

## Case Report

# A rare case of multilocular cystic renal neoplasm of low malignant potential diagnosed on intra-operative fine needle aspiration cytology

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### ABSTRACT

Multi-locular Cystic Renal Cell Carcinoma (MCRCC) is now considered as Multilocular cystic renal neoplasm of low malignant potential (MCRNLMP) in World health organisation classification (WHO) 2016. It is usually seen in elderly people where it can mimic most of the time as benign cystic lesion. Authors are reporting a case of MCRNLMP in a 70 year male diagnosed intraoperative with the help of Fine Needle Aspiration Cytology (FNAC). Radiological and other clinical findings are in favour of cystic renal lesion. And it is very important to differentiate it from conventional renal cell carcinoma which requires radical nephrectomy. So, radiological finding and FNAC is instrumental in diagnosing this rare case which require different mode of surgical management.

**Keywords:** Fine needle aspiration cytology , Multi-locular cystic renal cell carcinoma, Multilocular cystic renal neoplasm of low malignant potential, World Health Organisation

### INTRODUCTION

These tumours composed of entirely of numerous cysts, the septa of which contain small groups of clear cells indistinguishable from grade I clear cell carcinoma.<sup>1</sup> The World Health Organisation (WHO) 2016 classification of kidney tumours recognizes Multilocular cystic renal neoplasm of low malignant potential (MCRNLMP) as a rare variant of clear cell carcinoma with male to female predominance f 3:1, age ranges from 20 to 76 years.

No instance of progression of multilocular cystic neoplasm of low malignant potential is known. MCRNLMP is frequently misdiagnosed as a benign renal cyst because it shares similar clinical manifestations and imaging characteristics. Authors report this case because of its rarity and good prognosis.<sup>2,3</sup>

### CASE REPORT

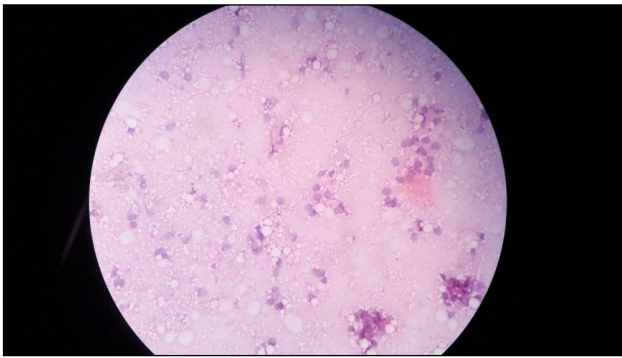
About 70 year old male presented with pain in right lumbar region since 2 months. Complete hemogram and other investigation were within normal limit. Ultrasound revealed a cystic mass measuring 33 x 22 mm<sup>2</sup> sized partially exophytic cyst with few internal septation and 15x10x7 mm<sup>3</sup> sized small enhancing soft tissue nodular component on the anterior aspect of lower pole of right kidney.

Authors have received intra-operative consultation and FNAC from cystic lesion in kidney done. Haemorrhagic fluid was aspirated, slide prepared from it, wet fixed in 95% alcohol and stained Hematoxylin and Eosin stain (H and E), showed few macrophages and occasional benign epithelial cells. So, the cyst was removed surgically and

sent for histopathological and cytopathological study. Imprint smears were prepared from thick part of cyst wall, slides were fixed and stained with H and E stain. The slides showed scanty cellularity with presence of epithelial cells arranged in loose clusters and scattered singly. Cells were having abundant finely vacuolated cytoplasm and mild nuclear atypia. The report was given as possibility of "cystic Renal cell neoplasm with low malignant potential" which was subsequently confirmed by histopathological examination of the cyst.

#### **Procedure for hematoxyline and eosin staining**

After preparing the smears immediately fix it in methanol for 10 minutes (Wet fixation). Dry the smear. First apply Hematoxyline for 2 minutes. Wash the slide 2 times in tap water. Apply Eosin for 5-10 seconds. Wash with tap water 2 times. Dry the slide and mount with D.P.X. Label it properly.



**Figure 1: Hematoxylin and eosin staining x10 view, epithelial cells are arranged in loose cluster and scattered singly, cells are having finely vacuolated abundant cytoplasm and centrally placed round nucleus with fine granular chromatin.**

#### **DISCUSSION**

Multilocular cystic renal neoplasm of low malignant potential (MCRNLMP) is a rare cystic tumour of kidney with an excellent outcome. Cystic RCC has been sub classified into four subtypes:

- Those resulting from an intrinsic multilocular pattern of growth
- Those resulting from an intrinsic unilocular pattern of growth
- Those resulting from cystic degeneration of a previously solid tumour
- Those originating in a benign cyst.

The first type is most frequent and is characterised by variably sized, non-communicating cysts, separated by irregular thick fibrous septa. Clear cell carcinoma with this architecture are recognised as a distinct subset of these tumours and are designated as multi-locular cystic Renal cell neoplasm of low malignant potential. This

group of tumour is usually of low nuclear grade, confined to kidney and associated with an excellent prognosis.<sup>4</sup>

MCRNLMP and Benign renal cyst are the commonest causes of renal cystic mass at old age, and they share similar clinical manifestations and imaging characteristics and cause a diagnostic dilemma.<sup>5</sup>

Renal FNAC is a useful tool in distinguishing benign renal cyst from MCRNLMP for further surgical management of patient.

In Benign renal cyst aspirated fluid is clear and straw coloured and smears prepared from it shows macrophage and few cyst lining benign epithelial cells. Occasionally macrophage may appear atypical with moderately enlarged irregular nuclei and may be arranged in clusters, this could raise a suspicion of cystic tumour.<sup>6</sup>

In MCRNLMP, aspirated fluid is cloudy and blood stained. Smear prepared from fluid shows tumour cells arranged in loose tissue fragments and scattered singly in the background of necrotic debris and hemosiderin laden macrophages. Tumour cells are having finely vacuolated abundant cytoplasm and round nuclei having finely granular chromatin. Nucleoli may be absent, small or prominent depending on the grade of neoplasm. Cytology of MCRNLMP is many time sparsely cellular and may show macrophage and leucocyte with few tumour cells which resemble macrophage and diagnosis of MCRNLMP is challenging. Thin wall blood vessel traversing the tissue fragment is clue to the diagnosis in such smear.

MCRNLMP should be distinguished from conventional RCC as this has excellent outcome and does not need radical nephrectomy.

Intraoperative cytology examination may facilitate accurate diagnosis and help clinician to modify their surgical management. However, minority of MCRNLMP cases may not show any malignant sign on FNAC. In study by Shanwen et al 3 MCRCC cases were intraoperative diagnosed as simple cyst. Indeed even with frozen section evaluation at time of surgery, confusion may remain in the determination of benign versus malignant disease and if there is any intraoperative doubt regarding nature of lesion the renal cystic mass should be removed with clear margin.<sup>3</sup>

#### **CONCLUSION**

MCRNLMP is rare tumour carries an excellent prognosis. Differential diagnosis is benign cyst and conventional renal cell carcinoma. Cytopathology is instrumented in these types of cases for the course of further management of the patient. Radical nephrectomy is avoided as in conventional renal cell carcinoma. Surgical removal of cyst with clear margin is advisable in case of doubt regarding nature of lesion.

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