Oncology

Hemorrhagic adrenal gland lipoma: About a rare case and review of literature

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ABSTRACT

The adrenal lipoma is an extremely rare, benign, and non-functional tumor. We present the first case of adrenal lipoma on the African continent and the youngest patient reported to date. Computed tomography (CT) scan guided diagnosis and laparoscopic adrenalectomy was performed given symptomatic and large mass. Histological examination confirmed the diagnosis. At 12 months after surgery, the patient had no evidence of recurrence.

Introduction

The most common tumors of the adrenal glands are pheochromocytomas, adenomas, and adrenocortical carcinomas. In contrast, soft tissue tumors represent only 4.8% of all primary adrenal tumors including myelolipomas, liposarcomas, angiomylipomas, and lipomas. Myelolipomas are the most common and the only lipomatous tumors of the adrenal gland classified by the World Health Organization. 1,2 While adrenal lipomas are uncommon, 1 the diagnosis could only be possible on examination of the surgically removed specimen. 1,3 This case of primary adrenal lipoma is one of only 26 in the literature, and the youngest incidence reported to date. This is likely due to the widespread use of ultrasound and computed tomography (CT), which is bound to increase reports of this rare adrenal tumor.

Case presentation

A 25-year-old woman presented at the emergency department with three-month right flank intermittent, growing, and non-radiating pain. There were no symptoms of the lower urinary tract with no history of fever, nausea, vomiting, or palpitation. On physical examination, the patient was obese, the blood pressure was 130/80 mm Hg. Bimanual palpation examination of both hypochondrium areas was unrevealing. The remainder of the physical examination was normal. She had undergone ultrasonography revealing a hyperechoic adrenal right mass. Blood and urine metabolite studies were done. Serum renin-angiotensin, cortisol, and urine metanephrine were within normal limits. Abdominal computerized tomography demonstrated a well-circumscribed, non-enhancing right supra-renal mass of adipose tissue density with internal areas of hemorrhage measuring 8.6 cm in big axis suggesting at first a myelolipoma (Fig. 1). The patient underwent a laparoscopic right adrenalectomy. She continued to have an uncomplicated postoperative course and was discharged on postoperative day three.

The specimen consisted of a well-circumscribed mass surrounded by a thin capsule measured 8.6 cm × 8 cm × 6.1 cm and weighed 195 g. Cut section the lesion was soft and yellow with a rare finding of an 8 cm × 7 cm adrenal lipoma with peripheric areas of hemorrhage (Fig. 2). After 12 months of follow-up, the patient had no evidence of recurrence.

Discussion

Primary adrenal lipomas are rare benign tumors. There are only 25 cases of adrenal lipomas reported to date (Table 1). 1–5 In 30-year experience, Lam and Lo found 4.8% of the adrenal lipomatous tumors, of which 0.7% were adrenal gland lipomas. 1 Its prevalence is low and there is no large series described in the literature. The histogenesis of these mesenchymal tumors is still little understood. 5

Most cases have been reported in the Asian population. They have commonly noted in patients in the sixth decade with age ranges from 29 to 78 years. Our patient is only 25 years old. The right adrenal gland was more affected like in our case. Sexe Ratio was 2.5 male/1 female. In the literature, a giant adrenal gland lipoma was reported by Milathianakis...
Fig. 1. CT scan images (A: axial, B: coronal, C: frontal) showing well-circumscribed, non-enhancing right supra-renal mass measuring 8.6 × 6.1cm with negative attenuation value (−108 HU) with internal areas of hemorrhage.

Fig. 2. A: Surgical specimen of right adrenalectomy. B: Microphotography showing adrenal parenchyma with a neoplastic proliferation made of mature adipocytes. (HE, 200X).
measuring 200 mm in dimension and 2900g of weight. The mean maximum dimension was 74.5 mm (range, 10 mm to 200 mm). Over half of the tumors were larger than 60 mm. Also, the mean weight was 417 g (range, 7–2900 g). All the adrenal lipomas described in the literature are non-functional which explains why most of them have been detected incidentally by radiological investigations for other pathologies or at autopsy. In other cases, symptoms may be acute, subacute, or chronic. Acute symptoms are rare, such as fever and chills due to complications of perinephric abscess or spontaneous hemorrhage.3, 5 Subacute or chronic symptoms concern pain due to large size and hypertension due to adrenal medullary compression.

Ultrasonography of the abdomen objectified a hyperechoic mass in the region of the adrenal gland. Most often, adrenal lipoma was detected by a computed tomography scan which demonstrated a well-circumscribed, non-enhancing supra-renal mass of adipose tissue density. Magnetic resonance imaging was not often performed and showed similar findings to those in the computed tomography scan, yet, the diagnosis of adrenal lipoma could only be made on histological examination.1, 5

### Summary

The adrenal lipoma is a rare benign lesion. The diagnosis could only be possible on surgically removed specimens. However, it could be asymptomatic or symptomatic and presented with pain as a result of complications.

### Declaration of competing interest

None of the contributing authors have any conflict of interest, including specific financial interests or relationships and affiliations relevant to the subject matter or materials discussed in the manuscript.

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### Table 1

Summary of the reported cases of adrenal lipomas.

| Author | year | country | sexe | age | side | Size/Weight (mm/gram) | presentation | Imaging | treatment | Remarks |
|--------|------|---------|------|-----|------|-----------------------|-------------|---------|-----------|---------|
| Lange  | 1966 | Germany | M    | 54  | Rt   | 25/-                  | Paroxysmal hypertension | Not done.  |          |           |         |
| Prinz  | 1982 | USA     | F    | 73  | Rt   | 30/-                  | Incidental at CT scan   | CT scan   | Adrenalectomy |         |
| Avinoach | 1989 | Israel  | F    | 40  | Rt   | 15/7                  | Incidental finding at laparotomy | Not done |          |         |
| Sharma | 1998 | India   | M    | 45  | Rt   | 120/-                 | Abdominal pain, hypertension | CT scan | Laparoscopic adrenalectomy |         |
| Ghavamian | 1998 | USA     | F    | 50  | Lt   | 80/-                  | Incidental at CT scan    | CT scan   | Partial adrenalectomy | Bilateral adrenal tuberculosis, necrosis and calcification |
| Buttner | 1999 | Germany | M    | 50  | Rt   | 11/-                  | Incidental at autopsy    | Not done.  |          |         |
| Lam    | 2001 | Hong Kong | F    | 64  | Rt   | 80/190                | Incidental at US scan    | US         | Resection | Calcification |
|        |      |         | M    | 78  | Rt   | 45/24                 | Incidental at autopsy    | Not done.  |          |         |
|        |      |         | M    | 65  | Lt   | 20/-                  | Incidental at autopsy    | Not done.  |          |         |
| Milathianakis | 2002 | Greece | M    | 39  | Rt   | 200/2900              | Incidental at US scan    | CT scan   | Transperitoneal resection | Giant, calcification on CT |
| Rodriguez-Carlo | 2007 | Spain  | M    | 70  | Lt   | 10/-                  | Incidental at autopsy    | Phaeochromocytoma in the controlateral gland |
|        |      |         | M    | 45  | Rt   | 20/18                 | Incidental at autopsy    | Not done.  |          |         |
| Shumaker | 2008 | USA     | M    | 68  | Lt   | 70/-                  | Incidental at CT scan    | Laparoscopic adrenalectomy |         |
| Singaporeswalla | 2009 | Singapore | M    | 44  | Lt   | 156/-                 | Abdominal pain           | Right adrenal adenoma | Retroperitoneal bleeding |
|        |      | Pakistan | M    | 35  | Rt   | 50/-                  | Pain in right loin       | Laparoscopic adrenalectomy |         |
| Gupta  | 2009 | India   | M    | 51  | Rt   | 90/-                  | Incidental at CT scan    | Laparoscopic adrenalectomy | Detected 3 months after nephrolithotomy + perinephric abscess |
| Goldberg | 2011 | USA     | M    | 55  | Rt   | 70/-                  | Abdominal pain           | Laparoscopic adrenalectomy |         |
| Gunay  | 2011 | Turkey  | F    | 68  | Lt   | 70/-                  | Incidental at MRI scan   | MRI NA    |          |         |
| Kapetanakis | 2011 | Greece | F    | 54  | Lt   | 160/950               | Postpradial pain         | CT scan   | Laparotomy |         |
| Patel1 | 2011 | India   | M    | 43  | Rt   | 150/810               | Incidental at US scan    | US/CT/MRI | Laparoscopic adrenalectomy |         |
| Jain5  | 2012 | India   | F    | 55  | Rt   | 120/-                 | Right flank pain         | US/CT     | Laparoscopic adrenalectomy | Internal hemorrhage |
| Zhao   | 2014 | China   | F    | 31  | Rt   | 40/17,5               | Incidental               | NA        |          |         |
|        |      |         | F    | 60  | Rt   | 100/172               | Incidental               | NA        |          |         |
|        |      |         | F    | 51  | Rt   | 60/112                | Back pain                | NA        |          |         |
| Tohidi- | 2020 | Australia | M    | 29  | Rt   | NA                    | Incidental               | NA        |          |         |
| Esfahani2 |      |         | F    | 25  | Rt   | 86/195                | Right flank pain         | US/CT     | Laparoscopic adrenalectomy | Internal hemorrhage |
| Present case | 2020 | Morroco | F    | 25  | Rt   | 86/195                | Right flank pain         | US/CT     | Laparoscopic adrenalectomy | Internal hemorrhage |

M indicates male; F, female; Rt, right; Lt, left; CT, computed tomography. US ultrasonography, and NA not available.

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