Clinical Case Reports: Open Access

Yumed Text
OPEN ACCESS JOURNALS

Case Report | Vol 4 Iss 2
ISSN: 2582-5038
https://dx.doi.org/10.46527/2582-5038.186

A Rare Case of Adrenal Teratoma

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Received: May 01, 2021; **Accepted:** May 12, 2021; **Published:** May 20, 2021

Abstract

With the increasing use of cross-sectional imaging, adrenal lesions are frequently identified in routine practice and are seen in up to 5% of abdominal CTs. A 47-year-old lady came with an incidentally diagnosed right adrenal swelling for 4 months. Imaging revealed a 15 cm × 13 cm SOL in the right suprarenal region containing a significant amount of fat. The histopathology report confirmed it to be a Mature Cystic Teratoma with bone, fat, and pultaceous material within. An adrenal lesion to turn out as a primary adrenal teratoma is extremely rare. The rare occurrence of such a tumor makes this case worthwhile to be discussed.

Keywords: ***Adrenal incidentaloma; Adrenal teratoma; Rare***

1. Introduction

With the increasing use of cross-sectional imaging, adrenal lesions are frequently identified in routine practice and are seen in up to 5% of abdominal CTs [1]. An adrenal lesion to turn out as a primary adrenal teratoma is extremely rare.

Pathologically, teratomas can be classified as either mature teratoma or immature teratoma. Mature teratomas contain no malignant or immature components [2]. About 1.5%-2% of teratomas are malignant. Immature teratomas contain immature embryonic tissue, about 26% of which is malignant [3].

Diagnosing adrenal teratomas is a challenge as these mimic myelolipomas, angiomyolipomas, or liposarcomas. Here, we present a case of primary adrenal teratoma in a middle-aged female.

2. Case Report

A 47-year-old lady came with an incidentally diagnosed right adrenal swelling for 4 months. The lady had complaints of menorrhagia for the past 2 years for which she underwent an ultrasound scan of the abdomen. It incidentally showed a right adrenal space-occupying lesion of 12 cm × 10 cm. The mass was not causing any symptoms as such, and the patient came to know about it only after the scan. There were no complaints of palpitations, headache, sweating, weakness, pain, fever, jaundice. She was a known case of diabetes mellitus which was well controlled with oral hypoglycemics. There was no history of MEN in her family.

On examination, she had a BMI of 24 and a Karnofsky score of 90. She had no pallor, icterus, cyanosis, clubbing, lymphadenopathy, or pedal edema. Her pulse was 90/min, regular, and had normal character. Her blood pressure was 150/76 mm Hg and her respiratory rate was 18/ min.

Abdominal examination revealed a solitary well-defined 10 cm × 8 cm retroperitoneal swelling in the right upper abdomen which was non-tender, had a smooth surface, and did not move with respiration. It was firm in consistency. Fingers could be insinuated between the swelling and the right costal margin. There was no other organomegaly.

Blood investigations were normal with hemoglobin as 10.2 g/dl, total leukocyte count as 6100/cu mm, and platelets as 1,00,000/cu mm. Her INR was 1.09. Renal and Liver function tests were normal.

Her ultrasound of the abdomen showed a large solid cystic SOL with a cauliflower-like solid part measuring 15.2 cm × 12.3 cm × 13.9 cm in the right loin region. Mild free fluid was present in the pelvic region. No other abnormalities were seen.

CECT of the abdomen revealed a 15 cm × 13 cm SOL in the right suprarenal region containing a significant amount of fat (H.U - 85 to - 95). It showed central and peripheral soft tissue and chunky calcification. A nodule or soft tissue was seen superomedially measuring 4 cm × 3.5 cm. The mass was displacing the right kidney medially which assumed a midline vertical orientation. The bowel, IVC, and right psoas were abutted. It gave the possibility of an Adrenal myelolipoma or an Adrenal Teratoma.

MRI of the abdomen showed a right suprarenal SOL causing compression and infero medial displacement of the right kidney. The lesion appeared hyperintense on T1, T2 weighted images and was getting suppressed on fat. There was an internal hyperintense polypoidal soft tissue component seen within the lesion measuring 13.8 × 13.5 × 18.2. It also gave the possibilities of Adrenal myelolipoma with d/d of adrenal teratoma (FIG. 1-4).

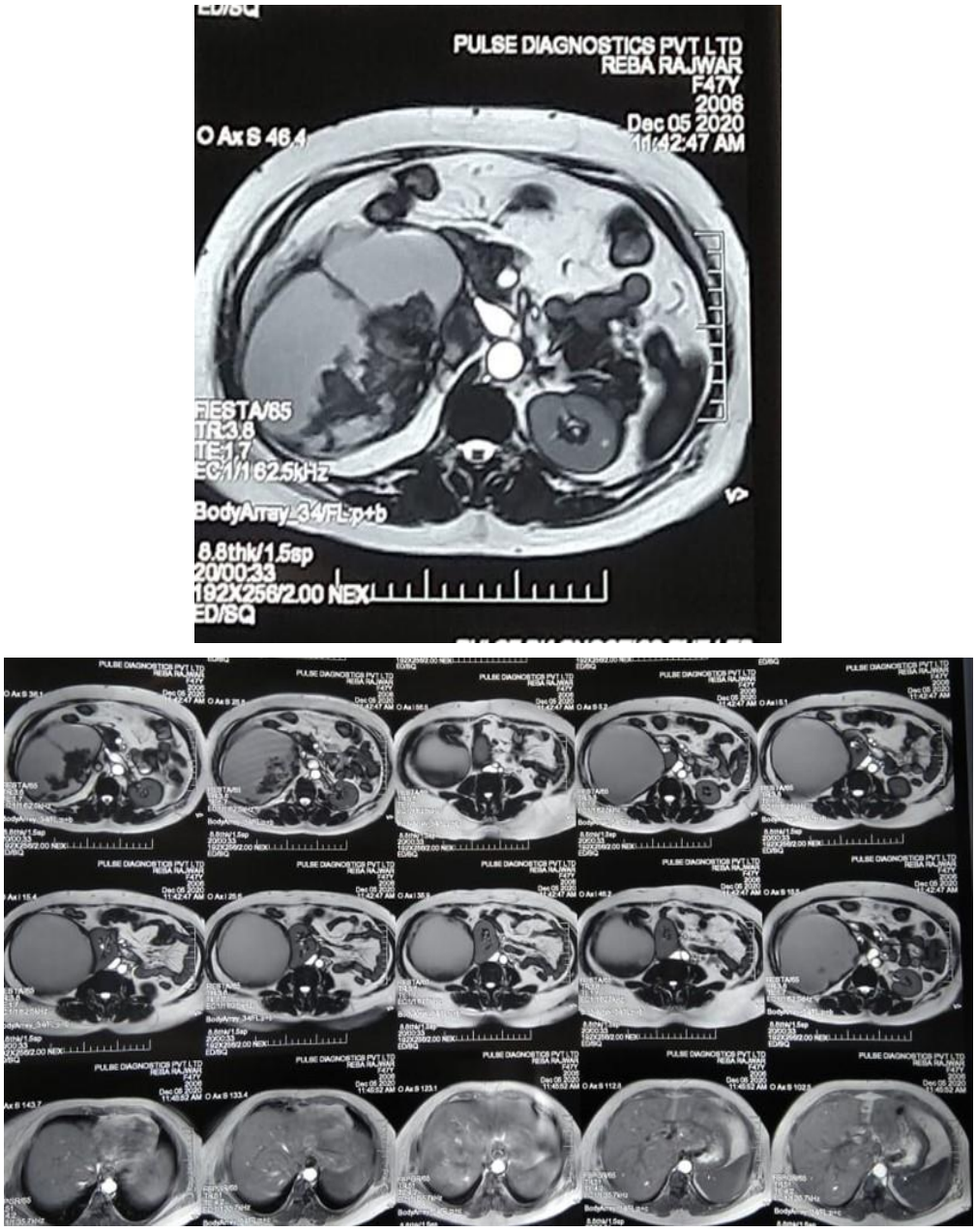

FIG. 1A & 1B. **MRI showing adrenal mass.**

An adrenal array was done to rule out functionality. Serum cortisol was 8.50 microgram/dl (Normal - 2.9 - 17.3). Urine VMA was 12 micrograms/dl over 24 hrs (Normal - <13.6) while serum metanephrine was 20 pg/dl (Normal - 12 - 60).

The patient was thus planned for a RIGHT ADRENALECTOMY.

A Right subcostal incision was given. Kocherization of the duodenum was done. A 25 cm × 12 cm right adrenal lump was visualized which was displacing the right kidney inferomedially. The lump was abutting the IVC and Right psoas, but no gross infiltration was seen. The lump was dissected out and the right adrenal artery and vein were ligated and cut. Hemostasis was confirmed. The abdomen was closed after placing the drains.

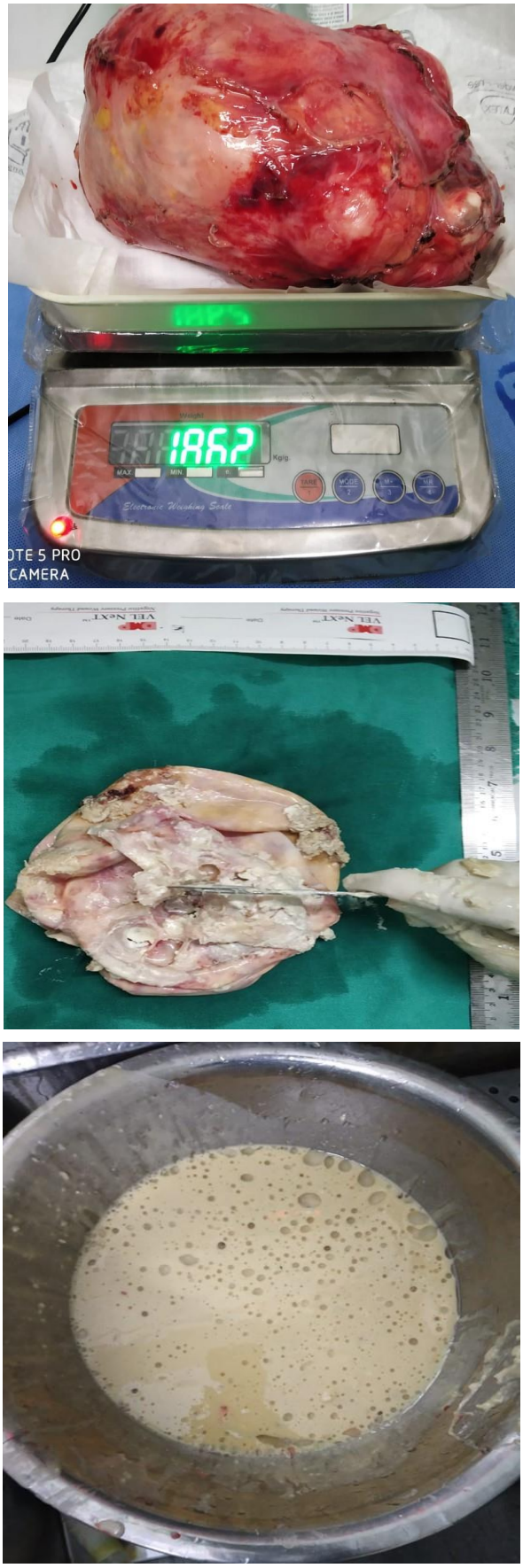

FIG. 2, 3 & 4. **Surgical Specimen showing adrenal mass, cut section and pultaceous contents.**

The postoperative period was uneventful. Patient discharged with stable vitals. On regular follow up patient had no complaints and is doing well.

The histopathology report confirmed it to be a Mature Cystic Teratoma with bone, fat, and pultaceous material within. There was also a tooth found inside. There were no foci of malignancy.

3. Discussion

Teratomas are germ cell tumors arising from peripheral pluripotent stem cells, which are composed of tissues from all the germ layers, namely ectoderm, mesoderm, and endoderm. The tumor may be solid, cystic, multilocular, or cystic solid, containing hair, sebum, cystic fluid, calcification, or teeth [4].

They are uncommon with an incidence of 0.9/100,000 population [5]. In adults, they are mainly arise in the gonads. Retroperitoneal teratomas are rare and comprise 1% of all teratomas [6]. Adrenal teratomas are extremely rare and form about 0.13% of all adrenal tumors [7].

Patients usually are asymptomatic. Some patients might present with low back pain, abdominal mass or upper abdominal pain, among many others. Adrenal endocrine tests are usually normal.

Imaging plays an important role in the diagnosis of these adrenal masses. CT imaging usually shows a large heterogeneous lesion mainly comprising fatty components with few calcifications and absence of normal adrenal gland tissue. The differential diagnosis of adrenal teratoma includes other lipomatous masses arising primarily from the adrenal gland such as myelolipoma, lipoma, liposarcoma, angiomyolipoma, pheochromocytoma [8]. As retroperitoneal lesions can extend to involve the adrenal region, it becomes difficult to determine the organ of origin in some cases. The most critical step in preoperative diagnosis of an adrenal teratoma is to differentiate it from other adrenal diseases with fat and calcification.

In teratomas, calcifications can be punctate, shard-like, or linear-strand with high density. Attenuation of calcification higher than cortical bone is highly suggestive of teeth within the lesion [9].

Histopathology is required for confirmation of diagnosis where elements derived from more than one germ cell layer i.e., endoderm, mesoderm, and ectoderm, and different tissues such as fat, hair, skin, and teeth can be seen within the specimen [8,9]. Surgery is the treatment of choice for mature teratomas [10]. Surgery may be open or laparoscopic. The overall prognosis is excellent with a 5-year survival rate of nearly 100% [10,11]. A close follow-up after surgery is recommended in mature as well as immature teratoma [12].

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