

Multilocular Cystic Renal Neoplasm of Low Malignant Potential: Alterations in the 2016 Renal Tumor Classification of World Health Organization

Düşük Malignite Potansiyelli Multiloküler Kistik Renal Neoplazi: Dünya Sağlık Örgütü'nün 2016 Renal Tümör Sınıflandırmasındaki Değişiklikler

Deniz Filinte¹, İlker Tinay²

¹Marmara University Faculty of Medicine, Department of Pathology, İstanbul, Türkiye

²Marmara University Faculty of Medicine, Department of Urology, İstanbul, Türkiye

Introduction

Multilocular cystic renal neoplasm of low malignant potential (MCRN-LMP) is a rare cystic tumor of the kidney with an excellent outcome and is composed of multiple cysts separated by thick septa covered with clear cells (1,2). It was defined as "a tumour composed entirely of numerous cysts, the septa of which contain small groups of clear cells indistinguishable from grade 1 clear cell carcinoma" by Eble et al. (3), in the 2004 World Health Organization (WHO) histological classification of tumours of the kidney.

MCRN-LMP has been classified as a neoplasm with an intrinsically cystic growth pattern, and no, or at most little, malignant potential by Eble and Bonsib (4). They have suggested the following 3 criteria to be associated with this low-grade malignant potential; 1- an expansile mass surrounded by a fibrous wall, 2- the interior of the tumor entirely composed of cysts and septa with no expansile solid nodules, and 3- the septa containing aggregates of epithelial cells with clear cytoplasm (4).

The largest published series of MCRN-LMP by Li et al. (5) included 76 subjects. 66 patients were followed up for median of 52 months. No recurrence was observed. A patient died due to rectal cancer, but no metastasis or recurrence of renal tumor was detected (5). Nassir et al. (6) has defined MCRN-LMP as a cystic lesion with neoplastic clear cells,

an uncommon subtype of conventional clear cell renal cell carcinoma (ccRCC), and as having a benign clinical course. Murad et al. (7) has reported their ten-year experience of 6 cases of MCRN-LMP that were followed for a minimum of 2 years. Neither recurrence nor metastasis was observed. They have concluded that the tumor was a low-grade variant of renal cell carcinoma (7).

In 2016, WHO published a new classification of renal tumors as new data were collected (8). Due to its excellent prognosis from multiple publications (1,9,10), these tumors are now termed as "MCRN-LMP" (11).

A 70-year-old male presented to the Urology Department of Medical Faculty of Marmara University with the complaints involving lower urinary system. Magnetic resonance imaging demonstrated a solid mass of 58 mm on the lower pole of the left kidney and a multilocular cyst of 20 mm about 40 mm away from it. Left partial nephrectomy was performed. On pathological examination the partial nephrectomy material measured 60x60x50 mm. A yellow-gray solid tumor with well defined borders and of 5 cm in diameter was present in the nephrectomy material. A second material measuring 25x15x15 mm from the kidney was examined and a multilocular cyst with a diameter of 15 mm was observed. The tissue specimens were fixed in 10% buffered formaldehyde solution and embedded in paraffin. Tissue sections were stained with haematoxylin and eosin. Grade 2 cells with clear cytoplasm

Correspondence: Deniz Filinte MD, Marmara University Faculty of Medicine, Department of Pathology, İstanbul, Türkiye

Phone: +90 506 531 29 21 **E-mail:** filinte@yahoo.com

Received: 10.01.2017

Accepted: 15.02.2017

Cite this article as: Filinte D, Tinay İ. Multilocular Cystic Renal Neoplasm of Low Malignant Potential; Alterations in the 2016 Renal Tumor Classification of World Health Organization. J Urol Surg 2017;4:45-47.

©Copyright 2017 by the Association of Urological Surgery / Journal of Urological Surgery published by Galenos Publishing House.



were observed in the solid tumor. Immunohistochemically, the cells demonstrated positive staining for CD10 and vimentin. The cystic lesion was composed of multiple cysts separated by thin septa and the inner surface of the cysts was lined by cells with clear cytoplasm. There were a few cell clusters in the septa (Figure 1, 2). These cells were grade 1 and demonstrated positive staining for cytokeratin 7, PAX-8 and epithelial membrane antigen but negative staining for CD10 (Figure 3, 4). The solid mass was diagnosed as ccRCC and the cystic lesion as the multilocular cystic renal neoplasm of low malignant potential.

Suzigan et al. (11) has proposed that MCRN-LMP should be renamed and reclassified to draw attention to its benign nature. They have suggested the term "multilocular cystic renal cell neoplasm of low malignant potential" for this lesion in 2006. They have believed that this new terminology might help the urologists approach the patients conservatively (11).

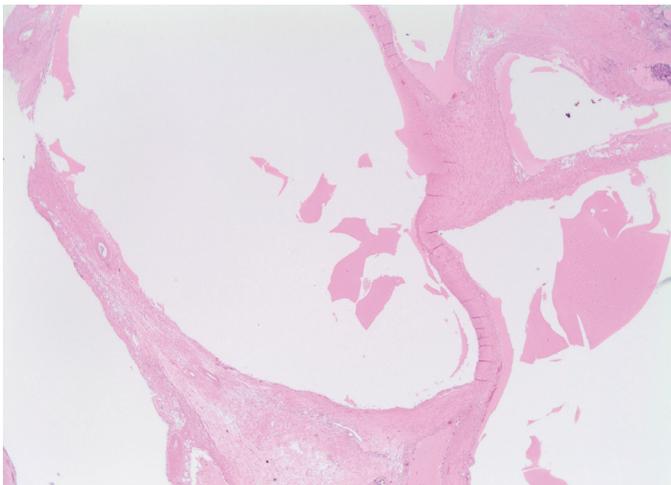


Figure 1. Multiple cysts separated by thin septa (haematoxylin and eosin, x20)

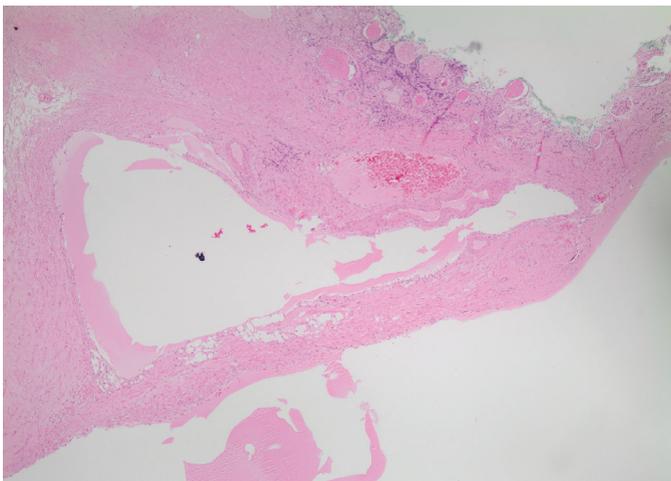


Figure 2. Cysts are lined by clear cells. Cell clusters in septa are seen (haematoxylin and eosin, x40)

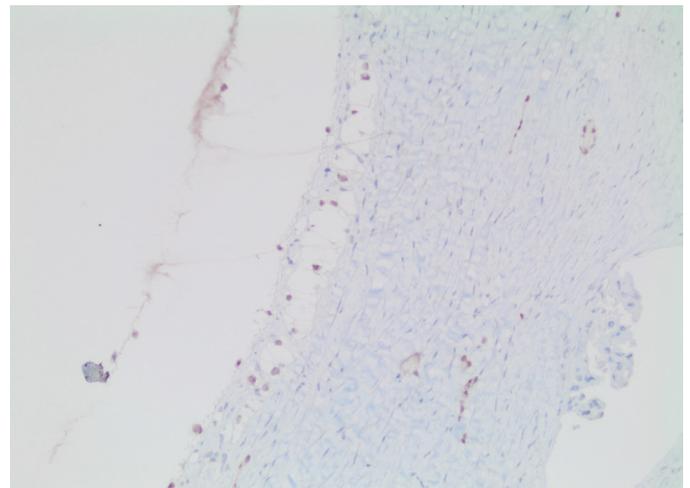


Figure 3. Tumor cells are positive for PAX-8 (immunohistochemistry, x200)

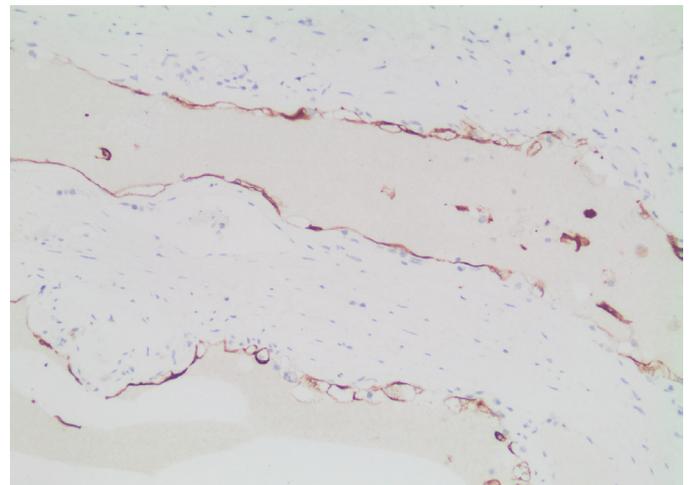


Figure 4. Immunoreactivity for cytokeratin 7 (immunohistochemistry, x200)

The International Society of Uro pathology, has separated ccRCC from MCRN-LMP, according to the current data, and clearly defined MCRN-LMP as a least aggressive neoplasm with no recurrence and no metastatic potential after surgical treatment (12).

The terminology has changed and so called "multilocular cystic renal cell carcinoma" is currently named as multilocular cystic renal neoplasm of low malignant potential in the International Society of Urological Pathology Vancouver Classification of Renal Neoplasia and the 2016 World Health Organization Classification of Tumors of the Urinary System and Male Genital Organs (13).

Keywords: Multilocular, neoplasia, renal tumor

Anahtar Kelimeler: Multiloküler, neoplazi, renal tümör

Ethics

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Deniz Filinte, İlker Tinay, Concept: Deniz Filinte, Design: Deniz Filinte, Data Collection or Processing: Deniz Filinte, Analysis or Interpretation: Deniz Filinte, Literature Search: Deniz Filinte, Writing: Deniz Filinte.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial disclosure: The authors declared that this study received no financial support.

References

1. Bloom TL, Gray Sears CL, Williams TR, Linfesty RL, Amling CL. Multilocular cystic renal cell carcinoma with osseous metaplasia in a 25-year-old woman. *Urology* 2003;61:462.
2. Chowdhury AR, Chakraborty D, Bhattacharya P, Dey RK. Multilocular cystic renal cell carcinoma a diagnostic dilemma: A case report in a 30-year-old woman. *Urol Ann* 2013;5:119-121.
3. Eble JN, Sauter G, Epstein IJ, Sesterhenn IA. WHO Classification of Tumours of the Urinary System and Male Genital Organ. Lyon, France: International Agency for Research on Cancer (IARC) Press, 2004.
4. Eble JN, Bonsib SM. Extensively cystic renal neoplasms: cystic nephroma, cystic partially differentiated nephroblastoma, multilocular cystic renal cell carcinoma, and cystic hamartoma of renal pelvis. *Semin Diagn Pathol* 1998;15:2-20.
5. Li T, Chen J, Jiang Y, Ning X, Peng S, Wang J, He Q, Yang X, Gong K. Multilocular Cystic Renal Cell Neoplasm of Low Malignant Potential: A Series of 76 Cases. *Clin Genitourin Cancer* 2016;14:e553-e557.
6. Nassir A, Jollimore J, Gupta R, Bell D, Norman R. Multilocular cystic renal cell carcinoma: a series of 12 cases and review of the literature. *Urology* 2002;60:421-427.
7. Murad T, Komaiko W, Oyasu R, Bauer K. Multilocular cystic renal cell carcinoma. *Am J Clin Pathol* 1991;95:633-637.
8. Moch H, Cubilla AL, Humphrey PA, Reuter VE, Ulbright TM. The 2016 WHO Classification of Tumours of the Urinary System and Male Genital Organs-Part A: Renal, Penile, and Testicular Tumours. *Eur Urol* 2016;70:93-105.
9. Bhatt JR, Jewett MA, Richard PO, Kawaguchi S, Timilshina N, Evans A, Alibhai S, Finelli A. Multilocular Cystic Renal Cell Carcinoma: Pathological T Staging Makes No Difference to Favorable Outcomes and Should be Reclassified. *J Urol* 2016;196:1350-1355.
10. Imura J, Ichikawa K, Takeda J, Tomita S, Yamamoto H, Nakazono M, Takimoto T, Ueda Y, Fujimori T. Multilocular cystic renal cell carcinoma: a clinicopathological, immuno- and lectin histochemical study of nine cases. *APMIS* 2004;112:183-191.
11. Suzigan S, Lopez-Beltran A, Montironi R, Drut R, Romero A, Hayashi T, Gentili AL, Fonseca PS, deTorres I, Billis A, Japp LC, Bollito E, Algaba F, Requena-Tapias MJ. Multilocular cystic renal cell carcinoma: a report of 45 cases of a kidney tumor of low malignant potential. *Am J Clin Pathol* 2006;125:217-222.
12. Srigley JR, Delahunt B, Eble JN, Egevad L, Epstein JI, Grignon D, Hes O, Moch H, Montironi R, Tickoo SK, Zhou M, Argani P; ISUP Renal Tumor Panel. The International Society of Urological Pathology (ISUP) Vancouver Classification of Renal Neoplasia. *Am J Surg Pathol* 2013;37:1469-1489.
13. Moch H, Humphrey PA, Ulbright TM, Reuter VE. WHO Classification of Tumours of the Urinary System and Male Genital Organ. Lyon, France: International Agency for Research on Cancer (IARC) Press, 2016.