



Case Report

## Multicentric Renal Angiomyolipoma with Pancreatic Neuro-Endocrine Tumour in a Patient of Tuberous Sclerosis Complex - A Case Report

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### ABSTRACT

**Introduction:** A rare case of multicentric renal angiomyolipoma and pancreatic neuro-endocrine tumor in a patient with tuberous sclerosis complex is described.

**Case report:** The patient was a 30 years old female, who had multiple facial angiofibromas, seizures and mental retardation presented with pain in abdomen. A well circumscribed nodular mass was discovered in the tail of the pancreas along with a lobulated soft tissue density lesion involving infra hilar region and lower pole of left kidney. Histologically, the renal tumor showed an intricate mixture of smooth muscle cells, adipose tissue and blood vessels. Sections from the pancreatic mass showed neuro-endocrine tumor.

**Conclusion:** We want to highlight the rare occurrence of both renal angiomyolipoma and pancreatic neuro-endocrine tumor in a patient with Tuberous sclerosis complex.

**Keywords:** Tuberous sclerosis complex (TSC), neuro-endocrine tumors, angiomyolipoma (AML), angiofibromas.

### INTRODUCTION

The term tuberous sclerosis complex (TSC) was first used by Bourneville in 1880. Tuberous sclerosis, occurring in  $\approx 1$  in 6000 - 10000 individuals is an autosomal dominant disorder with a very high spontaneous mutation rate. <sup>(1)</sup> TSC results in hamartomatous lesions primarily involving skin, central nervous system, kidneys, eyes, heart and lungs. <sup>(2)</sup>

It is caused by mutations of 2 tumor suppressor genes, TSC1 on chromosome 9q34 and TSC2 on chromosome 16p13.3. TSC1 and TSC2 genes encode hamartin and tuberin proteins. <sup>(3)</sup>

Renal angiomyolipoma (AML) is a mesenchymal neoplasm composed of variable proportions of dysmorphic blood vessels, smooth muscle and adipose tissue. AML demonstrates perivascular epithelioid cells (PEC) differentiation <sup>(4)</sup> and therefore belongs to the PEComa tumor family. Classic AML has triphasic histology and contains all 3 of its namesake components.

Pancreatic neuro-endocrine tumors (Pan NETs) are rare, representing 1-2% of all pancreatic cancer, with an annual incidence of 2.2 in 1,000,000 individuals. <sup>(5)</sup> Pan NETs can occur sporadically or in the setting of an autosomal dominant genetic

syndrome, principally multiple endocrine neoplasia type 1 (MEN1), but also Von Hippel Lindau, Neurofibromatosis type 1 and Tuberous sclerosis complex (TSC).<sup>(6)</sup>

### CASE REPORT

A 30 years old female, was admitted to Dr. Vasant Rao Pawar Medical College, Hospital and Research Centre, Nashik with pain in abdomen since 2 months. The patient had a history of seizures and mental retardation since her childhood. She had multiple facial angiofibromas.

CT scan of abdomen and pelvis was performed. Left kidney showed lobulated soft tissue density lesion involving infra-hilar region and lower pole with exophytic component inferiorly. Right kidney showed few small non-enhancing areas.

The patient underwent an en-bloc resection of the mass with the left kidney. Incidentally, a nodular mass was found in the tail of pancreas, which was also removed.



Fig 1,2:-Gross of nephrectomy specimen



### Gross Examination

#### A) Nephrectomy Specimen:

The specimen measured 13 x 7.5 x 6 cms in size. Externally, multiple nodules were seen distributed all over. On bisecting, large mass was seen at the lower pole of the kidney measuring 7 x 7 x 6 cms. Multiple smaller masses were found dispersed in the renal parenchyma. (Fig 1, 2)

#### B) Mass from Tail of Pancreas:

Round nodular mass measured 3.5 x 2.3 x 2 cms. Cut surface showed yellowish tan appearance with hemorrhagic and necrotic areas in the centre. (Fig 3)



Fig 3:-Gross of Pancreatic Mass

### Microscopic Examination

#### A) Renal Mass:



Tumors showed triphasic pattern- an admixture of smooth muscle cells, thick walled blood vessels and mature adipose tissue. Smaller foci dispersed in the renal parenchyma showed similar morphological features. (Fig 4, 5)

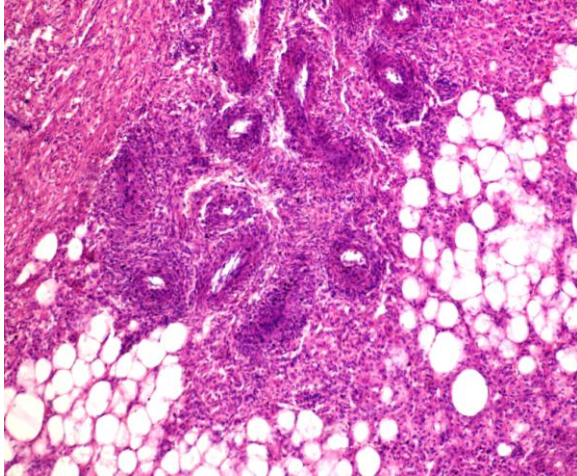


Fig 4:- Microscopy of renal mass (Angiomyolipoma), (H&E, 100X)

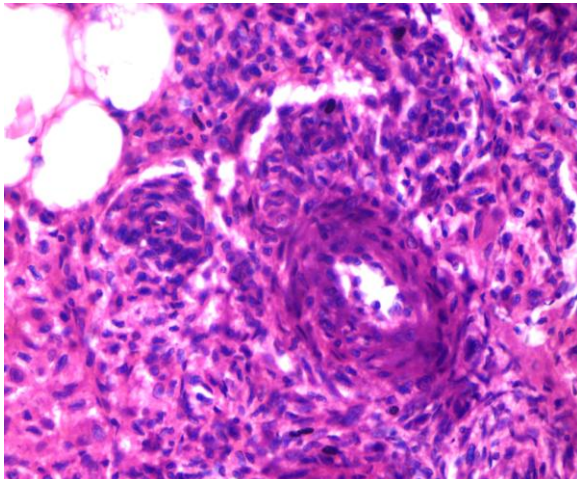


Fig 5:- Microscopy of renal mass (Angiomyolipoma), (H&E, 400X)

### **B) Pancreatic Mass:**

Neuro-endocrine tumor composed of insular pattern of small, round neuro-endocrine cells was noted. Immunohistochemistry examination was performed and the cells showed positivity for Neurone specific enolase (NSE), Chromogranin and Synaptophysin. Thus, the

diagnosis of carcinoid tumor was confirmed. (Fig 6, 7)

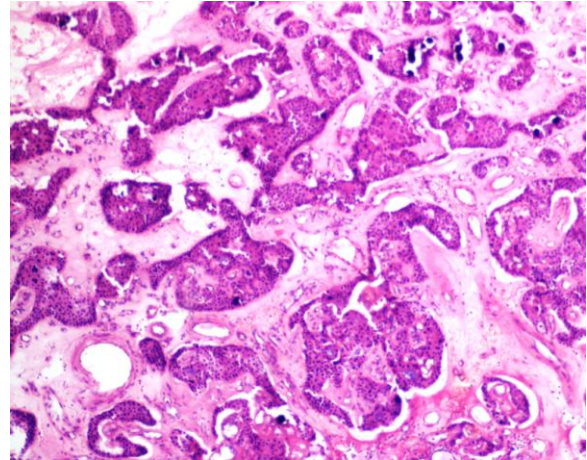


Fig 6:- Microscopy of Pancreatic mass (Carcinoid tumor), (H&E, 100X)

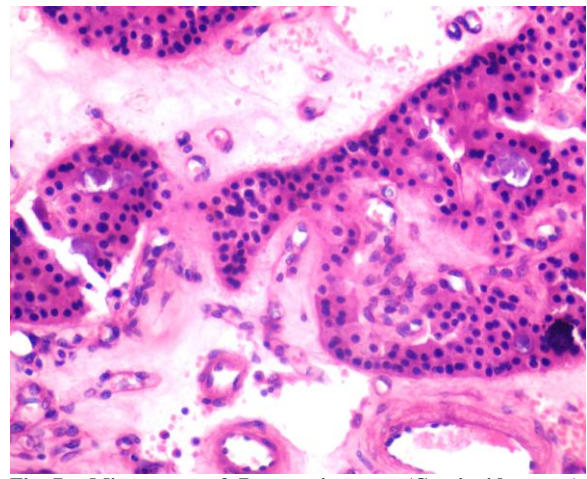


Fig 7:- Microscopy of Pancreatic mass (Carcinoid tumor), (H&E, 400X)

### **DISCUSSION**

Tuberous sclerosis complex is phenotypically diverse, with clinical presentation varying widely. The three renal manifestations (Angiomyolipomas, cysts and renal cell carcinoma) can arise singly or in combination. However, only angiomyolipoma is a major criterion for TSC diagnosis. Overall, in patients with TSC the incidence of AML has been estimated to 50-75 %.<sup>(7)</sup>

AMLs in TSC often present earlier than sporadic AMLs, tend to be larger and

have no clear sex predominance. AML in TSC is also significantly more likely than sporadic AML to be multiple (97 vs. 13%), to have bilateral distribution (80 vs. 12%), to grow with time (67 vs. 21%) and to haemorrhage (44 vs. 14%).<sup>(8)</sup>

Patients with TSC have been reported to occasionally present with neuro-endocrine tumors, but these are mostly in the form of single case reports. However, as both conditions are rare, and both may depend on aberrant TSC1/2-mTOR signalling, such correlations may be indicative of a true relationship.<sup>(3)</sup>

## CONCLUSION

The association between TSC and AML; and between TSC and pancreatic neuro-endocrine tumors is well known. However, we are presenting a very rare case of coexistent renal angiomyolipoma and pancreatic carcinoid in a patient with Tuberous sclerosis complex. This case highlights the importance of early screening of kidney and pancreas in patients with Tuberous Sclerosis complex, as early detection of these lesions will offer better treatment options and improved survival.

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