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Renal Teratoma: a Rare Entity

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Introduction

Germ cell tumors can arise not only in the gonads but also in the anterior mediastinum, retroperitoneum, parasacral and coccygeal region, perineal and other intra cranial sites[1] According to Dehner[2], extragonadal germ cell tumors occur in six general anatomic regions of the body which include head, neck, thorax, abdomen (liver, stomach, kidney), retroperitoneum and sacrococcyx with the greatest number of cases occurring in the head. The kidney represents one of the least common sites of extragonadal germ cell tumors. Teratomas of the kidney are extremely rare and only a few cases have been described in the literature.[3-5] According to Baldwin[3] only five cases of the dermoids of the kidney are on record. McCurdy reported a case of teratoma occurring in a baby boy, 7 weeks old among 31 renal neoplasms in children.[4] Teratomas of the pararenal region involving the kidney were reported by Baker and Ragins[5] and Langley.[6] According to Lucke and Schlumberger[7], most of the cases showing teratoid structures in the kidney were examples of nephroblastoma. According to Dehner[2] the case of intra renal teratoma reported by him was a bonafide example of an intrarenal teratoma if retroperitoneal and para-renal teratomas are eliminated from consideration. We are presenting a case of mature cystic teratoma (dermoid cyst) in the kidney with an occasional immature element.

Case Report

A two month old baby girl was admitted in the department of paediatric surgery of a children hospital, with the complaints of abdominal distension since birth. On examination her weight was 3.5 kgs and her abdomen was hugely distended. On palpation a firm mass of about 11 x 6 x 6 cms was palpable on left side of the abdomen, which was crossing to the right side as well. The mass was non-tender, moving with respiration and the margins were irregular. Her blood picture showed a haemoglobin concentration of 12.0 gm/dl, X-ray abdomen showed a soft tissue mass with areas of calcification in the left side of the abdomen, which was pushing intestinal loops towards right and upper side. Ultrasound of abdomen revealed a complex mass measuring 10.5 x 6 cms, partly cystic and partly solid in nature on the left side of abdomen, crossing to the right side. The left kidney was not visualized on ultrasound. Provisional diagnosis of hydronephrosis/ Kidney tumor was made.

Patient was operated upon; laparotomy was done through a left supraumblical transverse incision extending to the right side. A large partly cystic and partly solid mass with extensive areas of haemorrhage in the cystic areas was present in the left lumbar region. It was roughly spherical in shape, crossing the midline. After peeling the overlying descending transverse colon from the mass, it was resected out in toto. Postoperative recovery of the patient was uneventful and she was discharged on 8th postoperative day. The specimen was sent for histopathological examination.

Grossly a grayish brown sac like mass was received measuring 10 x 5.5 x 4.2 cms in maximum dimensions (Figure 1). It weighed 84 Gms. On sectioning a nodular circumscribed lesion was identified measuring 5.5 x 5 cms. It was attached to the cystic wall, which focally showed thickened brownish areas in the wall. The entire kidney was replaced by the lesion, only a thin rim of renal parenchyma was identified at the periphery. Attached adrenal gland was also identified outside the cyst. On sectioning the cut surface of this nodule was yellowish brown, haemorrhagic and necrotic. Multiple sections were taken from the cyst wall and from the nodular lesion and vessels.

Microscopically small cystic spaces lined by keratinizing stratified squamous epithelium with skin adnexae were identified (Figure 2). The solid areas showed large foci of cartilage and bone formation alongwith salivary gland tissue. Melanin containing cells and neuroglial cells

with occasional foci of immature neuroectodermal tissue were also identified (Figure 3). The cyst wall was thick fibromuscular without any lining. Sections from solid areas in the cyst wall revealed immature renal tissue. Normal adrenal gland tissue was also identified. The diagnosis was mature teratoma with focal immature component.

Discussion

Among common childhood neoplasms presenting as abdominal masses, the most important are neuroblastoma and nephroblastoma (Wilm's tumor). The most common germ cell tumor which occurs during the first year of life is sacrococcygeal teratoma[8] Primary renal teratomas are exceptionally rare. According to Beckwith[9], most lesions reported as renal teratomas appeared to be either Wilm's tumor in which heterotopic tissues were prominent or retroperitoneal teratomas secondarily invading the kidney. Several authors emphasize the extraordinary diversity of heteotropic cells and tissues which may be encountered in nephroblastomas.. Beckwith[9] suggests that for a tumor to be termed a renal teratoma it should meet two criteria: (a) the primary tumor should be unequivocally of intrarenal origin i.e., the entire lesion should be contained within the renal capsule and there should be no teratomas in remote sites which might have metastasized to the kidney. (b) the tumor should exhibit unequivocal heterotopic organogenesis. Our case report fulfils both these criteria.

References

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