enhanced computed tomography (CT) revealed a left renal tumor, 4.2 cm in diameter, showing uniform contrast and well-defined margins at early phase and the contrast agent earlier washed out at middle phase, and no findings of metastases. All the other haematological and serological examinations were with in normal limit. The patient was underwent left sided nephrectomy and the specimen was sent to the histopathology department. Macroscopically, the tumor was well-circumscribed solid mass without a fibrous capsule. The cross-sectional surface was homogenously light brown. On microscopic examination, characteristic nesting arrangement of the tumor cells was seen. The tumor cells had sharply defined borders and abundant cytoplasm. The cytoplasm had a pale, acidophilic quality, and there was often a clear perinuclear region (**Photograph - 1, 2, 3**). The cytoplasm stained for Hale colloidal iron, indicating the presence of acidic mucins. Immunohistochemically there was positivity for EMA, keratin 7, CD9, CK 7 and E-cadherin. From overall histomorphological findings final diagnosis of Chromophobe renal cell carcinoma was given.

Photograph – 1: Chromophobe RCC is macroscopically single, well demarcated tumor.

Photograph – 2: Large, polygonal tumor cells with pale pink cytoplasm form a solid field separated by thin-walled blood vessels (H & E stain, 20X).



Photograph - 3: Cytoplasm of the chromophobe RCC was fine-or fine-grained with a clear around the nucleus and distinct cell membranes (H & E stain, 40X).



Discussion

The current World Health Organization classification of renal epithelial tumours recognises malignant lesions such as, clear cell, papillary, chromophobe and collecting duct renal cell carcinomas (RCCs), and benign entities such as oncocytoma and angiomyolipoma.1 Each of these neoplasms has characteristic histological and/or immunophenotypic features and genetic/ chromosomalalterations specific to each type have been identified.2 The most common subtype of renal cell carcinoma is clear cell accounting 75%, papillary follows about 10%, chromophobe 5% and undifferentiated 10% of all cases [4-8].

Chromophobe renal cell carcinoma is usually diagnosed in 6th decade of life with the similar incidence in male and female population [4-8]. Majority cases of this neoplasm are diagnosed in

stage 1 and 2 [6, 8]. Renal vein invasion is seen in up to 5% cases [6]. Clinical symptoms of chromophobe renal cell carcinoma are observed rarely. The triad of hematuria, pain and flank mass is present in a small percentage of patients [4-6]. Our patient also presented with pain in the left side of abdomen.

Macroscopically this tumor present as a solitary, circumscribed and not capsulated mass [9]. Microscopically there are three different variants of chromophobe RCC. First, the classic type, which has more than 80% pale cells, is associated with necrosis and sarcomatoid changes potentiating high growth and metastases. Second, the eosinophilic variant, which consists of more than 80% eosinophilic cells, shares certain characteristics with oncocytomas, and shows nested, alveolar, or sheet-like architecture with eosinophilic granularity, perinuclear clearing, and peripheral accentuation of cytoplasm. The third variant is mixed [10]. The following eosinophilic renal neoplasms require differential diagnosis: chromophobe RCC, oncocytoma, oncocytosis, hybrid oncocytic/chromophobe tumor of Birt-Hogg-Dubé syndrome, tubulocystic carcinoma, papillary RCC, clear-cell RCC with predominant eosinophilic cell morphology, follicular thyroid-like RCC, hereditary leiomyomatosis-associated RCC, rhabdoid RCC, epithelioid angiomyolipoma, and unclassified RCC. In our case, uniform eosinophilic cuboidal cells grew tubally and nuclei were centrally located and round: these findings resemble oncocytoma. The perinuclearhalo, raisinoid nuclei, and binucleation led us to diagnose chromophobe RCC differentially from oncocytoma. Special stain of Hale's colloidal iron and immunohistochemical results contributed to the diagnosis.

Surgery is a fundamental treatment for chromophobe renal cell carcinoma. There is no standard of chemotherapeutic treatment for advanced chromophobe renal cell carcinoma [11-15]. In studies patients with advanced chromophobe renal cell carcinoma were treated mTOR inhibitors, c-Kit inhibitors and tyrosine kinase inhibitors [11-15].

The prognosis of chromophobe renal cell carcinoma is more favorable than that of conventional renal cell carcinoma, but distant metastases can develop in liver and lungs. The various studies proved that the prognosis and survival rates for patients with chromophobe renal cell carcinoma are good for early stage chromophobe RCC. Median survival with metastases in chromophobe renal cell carcinoma is 29 months to 5.5 months in papillary renal cell carcinoma [11].

Conclusion

As the prognosis of chromophobe RCC depends upon early detection and typing of the RCC, meticulous microscopic examination of nephrectomy specimen is must.

References

1. Gndolo L, de la Taille A, Schips L et al.: Chromophobe renal cell carcinoma: Comprehensive analysis of 104 cases from multicenter European database. Urology, 2005; 65: 681-686.
2. Cheville JC, Loshe CM, Zincke H, et al. Comparisons of outcome and prognostic features among histologic subtypes of renal cell carcinoma. Am J Surg Pathol., 2003; 27: 612-624.
3. Thoenes W, Storkel S, Rumpelt HJ. Human chromophobe cell renal carcinoma. Virchows Arch. B Cell Pathol Incl Mol Pathol., 1985; 48: 207-17.
4. Eble JN, Sauter G, Epstein JI, Sesterhenn IA, eds. World Health Organization classification of tumours. Pathology and genetics of tumours of the urinary system and male genital organs. Lyon: IARC Press, 2004.
5. Linehan WM, McClellan MW, Zbar B. The genetic basis of cancer of the kidney. J Urol., 2003; 170: 2163.

6. Capitanio U, Cloutier V, Zini L, et al. A critical assessment of the prognostic value of clear cell, papillary and chromophobe histological subtypes In renal cell carcinoma: a population-based study. BJU Int., 2009; 103: 1496-1500.
7. Crotty TB, Farrow GM, Lieber MM. Chromophobe cell renal carcinoma: clinicopathological features of 50 cases. J Urol., 1995; 154: 964-967.
8. Lee WK, Byun SS, Kim HH, et al. Characteristics and prognosis of chromophobe non-metastatic renal cell carcinoma: a multicenter study. Int J Urol., 2010; 17: 898-904.
9. Wu SL, Fishman IJ, Shanon RL. Chromophobe renal cell carcinoma with extensive calcification and ossification. Ann of Diag pathol., 2002; 6(4): 244-247.
10. Amin MB, Paner GP, Alvarado-Cabrero I, Young AN, Stricker HJ, Lyles RH, Moch H. Chromophobe renal cell carcinoma: histomorphologic characteristics and evaluation of conventional pathologic prognostic parameters in 145 cases. Am J Surg Pathol., 2008; 32: 1822-34.
11. Motzer RJ, Bacik J, Mariani T et al.: Treatment outcome and survival associated with metastatic renal cell carcinoma of non-clear-cell histology. J Clin Oncol., 2002; 20: 2376-2381.
12. Larkin JM, Fisher RA, Pickering LM, et al. Chromophobe renal cell carcinoma with prolonged response to sequential sunitinib and everolimus. J Clin Oncol., 2011; 29: e241-242.
13. Klatte T, Han KR, Said JW, et al. Pathobiology and prognosis of chromophobe renal cell carcinoma. Urol Oncol., 2008; 26: 604-609.
14. Choueiri TK, Plantade A, Elson P, et al. Efficacy of sunitinib and sorafenib in metastatic papillary and chromophobe renal cell carcinoma. J Clin Oncol., 2008; 26: 127-131.
15. Zardavas D, Meisel A, Samaras P, et al. Temsirolimus is highly effective as third-line treatment in chromophobe renal cell cancer. Case Rep Oncol., 2011; 4: 16-18.