

Oncocytoma of Adrenal Cortex - A Rare Case Report

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Abstract: Sasano et al first described adrenocortical oncocytoma in 1991. Tumors with oncocytic features (oncocytoma) develop rarely as primary adrenocortical neoplasms. These are usually benign tumors but rarely turn malignant. Adrenal oncocytoma present with evidence of abnormal adrenal functioning. The commonest differential diagnosis is pheochromocytoma and for diagnosis immunohistochemistry (I.H.C.) is essential. We present here a case of adrenal oncocytoma which was detected as an adrenal mass on C.T. scan. Histologically it was diagnosed as oncocytoma and was confirmed by I.H.C. markers.

Keywords: Adrenal Cortex Oncocytoma Immunohistochemistry (I.H.C.)

1. Introduction

Adrenocortical oncocytoma is very rare^[1] and with only about 30 reported cases in literature. ^[2] Sasano et al (1991) described adrenocortical oncocytoma that were associated with clinical syndrome of steroid excess and that lacked steroid hormone synthetic hormones, as determined by IHC.^[3] In subsequent larger series of tumors, Bisceglia et al (2004), have also shown that majority of oncocytoma are nonfunctional. But some patients may show features of virilization or Cushing's syndrome. ^[4] The oncocytoma are detected in 27-72 years age group. These tumors are detected accidentally on C.T. scan or ultrasonography when done for abdominal pain, hypertension and haematuria. ^[2] Cut surface of tumor is yellow brown and microscopically it is an epithelial tumor composed of cells arranged in alveolar, trabecular and solid pattern. Individual cells are large eosinophilic with small round benign looking nuclei and large nucleoli. The IHC markers Vimentin, Nonspecific Esterase (NSE), Synaptophysin and Cytokeratin are positive where as Epithelial membrane Antigen, Chromogranin and S-100 protein are negative. ^[1,2] The most common differential diagnosis under microscopic examination and IHC, both, is pheochromocytoma but differentiating feature is antibodies to chromogranin are positive in pheochromocytoma but negative in oncocytoma. Electron microscopy demonstrates abundant mitochondria with electron dense crystalline inclusions. ^[4]

2. Case Report

A thirty four year old female came with complaints of left hypochondriac abdominal pain for one year. Abdomen was soft with left renal angle tenderness. She was nonhypertensive. Her General and systemic examinations were within normal limits.

C.T. abdomen revealed heterogenous 6.6x5.7x7.0 cm left adrenal mass. Plasma Adrenaline concentration was 91.30 pg/ml and Noradrenaline was 543.30 pg/ml. Her hemogram and other biochemical tests were within normal limits and she was medically fit for surgery.

Under GA, left kidney incision was taken and there was an evidence of a large 5x6x7 cm adrenal mass, free from kidney. Adrenal vein was ligated and mass was mobilized. The adrenalectomy specimen was sent for histopathological study.

3. Morphology

On gross received a rounded 8x6x3 cm grayish white soft to firm mass (Fig.1 a). On cut surface it was capsulated, grayish white and lobulated (Fig. 1b). No necrosis or haemorrhages seen.

4. Microscopic Features

Serial sections studied show fibrous capsule along with adrenal tissue and underneath tumor mass (Fig. 2 a) arranged in alveolar pattern consisting of round to oval cells containing rounded nuclei with prominent nucleoli and abundant eosinophilic granular cytoplasm (Fig.2 b higher magnification). No necrosis or haemorrhages seen. Capsule was free from tumor infiltrate. With these features the diagnosis of oncocytoma was offered. IHC markers confirmed our diagnosis.

5. Discussion

Tumors with oncocytic features (oncocytoma) develop rarely as primary adrenocortical neoplasms. ^[1] Clinically oncocytoma has a benign course. ^[3] The size vary between 3-17 cm, but are usually larger than 6 cm. ^[3,4] The tumor

size was larger than 6 cm in our case also. The tumor size is not related to prognosis. The tumor does not show gender or side predilection.

Weiss et al suggested three or more of following histological criteria to differentiate benign and malignant variety of oncocytoma. These are high nuclear grade atypia, mitoses more than 5 per 50 high power fields, necrosis, capsular invasion and diffuse architecture. None of these features were detected in our case. Useful markers for diagnosis of oncocytoma are Vimentin, Cytokeratin and NSE which are positive and Chromogranin negative.

Radiologically oncocytoma is a smooth homogenous mass on non contrast C.T. Diagnosis on F.N.A.C. was reported by Wraggs T and Nguyen GK, but it does not help in predicting biological behavior.^[5] Surgical resection is the only treatment for it. Adrenocortical oncocytoma can be included in the differential diagnosis of large, solid, well defined, nonfunctioning adrenal masses. Nonspecific imaging features do not change the patient management.^[5]

As the tumor was benign, only surgical resection was performed. Her postoperative period was uneventful. She was discharged on fifth postoperative day. She came for regular check up for next six months and is clinically asymptomatic with one and a half year follow up.

6. Acknowledgements

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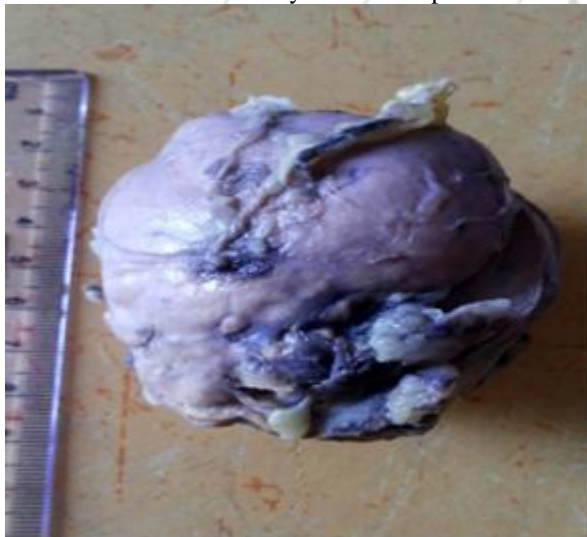


Figure 1A

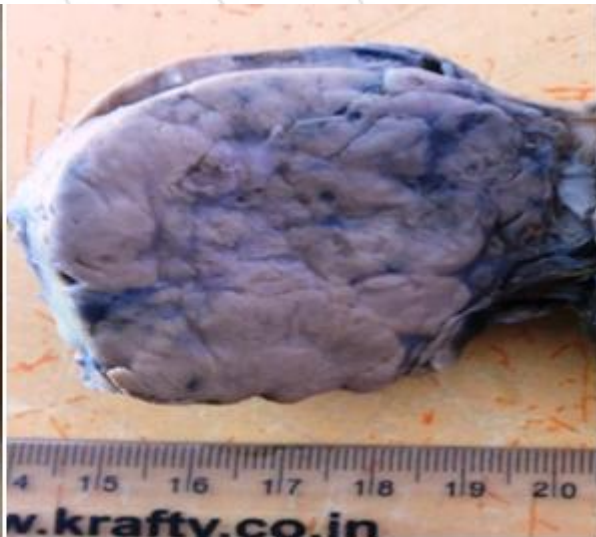


Figure 1B

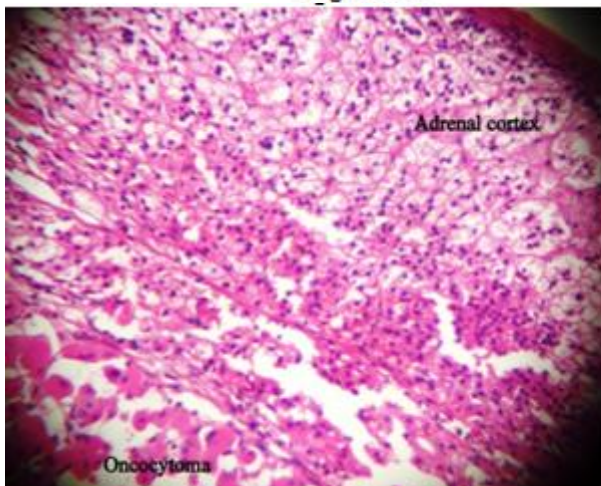


Figure 2A

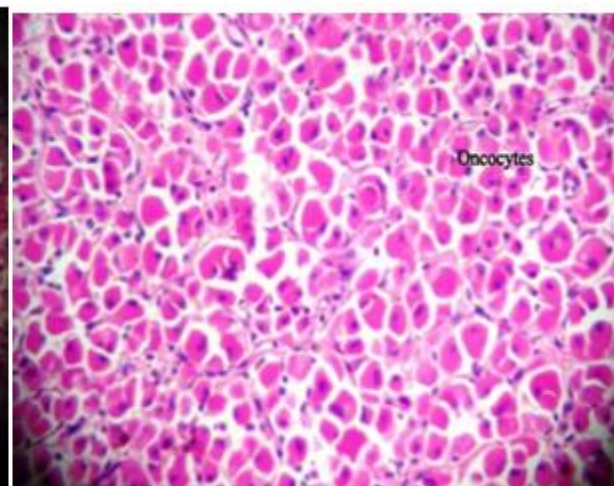


Figure 2B

Legends to Figures

Fig. 1 A shows the gross appearance and B shows the cut surface of adrenal oncocytoma.

Fig 2 A Shows Adrenal cortex with alveolar arrangement of tumour cells (H & E; 10x X10x) and B shows cell morphology on higher magnification (H & E 10x X 40x)

