PATHOLOGICAL DIAGNOSIS

Renal Cell Carcinoma in a Child

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Abstract

Renal cell carcinoma (RCC) is an uncommon malignancy in childhood.So far, only a few cases have been reported in the world literature. We present a case of RCC in a five year old boy.

Key Words

Renal cell carcinoma, Clear cell sarcoma, Nephroureterectomy

Introduction

Renal cell carcinoma, also known as Hypernephroma/ Grawitz's tumour is commonly seen in fourth to fifth decade of life. But rarely, it is seen in children also. The commonest renal tumour in children is Wilms' tumour and its variants. The ratio between Wilms' tumour and renal cell carcinoma in children is about 25 : 1 [1]. Grossly as well as microscopically, the renal cell carcinoma of childhood is similar to its counterpart in the adults.

Case Report

A five year old boy presented with two episodes of hematuria and urinary tract infection. Local examination revealed a palpable lump in the left renal area. The lump measured 4×3 cms and was of firm consistency. It was bimanually palpable. Routine investigations revealed a normal hemogram and urine with traces of albumin and 10–15 RBC's/hpf. Renal function tests were within normal limits. Abdominal skiagram showed a homogeneous shadow in left kidney area. IVP revealed abnormal filling of contrast in lower pole of left kidney. Ultrasound and CT scan confirmed it as a renal mass arising from the lower pole of left kidney and a diagnosis of Wilms' tumour was made. Left nephroureterectomy was performed.

Pathological features

Grossly the specimen weighed 220 grams and measured 6×3×1.5 cms. Externally it was unremarkable. Cut section showed a brownish tumour with foci of hemorrhage and necrosis, located in the lower pole of left kidney and measured 2×1.5×1 cm. Renal vein was uninvolved by the tumour.The tumour consisted predominantly of tubular formations lined by large cells, having clear cellular outlines, abundant vacuolated cytoplasm and vesicular nuclei (Fig.1 & 2). Mild nuclear

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pleomorphism was seen along with occasional mitotic figures. Renal capsule was infiltrated by the tumour, but perirenal fat was free. Tumour cells showed strong PAS positivity. Rest of the renal parenchyma was histologically unremarkable. A diagnosis of renal cell carcinoma, stage I was made. At the end of 6 months of follow up the patient was free of any tumour recurrence.

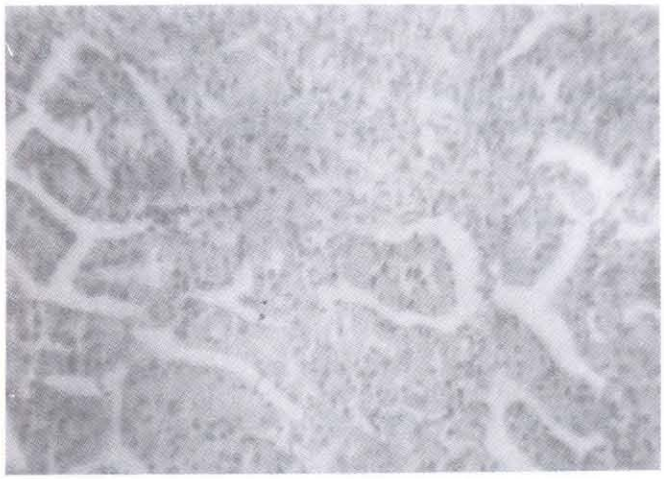

Fig. 1 Low power view of the tumour showing tubulopapillary structures. (H&E stain x 100)

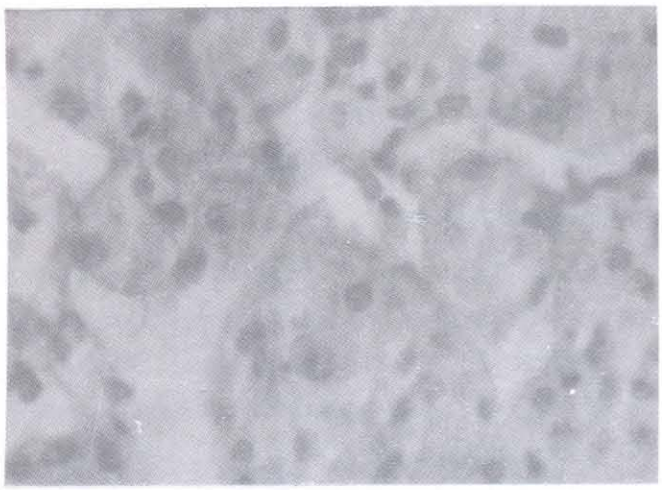

Fig. 2 High power view of the tumour showing tubular structures lined by large cells with abundant vacuolated cytoplasm and vesicular nuclei. (H&E stain x 400)

Discussion

Renal cell carcinoma constitutes about 2% of all childhood malignancies [1]. Clinically, the commonest differential diagnosis is Nephroblastoma and sometimes Neuroblastoma also. But in any child older than 10 years of age, if presenting with a renal mass, a possibility of RCC should always be kept in mind [2]. The youngest case report of a RCC in children is as less as one year. Microscopically, the closest differential diagnosis of RCC in child would be a clear cell sarcoma of kidney, which is also known as 'bone metastasizing tumour of kidney'. The cells in a clear cell sarcoma are present in sheets and groups supported by fine vasculature. Tubular structures are absent and the individual cells have ill defined outlines, clear cytoplasm and normochromic nuclei [3].

Clinically, the behaviour of childhood renal cell carcinoma depends on numerous factors, the most important being the stage of the disease at the time of diagnosis. Other important prognostic factors are presence or absence of vascular invasion and size of the tumour. A large majority of childhood RCC cases die within a period of 2-3 years after being diagnosed [4]. Hence, a strict and regular follow up is necessary for detecting any early local recurrence or distant metastasis. As in adults, nephroureterectomy is the treatment of choice.

References

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