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A RARE CASE OF DIFFUSE INFILTRATING RENAL CELL CARCINOMA WITH EXTENSIVE VENOUS THROMBOSIS

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ABSTRACT

Renal cell carcinoma (RCC) is the most common solid renal cancer in adults. Early and accurate imaging plays important role in its detection and staging. Diffuse renal infiltration with global enlargement is usually diagnostic of renal lymphoma. Here we report a rare case of a papillary renal cell carcinoma with diffuse renal enlargement and extensive intravenous tumor thrombus.

KEYWORDS: Renal cell carcinoma, papillary, intravenous tumor thrombus.

INTRODUCTION

Renal cell carcinomas (RCC) rank as 8th most common adult malignancy constituting 3% of all newly diagnosed cancers.[1] Tumour thrombus formation occurs in 5%-15% cases with extension up to cardiac chambers in 1%.[1] Ultrasound is the most common imaging technique for renal masses. However computed tomography is the first choice for imaging due to high resolution, reproducibility, faster acquisition and reasonable cost.[2] Since the credibility of imaging studies in identifying subtype of RCC and in differentiation from lymphoma in cases with equivocal features is limited, an appropriate histological evaluation is crucial.

CASE REPORT

A 41year old female presented to our hospital with occasional left sided abdominal pain for past 2 years with exacerbation of symptoms for past 2 months. Pain was predominantly in left lumbar region and was associated with edema of both lower limbs, left side more than right. General examination revealed pallor and bilateral pitting pedal edema. There was left renal angle tenderness on palpation. Blood investigations revealed anemia with a Hb level of 7.2gm/dl. Urine routine examination showed traces of albumin.

Grey scale ultrasound scan of the abdomen revealed enlarged left kidney with lost corticomedullary differentiation, but with maintained reniform shape. Left renal vein appeared distended with hypoechoic thrombus which was noted to have contiguous extension to infra diaphragmatic inferior venacava (IVC) [Figure (1 & 2)]. Color Doppler showed minimal demonstrable vascularity within the thrombus.

For superior characterization of the lesion and extend of thrombus, patient was evaluated with contrast enhanced CT scan of abdomen and thorax. Plain and contrast CT scan revealed enlarged left kidney with lost corticomedullary differentiation which was completely replaced by heterogenously hypoenhancing lesion [Figure (3, 4)]. There was contiguous thrombus with similar enhancement pattern as that of the renal lesion extending to and distending left renal vein and IVC, reaching up to right atrium. Extension of thrombus also noted to the vein of caudate lobe, right renal vein and left adrenal vein [Figure (5, 6)]. Infra hepatic IVC was collapsed with multiple renal collaterals noted draining into lumbar venous plexus and azygous- hemiazygos system which were dilated. Left renal artery was encased by the lesion with significant caliber attenuation. Left kidney showed ill defined plane with left crus of diaphragm and absent contrast excretion in delayed images [Figure (7)]. Finally, a diagnosis of infiltrating renal cell carcinoma of left kidney with intravenous tumour thrombus was given. Differential diagnosis considered was renal lymphoma.

For confirmation of the CECT diagnosis, a core biopsy was obtained from left kidney under aseptic precautions, using a 22G biopsy gun. Histopathological examination showed cells with abundant clear basophilic cytoplasm and large hyper chromatic nuclei with central fibro vascular core resembling papillae. All these were

confirmative of papillary renal cell carcinoma. [Figure (8, 9)].

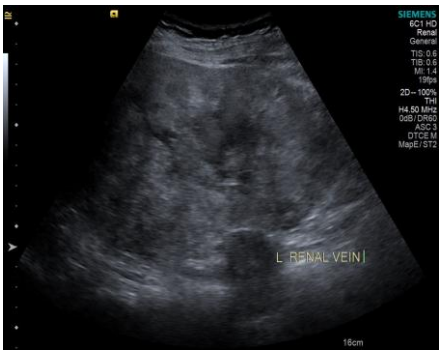

Figure 1: USG showing enlarged left kidney with lost corticomedullary differentiation and left renal vein distended with hypoechoic thrombus.

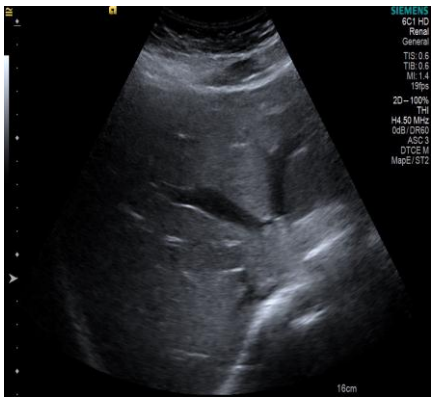

Figure 2: USG showing intrahepatic inferior venacava distended with hypoechoic thrombus.

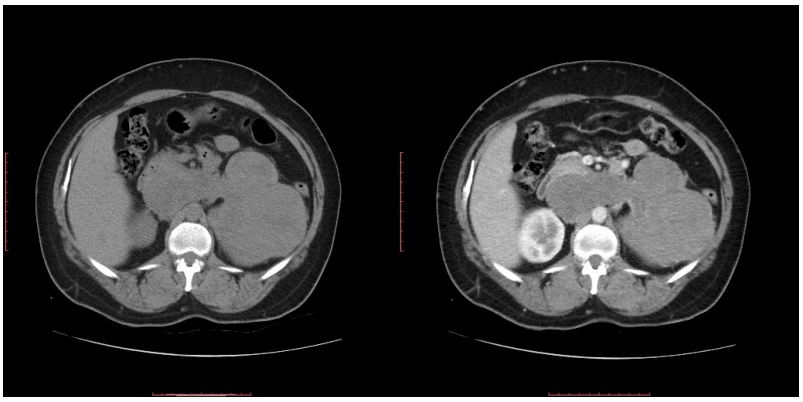

Figure 3, 4: Plain and contrast CECT (corticomedullary phase) shows enlarged hypoenhancing left kidney with contiguous tumour thrombus extension to left renal vein and IVC.

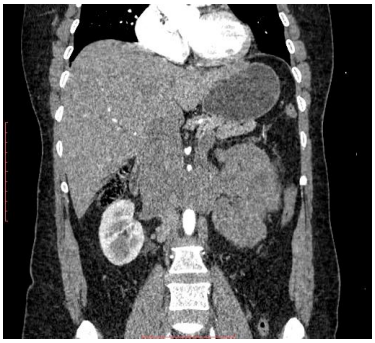

Figure 5: Coronal CECT section showing enlarged left kidney with contiguous tumour thrombus extension to bilateral renal vein, inferior venacava and left adrenal vein.

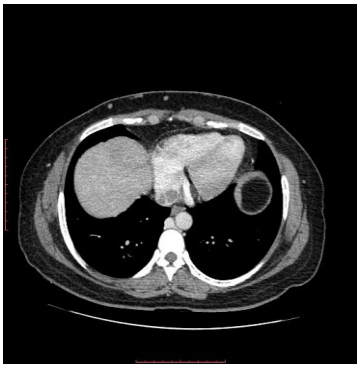

Figure 6: Axial CECT section showing thrombus within right atrium and enlarged azygos-hemiazygos veins.

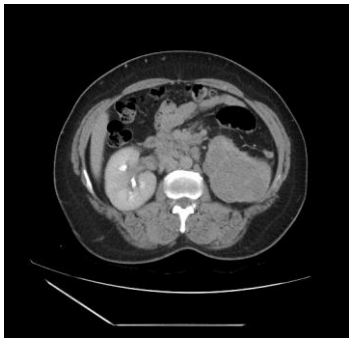

Figure 7: CECT section, excretory phase showing absent contrast excretion of left kidney.

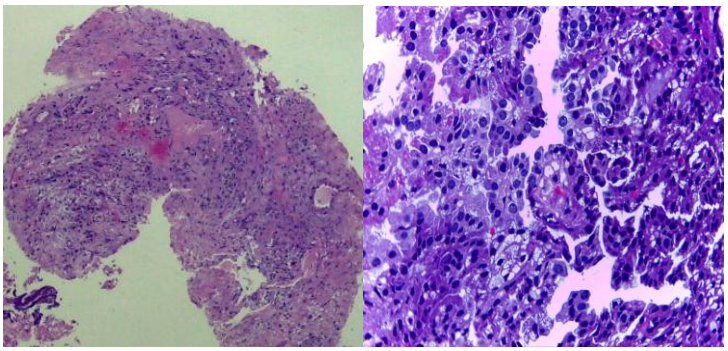

Figure 8, 9: Histopathological specimen showing features suggestive of papillary renal cell carcinoma.

DISCUSSION

Papillary tumors are the second most common type of RCC occurring in 10-15% of cases. They have a characteristic appearance on CT and are associated with minimal enhancement.

Histologically there are two types of papillary tumors: type 1 and 2, latter of which is less common and associated with worser prognosis.[1]

Renal lymphoma usually presents with diffuse renal infiltration and global enlargement. However, it is usually bilateral and is associated with widespread abdominal lymphadenopathy.[3]

Incidence of non clear cell histology in patients with IVC thrombus is approximately 10% within which papillary is the most usual. Accurate identification of involvement of renal vein and inferior venacava is important for correct patient management. Preoperative diagnosis of tumor thrombus and its extent is paramount as it needs surgical resection. CT shows IVC extension of RCC with 96% accuracy and is the first choice of imaging as it allows simultaneous metastatic survey. Radical nephrectomy and caval thrombectomy is the only option to obtain local control of the disease. Patients with papillary RCC with IVC thrombosis show shorter survival as compared with clear cell type.[4]

TNM staging system is used for staging of RCC. CT is the most frequently used staging modality with accuracy ranging between 72 and 90%. Tumor spread to renal vein and inferior venacava is considered as stage T3; with extend to renal vein being T3a and to IVC below and above diaphragm being T3b and T3c respectively. Optimal enhancement of the renal vein is seen during corticomedullary phase of enhancement. Thrombus is seen as a filling defect within the vein. It is difficult to differentiate tumor thrombus from bland thrombus unless enhancement can be seen within the thrombus.[1]

In our case the tumor thrombus was very extensive, extending from left kidney through left renal vein to IVC reaching up to right atrium. To the best of our knowledge we could not find any report in literature of papillary RCC with diffuse renal enlargement and extensive tumor thrombus.

CONCLUSION

The diagnosis of renal cell carcinoma should also be considered in cases of diffusely infiltrating renal lesions. Extensive tumour thrombus is an imaging manifestation of renal cell carcinoma, the extent of which should be adequately delineated with pre-operative CT or MRI.

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