Complicated Pheochromocytoma Case

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Background

Pheochromocytoma is a rare, catecholamine-secreting tumor. The term pheochromocytoma in Greek refers to the color the tumor cells acquire when stained with chromium salts.

About 85% of pheochromocytomas are located within the adrenal glands, and 98% are within the abdomen.

When such tumors arise outside of the adrenal gland, they are termed paragangliomas. Paragangliomas may occur anywhere from the base of the brain to the urinary bladder. Common locations for paragangliomas include the organ of Zuckerkandl, bladder wall, heart, mediastinum, and carotid bodies.

Symptoms of pheochromocytoma include headache, palpitation, diaphoresis and severe hypertension

Diagnostic tests for pheochromocytoma include plasma metanephrine testing and 24-hour urinary metanephrine levels.

Surgical resection of the tumor is the treatment of choice.

Case presentation

Male patient, 41 years old smoker, hypertensive, recently discovered to be diabetic, no past cardiac history (ECHO done 2months ago and was completely normal), history of left loin pain 3 months ago presented to ER by elevated random blood sugar, dizziness, hypertensive emergency and abdominal pain. Physical examination showed GCS 15/15 but the patient was anxious and irritable, flushed face, free chest auscultation, abdomen was lax, blood pressure was 220/110 mmHg, pulse was 115 beats/min, and the respiratory rate was 25 / min. Labs showed Hemoglobin: 20.5, PCV: 58.4, Urine analysis: glucose +++ , acetone ++, Blood gases (PH 7.32, CO2 32, HCO3 19), Troponin: 221, CK-MB: 43. Pelvic-abdominal US showed Left adrenal mass 5.4*5.1 cm with suspected criteria.. Patient admitted to ICU, received intravenous nitroglycerin infusion. All of a sudden, his blood pressure dropped to 70/40 mm Hg, so nitroglycerin infusion stopped, then noradrenaline infusion was started. New Echo done and showed (EF 40%). The cardiology consultant recommends conservative treatment with the possibility of doing coronary angiography after stabilization of the case. The patient received IV fluids guided by his CVP. IV insulin infusion was started to control his blood sugar. Noradrenaline infusion was gradually withdrawn. Echo follow-up was done and surprisingly, EF became normal again. Plasma-free metanephrine level was requested. It was 3-fold above the upper normal range. PET scan done and showed a low-grade FDG-avid heterogeneous left adrenal mass 5.7*5.1 cm.

Management

After stabilization of the patient's general conditions, an alpha blocker was started, followed by a beta blocker as preoperative preparation, and then the patient underwent left adrenalectomy.

After surgery, blood sugar started to be controlled and blood pressure were controlled

Discussion

In this case, our patient developed many complications of pheochromocytoma, including hypertensive emergency, diabetic ketoacidosis and Takotsubo-like syndrome.

Excess catecholamines released in the peripheral circulation cause vasospasm, so the patient develops hypertension.

Massive surge of catecholamines directly harms the heart muscle, causing temporary dysfunction and coronary vasospasm. This results in the characteristic regional left ventricular wall motion abnormality (often apical ballooning) seen in Takotsubo syndrome, despite the absence of obstructive coronary artery disease

Conclusion

Pheochromocytoma is a rare tumor, but it can lead to serious complications. Surgery is curative for Pheochromocytoma, but long-term surveillance is necessary.

Keywords

Pheochromocytoma, Catecholamines, Takotsubo syndrome.