RENAL CELL CARCINOMA IN CHILDREN*
Report of two Cases

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Hypernephroma or renal cell carcinoma is seen rarely in infancy and childhood. It was even doubted by some whether this tumour did exist in the young (Fagan and Clark 1970). No case was seen at the Children’s Hospital, Boston, over thirty years (Gross 1953). Sirsat (1958) did not find any at the Tata Cancer Hospital, Bombay, from 1941 to 1957. The Vellore group have reported only one case (Bhajekar et al. 1961, Bhat 1971). Ramakrishnan (1971) in his long experience of pediatric surgery has not seen any case.

Most of the published reports are based on one or two cases. Dehner et al. (1970) added 15 more cases from the Tumour Registry of the American Academy of Pathology. Poor documentation and difference in criteria used for diagnosis make authentic assessment difficult. Bolovoy and Rome (1963) brought the total number of reported cases to 52. Because of its rarity, we report two children with hypernephroma seen at Pondicherry.

Report of Cases

Case 1. Sri V, a 12-year-old boy, was admitted in May 1967 with a history of pain and swelling of the upper abdomen of one year’s duration.

On examination, an emaciated, anaemic patient was seen with a tumour of variable consistency occupying the right half of the abdomen extending up to the inguinal region. The renal angle was full and dull and the tumour was bimanually palpable.

The haemoglobin was 9.5 G.% and the urine showed no abnormality. Blood urea was 38 mg.%. X-ray of the chest was normal. A plain X-ray of the abdomen showed a big soft tissue shadow in the right flank with displacement of gas shadows to the left. I.V.P. showed a non-functioning right kidney.

With a provisional diagnosis of a kidney tumour, a laparotomy was done and a well-encapsulated huge kidney tumour was incompletely removed as it was extending to the under surface of the liver. There were secondaries in the liver. The post-operative period was uneventful.

The operated specimen weighed 1700 G., measured 22 cm. x 15 cm. and had a lobulated surface with a variable consistency. A cut section showed a variegated surface with few cystic areas containing gelatinous material. No kidney tissue could be made out.

Microscopic examination revealed an encapsulated tumour with malignant cells arranged in an alveolar pattern, differentiated in some places into a papillary pattern and occasional areas
showing a clear cell pattern. There was capsular invasion, with vascular and lymphatic emboli. Grossly no kidney tissue could be made out. A diagnosis of renal cell carcinoma mainly of the papillary type was made. No radiotherapy was given because of extensive metastases. He came back after 2 months' recurrence, a big mass in the epigastrium and ascites.

A palliative course of radiotherapy was given this time without any effect. His condition rapidly deteriorated and he died soon after.

**Case 2.** Sri B, a 14-year-old boy, was admitted in July, 1970 with a swelling in the right loin of 2 years' duration. He had one bout of haematuria 2 years previously when a mass was detected in the right loin. A kidney tumour was suspected, but the parents had refused surgery.

On examination, a healthy boy was seen having a well defined mass with a smooth surface, which was firm in consistency and bimanually palpable and ballotable. The renal angle was dull and full.

Urine and stool examinations revealed no abnormality. The blood urea was 35 mg.%. Urine culture was sterile. I.V.P. showed good function of both the kidneys but the calyces of the right kidney were pushed up. A right nephrectomy was done by the anterior transperitoneal route and he had an uneventful recovery.

**Specimen.** Grossly the tumour occupied the posterior and lower pole of the renal parenchyma displacing the normal looking pelvis and anterior part upwards and laterally. The cut section showed a well encapsulated globular tumour 9 cm. × 9 cm. in size which was variegated, brownish and reddish with areas of cystic degeneration. Histologically, various sections from the tumour showed a clear cell pattern. There was capsular invasion without any vascular and lymphatic emboli. No post-operative radiotherapy was given. He is doing well one year after surgery.

**Discussion**

The differential diagnosis of a renal mass in children is often restricted to consideration of Wilms' tumour and neuroblastoma. While this is undoubtedly true the possibility of renal cell carcinoma merits serious consideration in older children (Dehner et al. 1970). We thought of the possibility of renal cell carcinoma in our second case, in view of his age (14 years), slow progress and good general condition.

The youngest reported case was 6 months old and the oldest 17 years with an average of 8.4 years (Scruggs and Ainsworth 1961). Dehner et al. (1970) found a mean age of 9 years in their 15 cases among children and there was no sex predilection. Scruggs and Ainsworth (1961) reviewed the literature and found sex being mentioned in 32 cases, 13 in girls and 19 in boys.

The classical triad of symptoms seen in the adult, namely haematuria, mass and pain in the flank, is often not seen in children. Aron and Gross (1969) noted a palpable abdominal mass in 76% and haematuria in 45% of cases. Dehner et al. (1970) reported gross haematuria in 60% and an abdominal mass in 50% of their cases. Both of our cases presented with an abdominal mass and pain but only one gave history of haematuria 2 years prior to admission.