International Surgery Journal
Yadav PK et al. Int Surg J. 2020 Jul;7(7):2414-2416
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20202860

Case Report

Large non-functional adrenocortical oncocytoma with uncertain malignant potential: case report and review of literature

Praveen Kumar Yadav*, Arshad Hasan, Anunay Singh, Gaurab Kundu, M. Faizul Haque, Samir Swain, Datteswar Hota

Department of Urology, SCB Medical College and Hospital, Cuttack, Odisha, India

Received: 15 April 2020
Revised: 18 May 2020
Accepted: 19 May 2020

***Correspondence:**
Dr. Praveen Kumar Yadav,
E-mail: praveenyadav.rcsm@gmail.com

ABSTRACT

Adrenocortical oncocytomas are a very rare group of adrenal tumors. Unless functional, these tumors are incidentally diagnosed for clinical manifestations that are unrelated to the adrenal gland. The majority of these oncocytomas are benign and nonfunctional. Very few cases of uncertain malignant potential are reported. Here we present such a rare case of a 60 years old man presenting with voiding lower urinary tract symptoms but on contrast enhanced computed tomography (CECT) abdomen and pelvis a fairly large well defined heterogeneously enhancing retroperitoneal mass lesion with calcifications in the left anterior pararenal space (measuring 10.8×9.7×9 cm) was detected. On excision a well encapsulated solid mass of size approximately 12×10×9 cm was present in left suprarenal region. Histopathological examination confirmed the diagnosis of adrenocortical oncocytoma with uncertain malignant potential. As the incidence of adrenal oncocytoma is less, the knowledge regarding its clinical pattern, confirmatory imaging or histopathological diagnostic tools and chances of recurrence or turning malignant is limited.

Keywords: Adrenal gland, Non-functional, Benign, Oncocytoma

INTRODUCTION

Oncocytomas are usually located in the kidney, thyroid, parathyroid and pituitary gland.[1] These are rare group of tumors with an intact capsule and with large eosinophilic cells loaded with mitochondria.[2]

They are mostly benign and non-functional with accidental diagnosis. Its first evidence in literature was in 1986 by Kakimoto et al and till date not more than 147 cases have been reported.[3,4]

Below reported case is of a rare borderline or with uncertain malignant potential variant. This was diagnosed incidentally on evaluating for voiding lower urinary tract symptoms (LUTS).

CASE REPORT

A 60 years old male presented with voiding LUTS. During evaluation left adrenal mass was detected incidentally on ultrasonography (USG) abdomen which was suggestive of a heteroechoic lesion (12x9 cm) in splenorenal region with multiple echogenic foci with a central hypoechoic appearance.

Urine meta nephrine, normetanephrine, serum cortisol, serum dehydroepiandrosterone (DHEA) and overnight dexamethasone suppression test were found to be within normal range. Physical examination was not suggestive of any abdominal mass.

Contrast enhanced computed tomography (CECT) abdomen and pelvis showed a fairly large well defined heterogeneously enhancing retroperitoneal mass lesion with calcifications in the left anterior pararenal space measuring 10.8×9.7×9 cm (Figure 1).

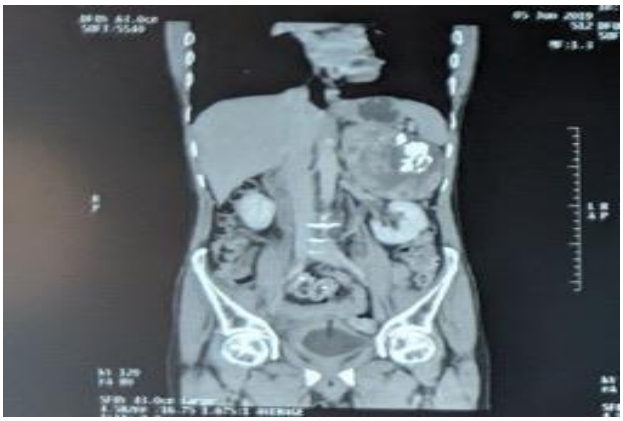

Figure 1: CECT abdomen pelvis showing heterogenous enhancing retroperitoneal mass with calcification.

Open excision of the left suprarenal mass was done. Intraoperatively a well encapsulated solid mass of size approximately 12×10×9 cm was present in left suprarenal region. The mass was seen abutting spleen with maintained perilesional fat plane. On cut section, areas of necrosis and calcification were present (Figure 2).

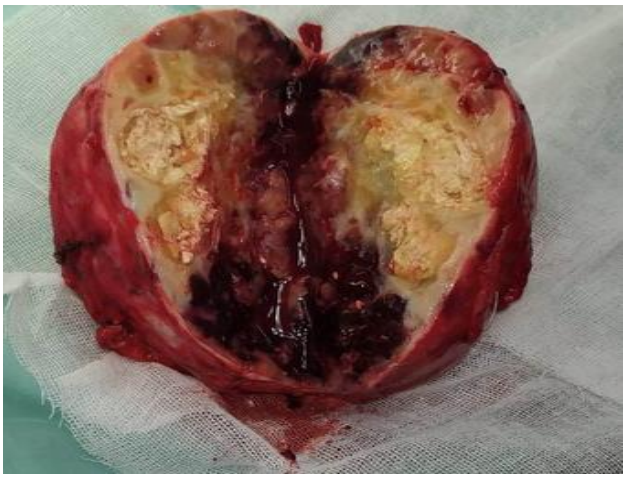

Figure 2: Cut section with areas of calcification.

Histopathological examination was suggestive of thick fibrous capsule enclosing cords and trabeculae of large round to polygonal cells having abundant granular cytoplasm (oncocytic cells).

Two of the minor criteria (size >10 cm and weight >200 gm) of modified Weiss criteria were fulfilled. So, this was labelled as adrenocortical oncocytic neoplasm of uncertain malignant potential.

DISCUSSION

Oncocytomas usually arise from kidneys, salivary, pituitary and thyroid gland. Oncocytomas of the adrenal gland are very rare which are in most instances detected accidentally while investigating for some other clinical condition. In majority of cases, adrenocortical oncocytomas are benign and nonfunctional tumors.

Rarely may they be functional causing an increase in the hormonal levels of ACTH, DHEA, testosterone, cortisol, aldosterone, estradiol, epinephrine and norepinephrine. According to Mearini et al in a systemic review of these adrenal oncocytomas, only 17% were of functional variety.[4]

These oncocytomas are detected in a wide age range from 17-63 years with female dominance of 2.5:1 as compared to males and in most cases, it congregates to the left side.[5] Majority of these oncocytomas are located in the adrenal cortex. From animal model studies several hypotheses are postulated such as the accumulation of large number of mitochondria in response to some toxic exposure or these oncocytomas are the tumors of the mitochondria itself since they have their own DNA proteins.[6,7]

These oncocytomas can be identified in magnetic resonance imaging (MRI) or CT scans as benign mass due to its high lipid content and lower attenuation (≤10 HU). These have a central fibrous scar which appears as spoke wheel pattern on CT or MRI scans.[8] But the diagnosis is made after studying the histopathological characteristics from the specimens collected after surgery.

Histological classification by modified Weiss criteria which is based on certain major and minor criteria is used to identify oncocytomas.[9] The major criteria include; high mitotic rate (>5 mitotic figures 50 high power fields), atypical mitoses and venous invasion while minor criteria are; tumor size (>10 cm and or >200 g), tumor necrosis, capsular or sinusoidal invasion. The benign tumors shall lack all the criteria while presence of at least a single minor criterion classifies the tumor as uncertain malignant oncocytoma. The tumor in our above-mentioned case was of uncertain malignant variety with no signs of any invasion of its capsule or blood vessels.

These uncertain or borderline malignant tumors are very rare and clinically behave like benign oncocytomas with no evidence of recurrence in majority of cases. This is supported by the observations from a study by Basceglia et al out of ten patients, four were of uncertain malignant potential type and were followed up for 38.75 months but it didn't show any evidence of recurrence or metastasis.[9]

Surgical resection is the treatment of choice for adrenocortical oncocytomas. This is also imperative to confirm the diagnosis for oncytomas from histological evaluation. Depending on the size, either laparotomy or laparoscopic approach is planned.

Our case was nonfunctional as patients' hormonal assay was within normal range. The oncocytoma was leaning on the left renal upper pole. They were no signs of invasion of nearby structure but due to its size and weight, the oncocytoma was labelled as uncertain malignant variant.

CONCLUSION

Since the incidence of adrenal oncocytoma is less, limited knowledge regarding its clinical pattern, confirmatory imaging or histopathological diagnostic tools and chances of recurrence or turning malignant is limited. Advancement in the laparoscopic techniques for resection or large or malignant adrenal oncocytomas has a promising future for such rare oncocytomas.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Cotton DW. Oncocytomas. Histopathology. 1990;16(5):507-9.
2. Sasano H, Suzuki T, Sano T, Kameya T, Sasano N, Nagura H. Adrenocortical oncocytoma, a true non-functioning adrenocortical tumor. Am J Surg Pathol. 1991;15(10):949-56.
3. Kakimoto S, Yushita Y, Sanefuji T, Kondo A, Fujishima N, Kishikawa M, et al. Non-hormonal adrenocortical adenoma with oncocytoma like appearances. Hinyokika Kiyo. 1986;32(5):757-63.
4. Mearini L, Sordo DR, Costantini E, Nunzi E, Porena M. Adrenal Oncocytic Neoplasm: A Systematic Review. Urol Int. 2013;91(2):125-33.
5. Dechet CB, Bostwick DG, Blute ML, Bryant SC, Zincke H. Renal oncocytoma: multifocality, bilateralism, metachronous tumor development and coexistent renal cell carcinoma. J Urol. 1999;162(1):40-2.
6. Krech R, Zerban H, Bannasch P. Mitochondrial anomalies in renal oncocytes induced in rats by N-nitroso morpholine. Eur J Cell Biol. 1981;25(2):331-9.
7. Duregon E, Volante M, Cappia S, Cuccurullo A, Bisceglia M, Wong DD, et al. Oncocytic adrenocortical tumors: diagnostic algorithm and mitochondrial DNA profile in 27 cases. Am J Surg Pathol. 2011;35(12):1882-93.
8. Tahar GT, Nejib KN, Sadok SS, Rachid LMM. Adrenocortical oncocytoma: a case report and review of literature. J Pediatr Surg. 2008;43(5):1-3.
9. Bisceglia N, Ludovico O, Mattia DA, Dor BD, Sandbank J, Pasquinelli G, et al. Adrenocortical oncocytic tumours: report of 10 cases and review of the literature. Int J Surg Pathol. 2004;12(3):231-43.

Cite this article as: Yadav PK, Hasan A, Singh A, Kundu G, Haque MF, Swain S, et al. Large non-functional adrenocortical oncocytoma with uncertain malignant potential: case report and review of literature. Int Surg J 2020;7:2414-6.