ORIGINAL RESEARCH PAPER

General Surgery

GIANT RIGHT ADRENAL PHEOCHROMOCYTOMA: A RARE CASE REPORT

KEY WORDS: Giant Pheochromocytoma, Adrenal Gland.

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ABSTRACT

Pheochromocytomas are rare catecholamine-producing tumors that most commonly originate in the adrenal medulla. A 44-year-old female with Imaging and biochemical tests revealing possibility of Pheochromocytoma/Right adrenal cortical carcinoma underwent open right adrenalectomy. Histopathology confirmed the diagnosis of pheochromocytoma.

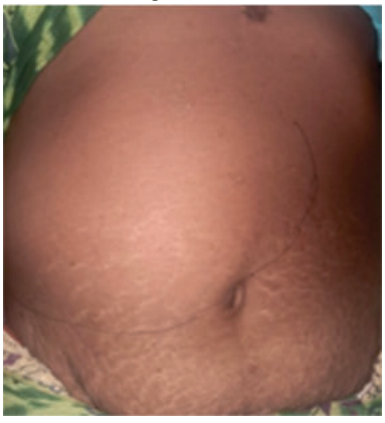
CASE REPORT

1. INTRODUCTION

Pheochromocytomas are uncommon catecholamine-secreting tumors arising from chromaffin cells of the adrenal medulla. Their annual incidence is approximately 2–8 cases per million. Although both adrenal glands can be involved, right-sided pheochromocytomas are relatively rare. These tumors may present variably, often mimicking other cardiovascular or neurologic disorders. Due to the potential for life-threatening complications, timely diagnosis and management are essential.

2. Case Presentation

A 44-year-old female with no prior medical comorbidities presented with a 6-month history of mass abdomen with pain, episodic headaches. These episodes were associated with transient but increases in blood pressure, with recorded values up to 180/110 mmHg.



Physical Examination

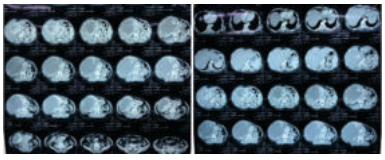
BP: 180/110 mmHg and HR: 114 bpm. The abdominal examamination revealed mass of size 18 x 16cm involving right hypochondriac, lumbar region with mild tenderness, margins ill-defined uniformly firm in consistency with lower margin extending 6.5cm below the subcostal margin. Swelling moving with respiration and ballotable.

Biochemical Evaluation

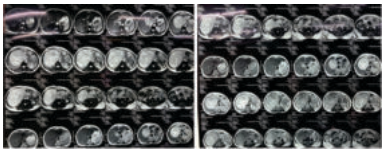
Renin - 58.85 pg/ml (2.4-32.8) ACTH - 36.1 pg/ml (<46)
Aldosterone -19.2 ng/dl (1.17-23.6) S.Cortisol - 1.27 mcgm/dl (6.0-18.4)
Testosterone -6.43 ng/dl (6-82) 24hrs U.metanephrines-36(30-180)
DHEAS - 96.1 mcgm/dl (19-231) 24 hrs VMA - 13.9 mg (2-7mg/24hr)
24 hrs Normetanephrines 803(<600mcg/24hr)

Radiologic Imaging

CECT Abdomen: Well-defined large peripherally enhancing lesion of size 17.3x12.3x16 cm with high vascularity with central necrosis displacing right kidney towards midline and abutting inferior surface of liver with mass effect over IVC arising from right adrenal gland possibility of malignant etiology.



MRI Abdomen: Large well-defined(12.5x17.5x15.5cm) T1 Hypointense T2-heterointense solid cystic lesion noted in the right adrenal region show with patchy areas of diffusion restriction and gradient blooming displacing right kidney towards midline with intrahepatic IVC significantly compressed by the lesion with no invasion and multiple peritumoral collaterals noted, suggestive of right adrenal cortical carcinoma.



Management

Preoperatively, prazosin was initiated and titrated for adequate alpha-adrenergic blockade, followed by beta-blockade with metaprolol. Open right adrenalectomy was performed without complications.

Histopathological Findings

Gross Description:

Grey brown globular soft tissue mass measuring 19x13x10cm. Approximately 20ml of hemorrhagic dark coloured fluid let out. cut surface revealed variegated appearance, areas of necrosis and hemorrhage, areas of myxoid degeneration seen. A small area of adrenal parenchyma seen measuring 0.3cm in diameter.

Microscopic Description:

Capsulated neoplasm composed of cells arranged in nests with surrounding fibrovascular septa and focal area showing diffuse sheets. The neoplastic cells are round having clear to eosinophilic cytoplasm, round central nuclei with mild nuclear atypia. Also seen are areas of necrosis and hemorrhage with focal areas showing myxoid background with floating tumor cells.

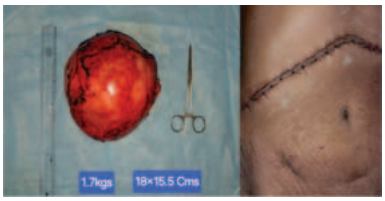
No significant atypia /atypical mitosis seen in the section studied.

RETICULIN :Retained reticulin framework

IHC 1030/25 STUDY.
Melan A -Negative in tumor cells
Synaptophysin - Diffuse strong membranous positivity in tumor cells.
Chromogranin - Diffuse cytoplasmic positivity in tumor cells.

Based On Histomorphology And Immunoprofile Pheochromocytoma Is Considered.

PASS SCORE - 6.



Follow-Up
Postoperatively, the patient remained normotensive without medication and was symptom-free at 1-month follow-up.

3. DISCUSSION

Pheochromocytomas, known as "the great mimickers," often present with episodic symptoms that may be overlooked. Right adrenal pheochromocytomas are particularly rare, and their identification requires comprehensive clinical and laboratory evaluation.

Biochemical testing for catecholamines or metanephrines confirms functionality. CT and MRI are standard modalities for localization. Preoperative medical optimization, particularly with alpha-blockers, is essential to prevent intraoperative hypertensive crises.

Open adrenalectomy is the preferred surgical approach for malignant etiology, preoperative biochemical and imaging studies with post operative Histopathological examination is crucial to confirm diagnosis.

4. CONCLUSION

Right adrenal pheochromocytomas, though rare, should be considered in patients with episodic hypertension and adrenergic symptoms. Multidisciplinary management and adherence to established protocols ensure excellent surgical outcomes.

Highlights

- Right adrenal pheochromocytomas are exceptionally rare neuroendocrine tumors.
- Diagnosis relies on clinical suspicion, biochemical analysis, and imaging.
- Preoperative alpha & beta-blockade is crucial to avoid intraoperative complications.
- Laparoscopic adrenalectomy remains the gold standard for treatment.
- Postoperative outcomes are generally excellent with appropriate management.

REFERENCES:

1. Feng et al., 2022: Reported a giant cystic pheochromocytoma measuring 20 × 15 × 10 cm-the largest documented tumor in China. Many such tumors lack characteristic symptoms; imaging (CT/MRI) and catecholamine measurements guide diagnosis.
2. Muchuweti et al., 2018: Defined giant pheochromocytomas as those >7 cm. Highlighted diagnostic challenges: these tumors are often biochemically inert, presenting with vague abdominal discomfort. Stressed the importance of CT imaging and readiness for hypertensive crisis during surgery.
3. Soufi et al., 2012: Described a giant malignant cystic pheochromocytoma in a 17-year-old woman presenting as a large abdominal mass.