CASE REPORTS

A 43 YEARS OLD LADY WITH SILENT PHEOCHROMOCYTOMAŸA CASE REPORT

PAUL N[1],SAHA TK[2],BARMAN TK[3], DAS A[4], BHUYIAN R[5], SIDDIQUA SS[6]

Abstract

Improvements in imaging studies have resulted in an increase in incidentally discovered adrenal tumors. The adrenal incidentaloma was found in at least 2% on abdominal CT imaging and pheochromocytoma was reported to be about 5.1 to 6.55% among these patients. Here we report a case of silent pheochromocytoma presented as an incidentally discovered adrenal mass on abdominal sonogram. In our case patient had no apparent symptom and sign of pheochromocytoma except mild hypertention . Incidental findings in USG reveal retroperitoneal mass located in right adrenal gland. Finally CT scan of abdomen confirmed adrenal mass. Surgical excision the right adrenal gland was performed with pathological report as a benign pheochromocytoma. Majority of incidentally discovered adrenal masses are non hypersecretory benign adenomas; but a hormone screening evaluation is necessary to reveal cases with clinically unsuspected hypersecretory nature. For prevention of possible lethal outcome, patients with silent pheochromocytoma scheduled to undergo surgery should be treated according to the hemodynamic parameters.

Key Words: *Incidentaloma, Pheochromocytoma, Adrenal tumor*

J Dhaka Med Coll. 2016; 25(2) : 134-137

Introduction

With the advancement of imaging like high-resolution ultrasonography (USG), computerized tomography (CT) and magnetic resonance imaging (MRI), incidentally discovered adrenal tumors are more frequently reported including pheochromocytoma [1, 2]. Due to the limitation of USG imaging, CT has been used for better technique to diagnose the adrenal masses and it is reported to identify adrenal masses as small as 0.5 cm or small in diameter[3]. The prevalence of adrenal masses is at least 2% on CT scanin comparison to other suspected adrenal pathology[4,5]. Among patients with adrenal incidentalomas, approximately 5.1%[5] to 6.5%[4], even up to 23%[2], proved to have pheochromocytomas. And 10% of adrenal pheochromocytomas present as adrenal incidentalomas, even when clinically silent[5]. Pheochromocytomas are rare tumors found in less than 1% of the populations with hypertension. Although the majority of patients are symptomatic, 10-30% of pheochromocytomas are clinically silent[6]. Identification of the hormone activity and malignant potential among patients with adrenal incidentalomas are clinically important. Failure to recognize and treat a pheochromocytoma could prove a fatal oversight.

Case Report

A 43-year-old woman, hypertensive but with well controlled blood pressure on drug amlodipin for 10 yrs came to outpatient department(OPD) of Sarkari Karmochari Hospital , Dhaka with mild discomfort in abdomen and back pain for 2 months . On examination- there was no oedema, no apparent body weight change, not

1. Dr Nandita Paul, Dept of Medicine, Senior Consultant, Mugda Medical College and Hospital,
2. Dr Tarun Kumar Saha, MOMCH, Bedhanganz Health Complex,
3. Dr Tushar Kanti Barman, Assistant Prof, Mugda Medical College and Hospital,
4. Dr Anupam Das, Medical Officer, Mugda Medical College And Hospital,
5. Dr Rokozzaman Bhuyian, Assistant Prof, Mugda Medical College and Hospital,
6. Dr Sadia Sajmin Siddiqua, Senior Consultant, Sorkari Kormochari Hospital Dhaka

Correspondence : Dr Nandita Paul, Dept of Medicine, Senior Consultant, Mugda Medical College and Hospital

Received: *01 January 2016* ***Accepted:*** *01 September 2016*

much hair loss or hirsutism, no purple striae on abdomen or limbs were noted, except mild tenderness in abdomen. At OPD blood pressure (BP ÿwas 125/75 mmHg, heart rate (HR ÿwas 80/min and respiratory rate (RR ÿwas 18/min. On routine investigation USG revealed a fairly large echogenic retroperitoneal mass located in the region of right Adrenal gland.The mass is measuring about 5×4cm in size with central cystic changes and internal necrosis at the suprarenal area, displacing and compressing the adjacent right kidney and right adrenal tumor was suspected. Abdominal CT was preformed and identified an right adrenal tumor (5×5 cm), large lobulated mixed dense lesion having soft tissue and fluid density with central necrosis, compressing and displacing the right kidney inferomedially and IVC anteriorly.On post contrast scan the lesion shows mild inhomogenous enhancement having large central non enhancing area represent necrosis and left adrenal gland appears normal (Fig1 and Fig 2).

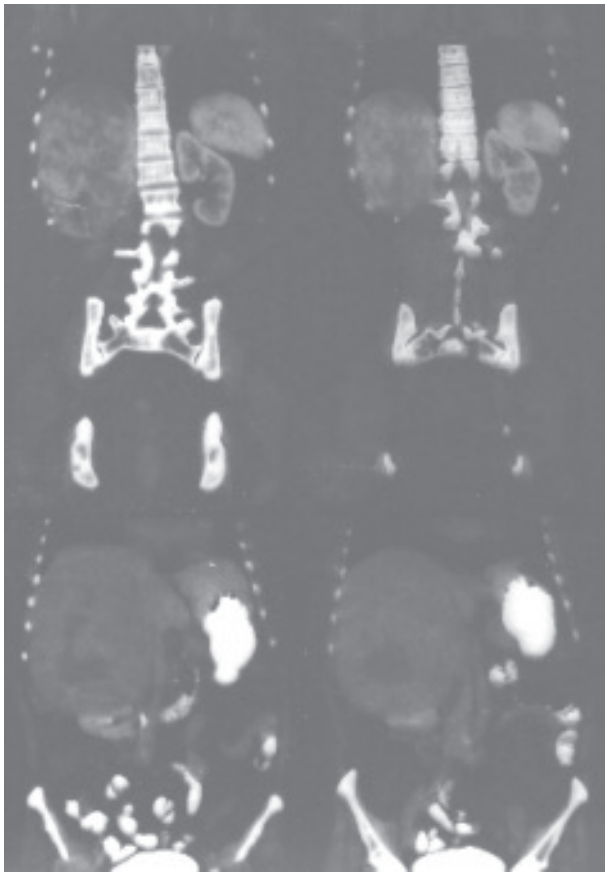

Fig.-1: *Abdominal CT with contrast enhancement reveal an adrenal tumor, right side,5×5 cm*

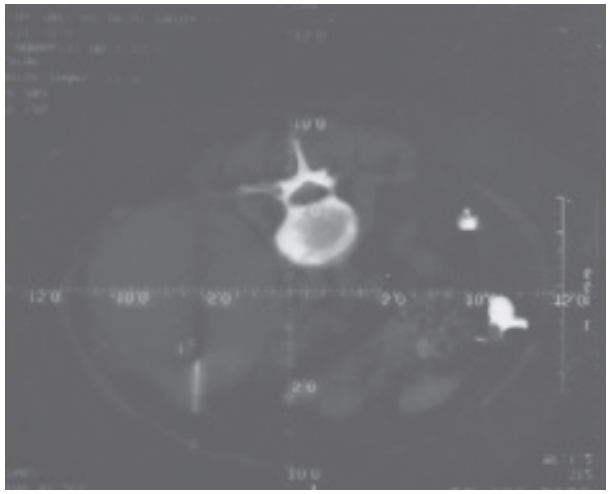

Fig.-2: *Abdominal CT with contrast enhancement reveal an adrenal tumor, right side,5×5 cm2, with central necrosis and soft-tissue density. The tumor is vascular, marked enhancement. No obvious calcification are seen within this mass.*

On the other hand, a series of biochemical tests and hormone study were performed. Laboratory data revealed RBC: 3.45×10 6 /¼L, Hb: 11.2 g/dL , Hct: 28%, WBC: 8200/¼L, platelet count 284000/¼L, ESR 74in 1st hour. BUN: 7.5 mg/dL, creatinine: 0.81 mg/dL, blood sugar (FBS) : 92 mg/dL, sodium: 141 mg/dL, potassium: 4.38 mg/dL, calcium: 8.0 mg/dL, 24 hours urinary V.M.A 7.6mg/24 hrs(normal < 13.6 mg /24 hours) , plasma renin cortisol level at 8 am ; 4.57¼g/dL (normal 4.4 to 22.6) ; 24-hour-urine metanephrine and normetanephrine were not done. Thyroid hormone tests revealed euthyroid status. Under the impression of silent pheochromocytoma right sided laparoscopic adrenalectomy was done. No apparent complication was noted per and post operatively. After operation gross pathology of the mass demonstrated a large tumor (20×16.0×8 cm) which was well-demarcated, brownish and hard, cut surface was spongy with areas of necrosis.

Microscopic examination revealed a neoplasm showing marked fixation artifact, composed of polygonal cells having moderate to abundant cytoplasm. Some of the cells showed clear cytoplasm and some amphophillic cytoplasm. The stroma was fibrovascular. There was well

delineated surrounding capsule. A few cell showed intranuclear pseudo inclusions consistent with pheochromocytoma of the Adrenal Gland (Fig 3) and a Scaled Score was used (PASS <4), to confirm its benign fashion.[7]

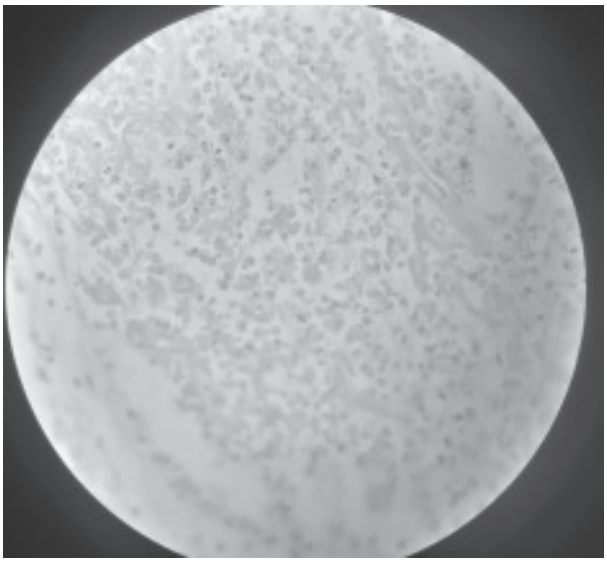

Fig 3: *The tumor cells are polygonal with finely granular and eosinophilic cytoplasm.Nest of large uniform cells with rounded nucleoli arranged in Zellballen pattern was noted. The nuclei have a salt and pepper chromatin, which is characteristic of neuroendocrine tumors. Also of noted is the relative lack of mitotic activity andnuclear pleomorphism.*

A focus of capsular invasion was noted while there was no further evidence of malignancy. Besides, for screening of the possibility of multiple endocrine neoplasia (MEN syndrome) type II, serum level of calcium and thyroid sonography were performed which showed normal serum calcium level and no evidence of thyroid nodule or hyperplasia. There was no family history of pheochromocytoma or MEN type II. Two days after operation, she was discharged.

Discussion

Pheochromocytomas are catecholamine-producing tumors of neuroectodermal origin identified by the presence of cells with positive chromaffin stain. The tumor may occur in patients of any age with equal frequency in both sexes. In general, 10% of these tumors are extra-adrenal, 10% are malignant, 5% occur bilaterally, and 10 % are inherited as an autosomal dominant pattern,[8] 9. Diagnosis of pheochromocytoma is usually done by its clinical symptoms. Hypertension is the most common clinical manifestation of pheochromocytoma and is present in 90-100% of patients. Sustained hypertension is seen in half, paroxysmal

hypertension in a third, and normal blood pressure in less than a fifth of patients10. The classical triad consisted of headache, palpitation and diaphoresis. Less common symptoms include tremor, angina, nausea, and mass effect from the tumor. Completely silent pheochromocytomas are reported rarely.[9-11] In our case, she was hypertensive controlled on single drug (tablet amlodipine) but there was no symptom suggestive of pheochromocytoma except occasional abdominal discomfort for last 3months.Ultrasogram reveal there was a mass in the region of right adrenal gland which was supported by CT scan and histopathology report .Therefore, even when clinically silent, patient with an incidentally discovered adrenal mass, should be carefully screened for the possibility of functional activity of pheochromocytoma, the diagnosis is made with the demonstration of elevated level ofcirculatory urinary catecholamines or metabolites. Typically, a measurement of urinary catecholamines or metabolites that is two or three times above the upper limit of normal is considered diagnostic of pheochromocytoma[11] .Because of the dramatic symptoms; functional tumors are usually small when detected, whereas nonfunctional tumors may be large.[12] For pheochromocytomas, the mean diameter of incidental tumors was also significantly larger than that of symptomatic tumors.[13,14] The size and appearance of an adrenal mass on CT or MRI may help distinguish between benign and malignant tumors. Furthermore, I^{131} metaiodobenzyl guanidine (MIBG) can be useful in determining the functional character of a tumor and locating occult secondary or metastatic lesion[15]. Crout and Sjoerdsm found that pheochromocytomas 50 gm or larger are often asymptomatic because secreted catecholamines are metabolized within the tumor[13]. In contrast, tumors smaller

than 50 gm have slow turnover rates and release free catecholamines into the circulation, exhibiting persistent symptoms and signs15. As in our case, her adrenal tumor is large in size, though weight is less than 50gm, and clinically silent. The imaging of adrenal tumors may help us to distinguish the pheochromocytoma from other tumors. In our case, to determine whether the patient with adrenal incidentaloma has subtle evidence of presence of functional tumor such as Conn's disease, Cushing's syndrome, pheochromocytoma or virilizing or feminizing tumors, serum cortisol level with diurnal rhythm were checked. Combining the history, physical finding, and the biochemical study, the possible diagnoses of Conn's syndrome, subclinical Cushing's syndrome or virilizing or feminizing tumors were initially excluded. With the improvement and more frequent use of imaging study, the incidentally discovered pheochromocytoma may not be a rare finding as we previously thought. Although majority of adrenal incidentalomas are nonhypersecretory benign adenomas, a substantial percentage among these incidentalomas are hormonally active tumor and less frequently, adrenocortical carcinomas, in which early diagnosis and treatment is critical15. For prevention of possible lethal outcome, patients with silent pheochromocytoma scheduled for surgery should be closely evaluated and treated according to the hemodynamic parameters and cardiac function.

References

1. Gross MD, Shapiro B. Clinical Review 50: clinically silent adrenal masses. J Clin Endocr Metab 1993; 77: 885-94.
2. Aso Y, Homma Y. A survey on incidental adrenal tumors in Japan. J Urol 1992; 147:1478-86.
3. Karstaedt N, Sagel SS, Stanley RJ, Melson GL, Levitt RG. Computed tomography of the adrenal gland. Radiology 1978; 129: 723-30.
4. Ross NS, Aron DC. Hormonal evaluation of the patient with an incidentally discovered adrenal mass. New Engl J Med 1990; 323: 1401-12.
5. Young WF Jr. Management approaches to adrenal incidentalomas: a view from Rochester, Minnesota. Endocrinol Metab Clin N Amer 2000; 29: 159-86.
6. Krane NK. Clinically unsuspected pheochromocytoma. Arch Intern Med 1986; 146:54-62.
7. Thompson LD. Pheochromocytoma of the Adrenal gland Scaled Score (PASS) to separate benign from malignant neoplasms: a clinicopathologic and immunophenotypic study of 100 cases. Am J Surg Pathol 2002; 26: 551-66.
8. Kloos RT, Gross MD, Francis IR, Korobkin M, Shapiro B. Incidentally discovered adrenal masses. Endocr Rev 1995; 16: 460-84.
9. Atuk NO. Pheochromocytoma: diagnosis, localization, and treatment. Hosp Prac 1983; 18: 187-94.
10. Nagashima F, Hayashi J, Araki Y, Sugihara T, Nomura M, Morichika Y. Silent mixed ganglioneuroma/pheochromocytoma which produces a vasoactive intestinal polypeptide. Intern Med 1993; 32: 63-70.
11. Bravo EL. Evolving concepts in the pathophysiology, diagnosis, and treatment of pheochromocytoma. Endocr Rev 1994; 15: 356-68.
12. Dulhy RG, Lawrence JE, Williams GH. Endocrine Hypertension. In: Larsen PR, Kronenberg HM, Melmed S, Polonsky KS, eds. Williams Textbook of Endocrinology.10th ed. Philadelphia: W. B. Saunders Co., 2003; 552-62.
13. Whalen RK, Althausen AF, Daniels GH. Extra-adrenal pheochromocytoma. J Urol 1992; 147: 1-10.
14. Miyajima A, Nakashima J, Baba S, Tachibana M, Nakamura K, Murai M. Clinical experience with incidentally discovered pheochromocytoma. J Urol 1997; 157:1566-8.
15. Crout JR, Sjoerdsma A. Turnover and metabolism of catecholamine in patients with pheochromocytoma. J Clin Invest 1964; 43: 94-102.