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Ruptured hemorrhagic pheochromocytoma mimicking panic disorder: a care report

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Abstract: Rare tumors that release catecholamines and originate in the adrenal medulla are called pheochromocytomas. They usually manifest as headaches, diaphoresis, palpitations, and hypertension, but occasionally they can resemble panic disorder. We report the case of a 51-year-old man who had dyspnea, chest pain, and a hypertensive crisis. Despite treatment with antihypertensives and anxiolytics, his symptoms persisted. Imaging revealed a large hemorrhagic adrenal mass consistent with a ruptured pheochromocytoma. Following laparoscopic adrenalectomy, histopathological analysis confirmed pheochromocytoma with a Zellballen pattern and vascular invasion but no capsular invasion. This case highlights the importance of considering secondary causes of hypertension, particularly pheochromocytoma, in patients with refractory symptoms and overlapping psychiatric features.

Keywords: Adrenal Tumor; Catecholamine Crisis; Hypertension; Hemorrhagic Pheochromocytoma; Panic Disorder; Pheochromocytoma

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1. Introduction

Pheochromocytomas are rare neuroendocrine tumors originating from the chromaffin cells of the adrenal medulla, characterized by excessive catecholamine secretion. Although they account for less than 0.2% of hypertension cases, undiagnosed pheochromocytomas can lead to severe cardiovascular complications (1). Spontaneous rupture of a pheochromocytoma is rare but potentially fatal (2). Diagnosis primarily relies on imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI) (3). We report a case of a ruptured hemorrhagic pheochromocytoma initially misdiagnosed as panic disorder, managed successfully with laparoscopic adrenalectomy.

2. Case presentation

A 51-year-old man presented to the emergency department with worsening dyspnea, left-sided chest pain, and hypertensive urgency. His medical history included a 10-year diagnosis of panic disorder, for which he was prescribed sertraline, propranolol, and losartan. Despite treatment adherence, he experienced episodic anxiety attacks and poorly controlled blood pressure.

On examination, his blood pressure was 180/96 mm Hg, heart rate 96 beats per minute (bpm), temperature 37.2°C, respiratory rate 25 breaths/min, and oxygen saturation 96% on room air. He appeared diaphoretic but alert and oriented. Cardiac and respiratory examinations were unremarkable; pulses were symmetric in all extremities. Initial laboratory investigations were notable for mild leukocytosis, and other values were within normal limits (Table 1).

Non-contrast CT imaging of the chest, abdomen, and pelvis (Figures 1–4) revealed a heterogeneous left adrenal mass measuring 90 × 78 mm, with internal hemorrhage, surrounding fat stranding, discontinuity of the medial wall suggestive of rupture, and thickening of the adjacent perirenal fascia. The patient was admitted to the intensive care unit for hemodynamic stabilization using intravenous fluids, hydrocortisone, and cautious initiation of beta-blockade after alpha-blockade. After stabilization, he underwent laparoscopic left adrenalectomy with exploration of the adrenal vasculature. Histopathologic examination confirmed the diagnosis of pheochromocytoma. The tumor displayed a classic Zellballen (nested) architectural pattern on microscopy. Vascular invasion was present, but no evidence of capsular invasion was identified. The patient recovered well postoperatively. His blood pressure normalized without further need for antihypertensives, and his panic-like symptoms completely re-

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Table 1 Laboratory results

Test	Result	Normal Range
Sodium (Na)	136 mEq/L	135–145 mEq/L
Potassium (K)	4.8 mEq/L	3.5–5.1 mEq/L
Calcium (Ca)	8.9 mg/dL	8.5–10.2 mg/dL
Magnesium (Mg)	2.0 mg/dL	1.7–2.2 mg/dL
Phosphorus (Ph)	3.5 mg/dL	2.5–4.5 mg/dL
Blood Glucose (BS)	156 mg/dL	70–140 mg/dL (postprandial)
Creatinine (Cr)	1.7 mg/dL	0.6–1.3 mg/dL
Liver Function Tests (LFTs)	Normal	–
C-reactive Protein (CRP)	102 mg/L	<10 mg/L
pH	7.39	7.35–7.45
PCO_2	29.5 mm Hg	35–45 mm Hg
HCO_3^-	17.9 mEq/L	22–26 mEq/L
White Blood Cell Count (WBC)	17.5 $\times 10^9$/L	4–11 $\times 10^9$/L
Hemoglobin (Hb)	16.7 g/dL	13.5–17.5 g/dL
Platelet Count (Plt)	198 $\times 10^9$/L	150–450 $\times 10^9$/L
Troponin I	Negative	Negative
Toxicology Screening	Negative	–
Urinalysis	SG: 1.020, pH: 6, Protein: Trace, Glucose: +, WBC: 1–2, RBC: 0–1	–
Hemoglobin A1C (HbA1C)	6.3%	<5.7% (normal); 5.7–6.4% (prediabetes)
Adrenocorticotropic Hormone (ACTH)	10.5 pg/mL	7.2–63.3 pg/mL
Serum Cortisol	6.1 mcg/dL	6.2–19.4 mcg/dL (morning)
Dehydroepiandrosterone Sulfate (DHEA-S)	59.3 mcg/dL	30–200 mcg/dL
Urine Volume (24 h)	2000 mL	800–2000 mL
Urine Free Cortisol (24 h)	10.0 mcg/24 h	<50 mcg/24 h
Urine Normetanephrine (24 h)	742.0 mcg/24 h	<900 mcg/24 h
Urine Metanephrine (24 h)	428.0 mcg/24 h	<400 mcg/24 h
Urine Creatinine (24 h)	1380 mg/24 h	500–2000 mg/24 h
Urine Sodium (24 h)	76 mEq/24 h	40–220 mEq/24 h
Urine Potassium (24 h)	42 mEq/24 h	25–125 mEq/24 h
Urine Protein (24 h)	200 mg/24 h	<150 mg/24 h

solved.

3. Discussion

Pheochromocytomas are uncommon tumors with a prevalence of approximately 0.2% among hypertensive patients (1). They are often discovered incidentally or during workup for secondary hypertension. Clinical manifestations typically include episodic catecholamine surges resulting in palpitations, diaphoresis, headaches, and hypertension—symptoms that can mimic anxiety disorders and delay diagnosis (4). Although most pheochromocytomas are benign, 10–17% may become malignant (3).

Spontaneous rupture is a rare but life-threatening complication, leading to retroperitoneal hemorrhage, acute abdominal pain, and hemodynamic instability (2). Imaging, particularly CT and MRI, is critical for diagnosis, while biochemical tests confirm catecholamine excess (6). Prompt recognition and timely surgical intervention significantly improve outcomes, with many patients experiencing symptom resolution after tumor removal (5).

This case underscores the importance of considering pheochromocytoma in patients with refractory hypertension and atypical psychiatric symptoms, as early diagnosis is essential to prevent serious complications such as spontaneous rupture.

4. Conclusion

Ruptured pheochromocytoma, though rare, should be considered in patients with resistant hypertension and anxiety-like symptoms. Early diagnosis and timely intervention are key to preventing serious complications and improving outcomes. In the context of psychiatric disorders, it is crucial to always consider and rule out potential organic causes, such as pheochromocytoma, as part of the differential diagnosis. Identifying an underlying organic pathology can significantly alter treatment strategies and improve patient outcomes.

5. Declarations

5.1. Acknowledgement

None.

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Figure 1 Abdominopelvic CT scan (sagittal view): heterogeneous left adrenal mass measuring 90 × 78 mm, with surrounding fat stranding



Figure 2 Abdominopelvic CT scan (sagittal view): heterogeneous left adrenal mass measuring 90 × 78 mm, with internal hemorrhage

5.2. Authors' contribution

All authors contributed substantially to the manuscript's conception, drafting, and critical revision and approved the final version for publication.



Figure 3 Abdominopelvic CT scan (coronal view): heterogeneous left adrenal mass measuring 90 × 78 mm, with internal hemorrhage

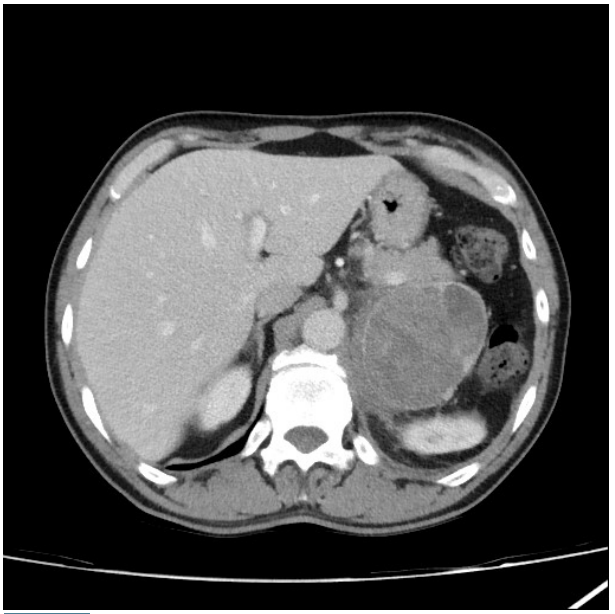


Figure 4 Abdominopelvic CT scan (axial view): heterogeneous left adrenal mass measuring 90 × 78 mm, with internal hemorrhage

5.3. Conflict of interest

None.

5.4. Funding

None.

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