

MATURE CYSTIC RENAL TERATOMA: A RARE ENTITY

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ABSTRACT

Teratomas are neoplasms that arise from pluripotent cells and can differentiate along one or more embryonic germ lines¹. Renal teratoma is an exceedingly rare condition. The primary involvement site is the gonadal tissue; less frequent primary sites of involvement include the anterior mediastinum, retroperitoneum, sacrococcygeal region, brain and the gastrointestinal tract. The proximity of the genital ridge to the nephrogenic anlage may partly explain how germ cells could be displaced within the kidney.

Key words: Teratoma, Cystic, Renal

INTRODUCTION

Teratomas are neoplasms that arise from pluripotent cells and can differentiate along one or more embryonic germ lines¹. 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. According to Dehner², 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.

Germ cell neoplasms arising from the kidneys are rare. Majority of the renal teratomas are known to occur in childhood; even more uncommon is their presentation in adults. We present a case of primary renal teratoma in a 24-year-old female.

CASE REPORT

A 24 years female presented with lump in the left side of the abdomen of 10 months duration. She had no lower urinary tract symptoms, hematuria or fever. Her past medical / surgical history was not contributory. Abdominal examination revealed a single, intra-abdominal, retroperitoneal, non-tender, fixed lump of 18x14 cm, hard in

consistency and smooth surface involving left hypo-chondrium, lumbar, iliac and umbilical region. Both the renal and liver functions as well as the findings of hematological studies were within normal limits. Her chest X-ray revealed no abnormality. Abdominal ultrasonography demonstrated enlarged left kidney with nephrolithiasis (including pelvis calculi) causing gross hydronephrosis with thinned out parenchyma. An excretory urogram (IVU) showed grossly enlarged left kidney with scattered foci of coarse calcification of varying shapes and sizes in both peripheral and central distribution (figure 1). Right kidney and ureter appear normal (figure 2&3). Left kidney showed no nephrographic/pyelographic density till 24 hours: suggesting non-excreting kidney (figure 4). DTPA diuretic renogram showed grossly hydronephrotic left kidney with impaired function (GFR 10.5 ml/min) and differential function of 17% with upper outflow tract obstruction, normal functioning right kidney with non-obstructive clearance.

Surgical exploration through a left subcostal incision revealed enlarged left kidney, which was cystic with areas of scattered calcification and dense adhesions in the peritoneum. A left simple nephrectomy was performed. Post-operative recovery was uneventful and patient was discharged on 12th post-operative day. The specimen was sent for histopathological examination.

Grossly a large, reniform specimen measuring 15x12x10cm, weighing 787gms. Outer surface was

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Fig.1 control film showing the grossly enlarged left kidney with scattered foci of coarse calcification of varying shapes and sizes in both peripheral and central distribution.



Fig1: 20minutes film-Good excretion of contrast from Right kidney. Right kidney and ureter appears normal. No uptake and excretion of contrast from left kidney.



Fig. 3: 2 hours film- Minimal contrast present in Right collecting system, no uptake and excretion of contrast from left kidney



Fig 2: 24 hours film- Left kidney showed no nephrographic/ pyelographic density till 24

irregular, capsulated with bosselations and attached fibro-fatty tissue. Cut surface was solid as well as cystic, firm to hard in consistency.

In between these solid and cystic structures, creeping fats were identified. Cysts were ranging from 1-5 cm in maximum diameter. Some of these cysts contained brownish – black to granular, pultaceous material along with hairs. Areas of structures (choroid) were observed. Mesodermal derivatives comprises of adipose tissue, smooth muscle, cartilage as well as bone surrounded by loose fibrous connective tissue framework was

myxoid degeneration, cartilaginous tissue along with bony hard tissue are also identified. Cortico-medullary differentiation is obliterated. A tubular structure of 11.5x 0.8 cm with patent lumen submitted (figure 5).

Microscopic findings revealed mature tissues derived from all three germ layers distributed in an orderly organized fashion. Ectodermal derivatives comprising skin, few eccrine glands and hair shafts were present. At places, cystic structures lined by flattened to stratified squamous epithelium were identified. Few foci of neural tissue and ocular



Fig 4: Gross specimen of Kidney showing the outer irregular, capsulated surface, creeping fats in between the solid and cystic structures and obliterated cortico-medullary differentiation.

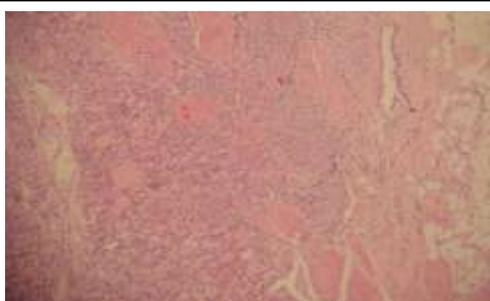


Fig 5: thyroid tissue comprising of follicles surrounded by follicular epithelial cells with central colloid filled region with wisps of smooth muscle as well as adipose tissue (right) [x40]



Fig 6: Pseudostratified ciliated respiratory lining epithelium, along with cartilage (top) and adipose tissue. [x40]

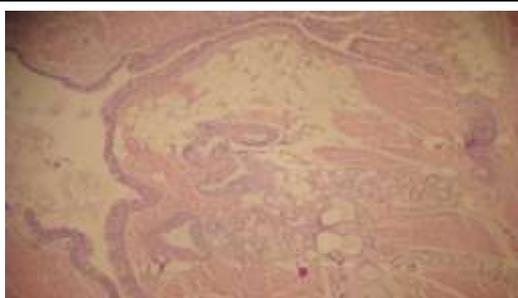


Fig 7: pseudostratified ciliated respiratory lining epithelium along with adipose tissue [x40]

observed. Endodermal derivatives including respiratory lining along with glands, thyroid follicles containing colloid and gastrointestinal epithelium were observed. Sections examined from ureter were histologically unremarkable. No immature components were identified on extensive examination. A final diagnosis of mature teratoma of kidney was made (figure 6,7 and 8).

DISCUSSION

Teratomas are rare neoplasms (incidence 0.7/100.000 children/year) with tissue derivatives of all three germ layers³. Teratomas are neoplasms of embryonal origin. They are predominantly extragonadal, occur in the midline and are generally associated with reproductive organs¹. Extragonadal teratomas are more commonly seen in the retroperitoneum and mediastinum. In infants, sacrococcygeal region is more commonly involved. Retroperitoneal teratomas exhibit a bimodal presentation, with peaks in the first six months of life and early adulthood². Kidney is one of the least common locations for teratomas and other germ cell tumors³. The first reported case of teratoma of kidney was in 1934, when Mc Curdy described this entity in a seven-week-old child with Prune-Belly syndrome⁴. Singer and Anders had reported a case of primary teratoma of the kidney in a two-month-old boy who presented with a palpable flank mass⁵.

Teratomas are generally solid and avascular but when cystic, may sometimes be confused with cystic lesions of the kidney. Otani et al. reported a case of a six-year-old boy with intrarenal cystic teratoma, associated with renal dysplasia⁶. Kojiro et al. described the first case in an adult of 40 years in 1976⁷. Majority in children have a benign clinical course; however, it is difficult to assess the natural history of teratoma occurring in adults because, metastasis can occur even in well-differentiated teratomas of other organs and can occur the same way in kidneys as well⁸. This leads to worsening of prognosis and hence complete excision is totally justified. The purpose of this review was to stress on the fact that though primary renal teratomas in adults are extremely rare, this entity must be taken into consideration in the differential diagnosis of any renal mass in

adults as well.

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