Valley International Journals
Open Access Journal
VIJ
New Thinking New Innovation

International journal of medical science and clinical Invention
Volume 1 issue 3 2014 page no.248-253 ISSN: 2348-991X
Available Online At: http://valleyinternational.net/index.php/our-jou/ijmsci

Mesoblastic nephroma of kidney – A rare case report

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***Abstract** – The mesoblastic nephroma is a rare benign pediatric renal tumour.It is composed of two histological subtypes, namely classical and cellular, with second accounting for two third of cases and being more often associated with poor prognosis. It remains diagnostic challenge for the pathologist due to its similarity with more frequent pediatric kidney neoplasm.*

Keywords – mesoblastic , nephroma , cellular

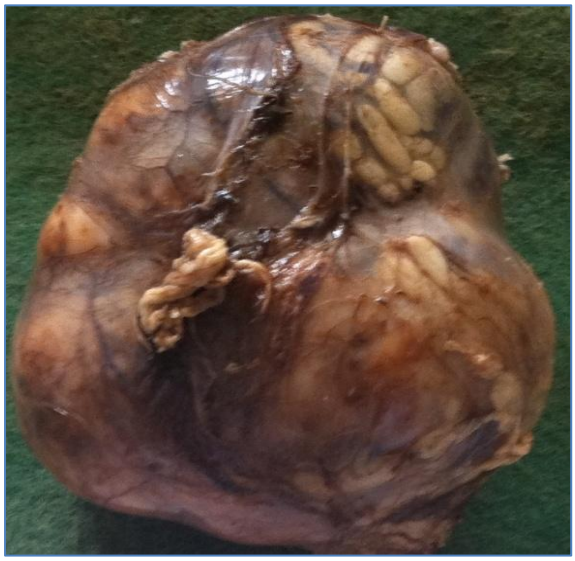
Introduction: Congenital mesoblastic nephroma (CMN) is a rare renal tumor.Most renal neoplasms in childern are represented by wilm's tumour (WT) and predominately occurs in age range between 1- 4 years of age[1].This fact makes this diagnosis the more probable one when an abdominal mass detected in a child's kidney; very often leading to treatment directed at wilms tumour, even without pathological confirmation [2].Renal neoplasmas in childern younger than 6 months are less common. In this age group, congenital mesoblastic nephroma is the most frequent one 90% of tumours being diagnosed within first year of life and virtually never occurring after three years of life [3].The mesoblastic nephroma has favorable prognosis [4]. The association between cellular mesoblastic nephroma (CMN) and polyhydramnios, hypertension and prematurity has been well described; and although CMN is a benign tumor, it could behave aggressively, resulting in catastrophic complications.

Case Report

We describe the case of 2 year old male child presented with abdominal distension , vomiting and increased irritability . On per abdominal examination a palpable mass in left hypochondrium and lumbar region is seen. Ultrasound examination showed Large heterogeneous mass in rt. renal fossa

extending up to the right hypogastric region. CT scan showed large renal mass measuring 12.8 x 8.7 x 7.5 cm arising from lower pole of the right kidney and completely replacing the kidney. The patient underwent right nephrectomy.

On gross examination , kidney mass measured 11 x 8 x 7 cm and weighed 300 gms. The capsular surface was bosseleted , cut surface showed extensive whitish lesions with few cystic structures occupying almost entire kidney. The renal capsule , sinus and perirenal fat was grossly uninvolved.



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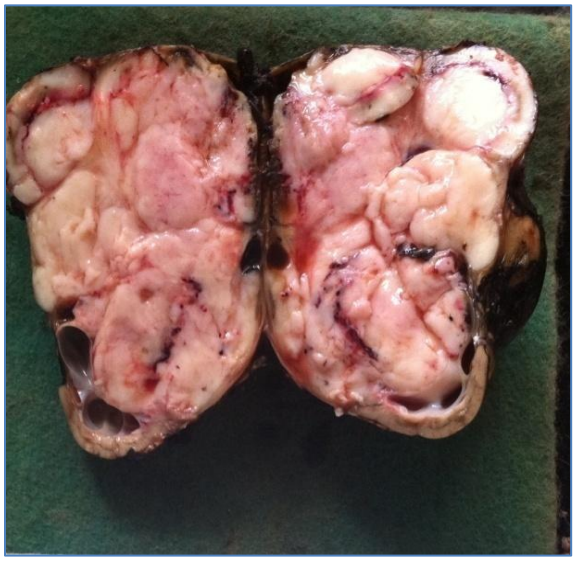
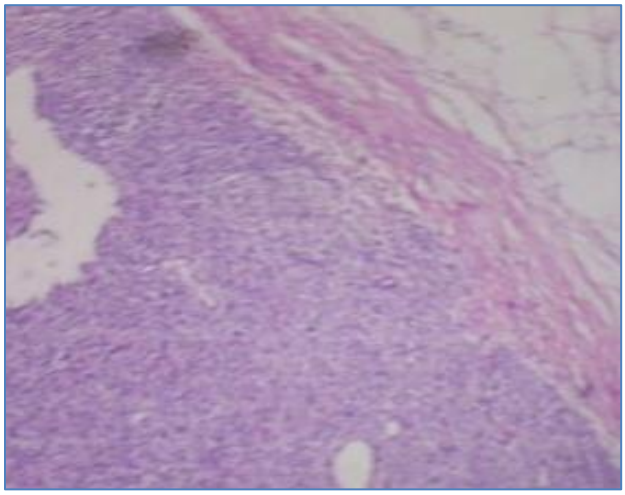


B)

Fig 1- Gross photographs showing Rt. kidney with a tumor , 350 g, 10x7.5x7 cm ,soft to cystic ,c/s - solid whitish nodular

On microscopy it was highly cellular tumour composed of oval to spindle cells with monotonus nuclei without atypia, mitosis and necrosis. The above findings led to the diagnosis of mesoblastic nephroma (classic subtype).



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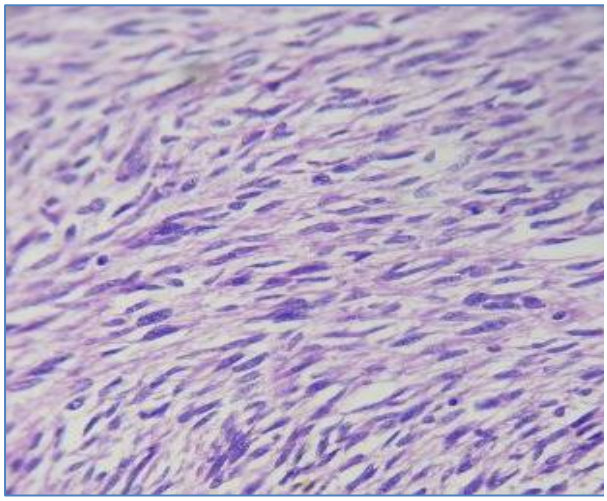

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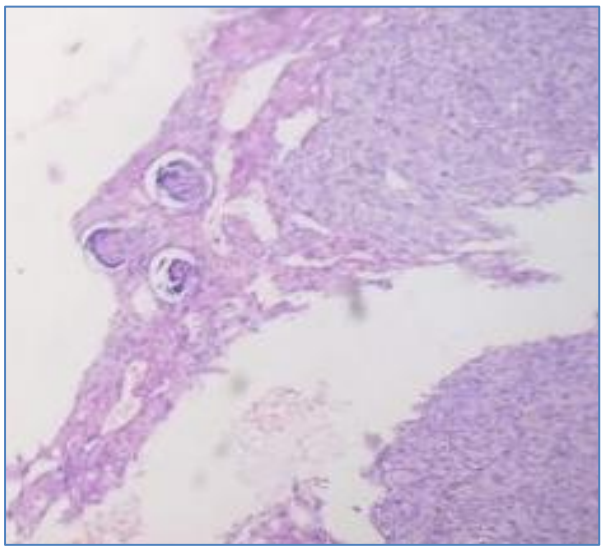

C)

Fig 2- Microscopy A) showing highly cellular tumour B) Bundles and fascicles of highly cellular tumour C) Normal kidney at periphery.

Discussion

Cellular mesoblastic nephroma accounts for less than 3% of renal neoplasms in children.It is predominant renal neoplasm in first three months of life and uncommon after 6 months.Most of the time the presenting feature is always almost abdominal mass .Cellular mesoblastic nephroma is first recognized in 1966 and subsequent studies have shown it to be a morphologically distinct tumours with good prognosis. It constitute 5% of all pediatric renal tumours .The mesoblastic nephroma represents approximately 3-10% of all pediatric renal neoplasms and has two histological subtypes classical and cellular .The cellular subtype accounts for 42-63% of all cases [5].The cellular subtype has has larger tumour volume occurs significantly more often in older pateitnts[6].In addition to being more aggressive when compared to the classic subtype[7].

Its diagnosis remains a challenge for pathologists due to its similarities with other more common pediatric neoplsms. The lack of familiarity with its rare entity can lead to misdiagnosis[4]. May present in utero with fetal hydrops or polyhydramnios . 5-10% recur or metastasize (cellular type), usually by 1 year to lung, brain or rarely bone.Poor prognostic factors include 1) Cellular variant 2) advanced stage 3) vascular involvement. The neoplastic cells showed positive immunoreactivity for vimentin. There

was no reactivity for desmin, actin, keratin or S-100 protein. The kidney had an embryonic appearance , which could be described as mesoblastic nephroma, mixed classic and cellular variant.The differential diagnosis of a neonatal abdominal mass includes Cellular mesoblastic nephroma , Wilm's tumor, neuroblastoma, rhabdoid tumor, clear cell sarcoma of the kidney, and renal cell carcinoma.The points to differentiate mesoblastic nephroma & wilm's tumour are as follows , mesoblastic nephroma is a benign tumour occurring in children younger than 6 months of age while the wilm's tumour is a malignant tumour occurring in older age group (1 year).the mesoblastic nephroma showed only mesenchymal component while the wilm's tumour will show blastemal, mesenchymal and epithelial component. No differentiation is seen in case of mesoblastic nephroma while Wilm's tumour showed differentiation in the form of abortive tubules and glomeruli. The prognosis of mesoblastic nephroma is excellent while that of Wilm's tumour is poor. The cellular variant tends to be more aggressive, with a survival rate of 85% versus 100% for the classic variant. Recurrence generally occurs in the first year, particularly with the cellular variant [8].

Nephrectomy with wide margins is the mainstay of treatment. Chemotherapy is needed if the resection is incomplete , in infants more than 3 years of age , if tumour ruptures during procedure ,cellular subtype . The prognosis is excellent with 5 year survival of 96%[9].

Conclusion

Mesoblastic nephroma is rare pediatric renal tumour. Its histological diagnosis remains a challenge for pathologist due to its similarity with other common pediatric renal neoplasms. The timely correct diagnosis can be very beneficial to the patients because of its better prognosis.

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