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Anesthetic Management of Unexpected Retroperitoneal Paragonglioma: Case Report

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Abstract **Case Report**

Paragangliomas are rare tumors that arise from extra-adrenal chromaffine cells. Paraganglioma are classed as functional or non functional based on production of catecholamines, similar pheochromocytoma the clinical presentation is non-specific. We present a case perioperative anesthesic management of accidental intra-operatively diagnosed precave paragongliomawich was confirmed as pheochromcytoma. A 48 women presented paroxysms of hypertension and adrenergic symptoms including classic triad of episodic headache, sweating, and tachycardia. Abdominal sonography detected an adrenal mass; Surgical treatment is the onlyradical treatment. Histological examination of the surgical specimen revealed a paraganglioma.

Keywords: Anesthetic, pheocromocytoma, retroperitoneal paragonglioma, hypertension,tumor.

INTRODUCTION

Pheochromocytomas (PH) are neoplasms of chromaffin tissuewhich synthesize catecholamines. Most of these tumors appear in the adrenal medulla, The diverse manifestations of this tumor reflect variations in the hormones it releases, their patterns of release, and in the individual-to-individual differences in catecholamine sensitivities.

Paragangliomas of the retroperitoneum are neuroendocrine tumors arising from the sympathoadrenal paraganglial autonomic nervous system. Most of the tumors arise in the adrenal medulla as pheochromocytoma, also known as intra- adrenal paraganglioma, while the remaining arise in aortic-sympathetic extra-adrenal paraganglia along the paravertebral axis as extra-adrenal sympathetic paragangliomas [1].

We report a case of a unexpected retroperitoneal paraganglioma diagnosed as pheochromocytoma in which a high level of suspicion during a surgical procedure performed and general anesthesia resulted in optimal hemodynamic management during surgery.

OBSERVATION

Pre-operative

Laboratory findings for catecholamine-secreting tumors typically includes measuring a 24-hour urinary excretion of total andfractionated metanephrines and catechol- amines were positive, chest X-ray and electrocardiogram (ECG) results were normal; his blood pressure measured 170/80mmHg pre-operatively under alpha-bloquant treatement became 140/70mmhg. CT and magnetic resonance imaging (MRI) resultsshowed a large, well-demarcated right Adrenal mass measuring approximately (32×29×42mm) Figure 2.

Perioperative

Our patient was taken to the operating room. After establishing intravenous access and placing standard anesthesia monitors (non-invasive measurement of blood pressure (NIBP), ECG, SpO2 (pulse oximetry), and temperature), Induction of anesthesia was made with propofol 120mg, fentanyl 250µg, following rocuronium 50mg to facilitate endotracheal intubation. Our patient received an arterial line for invasive blood measurement and a central venous catheter in the right jugular vein for central venous pressure measurement.

The anesthesia was maintained with sevoflurane, in a mixture of O2 and air (in 40:60 ratios). The surgical approach was celioscopy.

During the surgical excision of the adrenal gland no hemodynamic changes occurred instead Minimal manipulation of retroperitoneal mass near to the inferior veina cava was followed with severe hypertension measuring 225/110mmHg and tachycardia up to 120 beats/minute (Figure 3).

The levels of both anesthesia and analgesia were increased inorder to rule out too light a level of anesthesia and, as a consequence, pain. A bolus dose of intravenous fentanyl (150µg) was given, along with increase of the sevoflurane minimum alveolar concentration (MAC) and calcium channel blocker (for 20min minutes) the clinical symptoms diminishedafter these pharmacological measures

Adequate central venous pressure and diuresis were maintained during the procedure. After excision of the tumor, our patient developed hypotension, due to the 'downregulation' of the receptors, with a lowest blood pressure measurement of 65/35mmHg (Figure 1).

This condition was treated with additional large volumereplacement with crystalloids, and vasopressors (norepinephrine up to 0.25µg/kg/min) in order to achieve a mean arterial pressure (MAP) over 65mmHg. Additional hemodynamic stability was eventually restored after administration of a bolus dose of hydrocortisone 100mg intravenously, which eventually led to cessation of the vasopressor infusion 45 minutes later.

Postoperative

His post-operative course was unremarkable. After the surgery, our patient was admitted to our Intensive Care Unit (ICU) where she were extubated she was hemodynamically stable, without vasopressor support. There were no episodes of hypertension or tachycardia reported. Analgesia was supplied by nefopam and our patient experienced no pain. She was transferredto the ward the next day and on the eighth post- operative day he was discharged from hospital.The final pathology report confirmed the presenceof an extra-adrenal sympathetic paraganglioma (EASP).

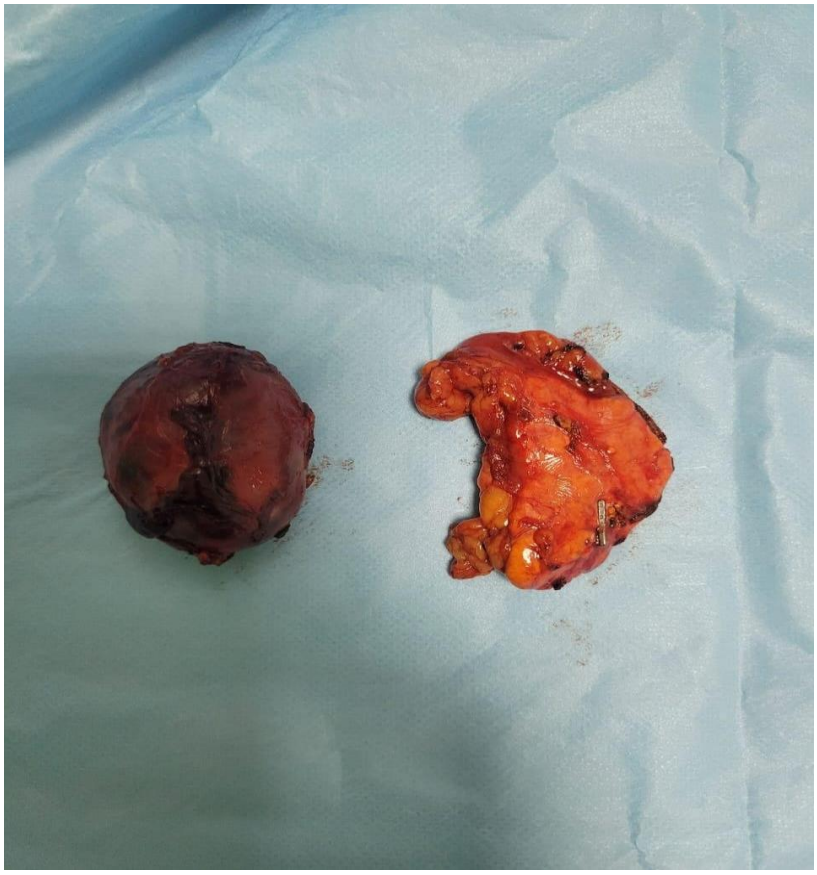

Figure 1: Image shows the Adrenalgland and Paranglioma

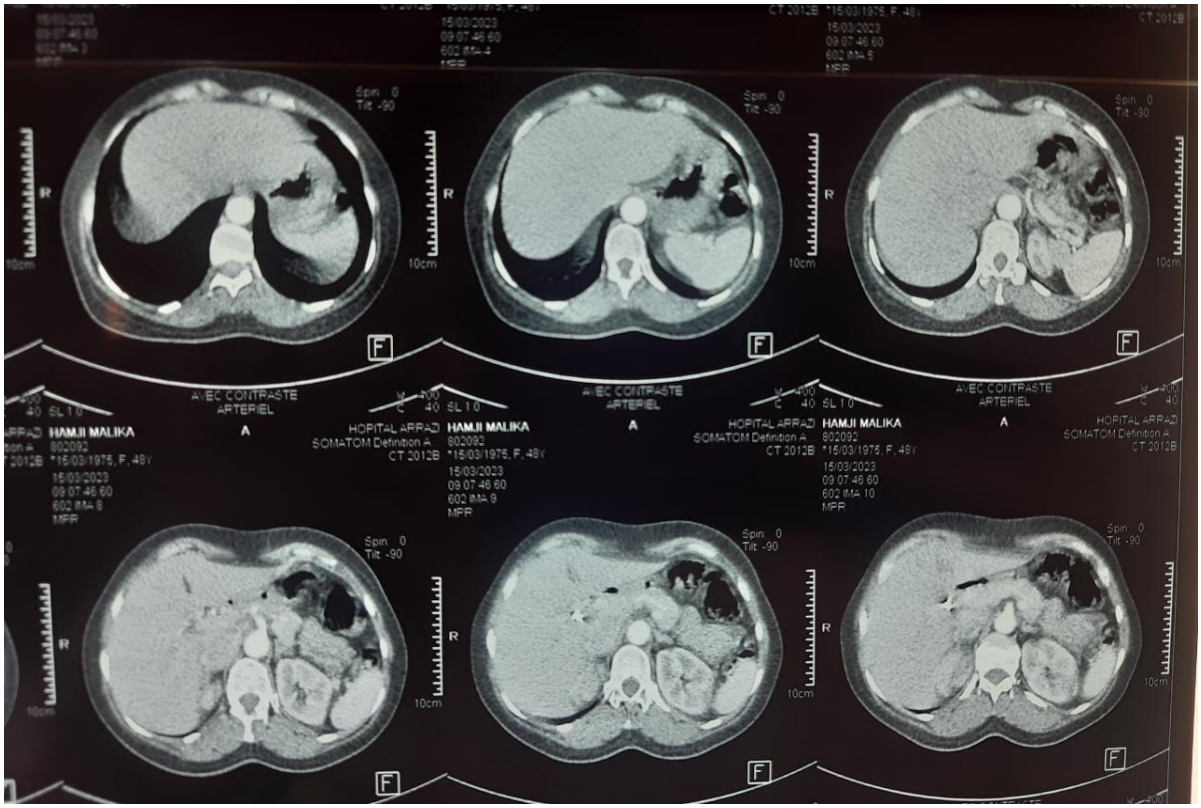

Figure 2: CT scan shows Adrenal gland mass measuringapproximately 32×29×42mm

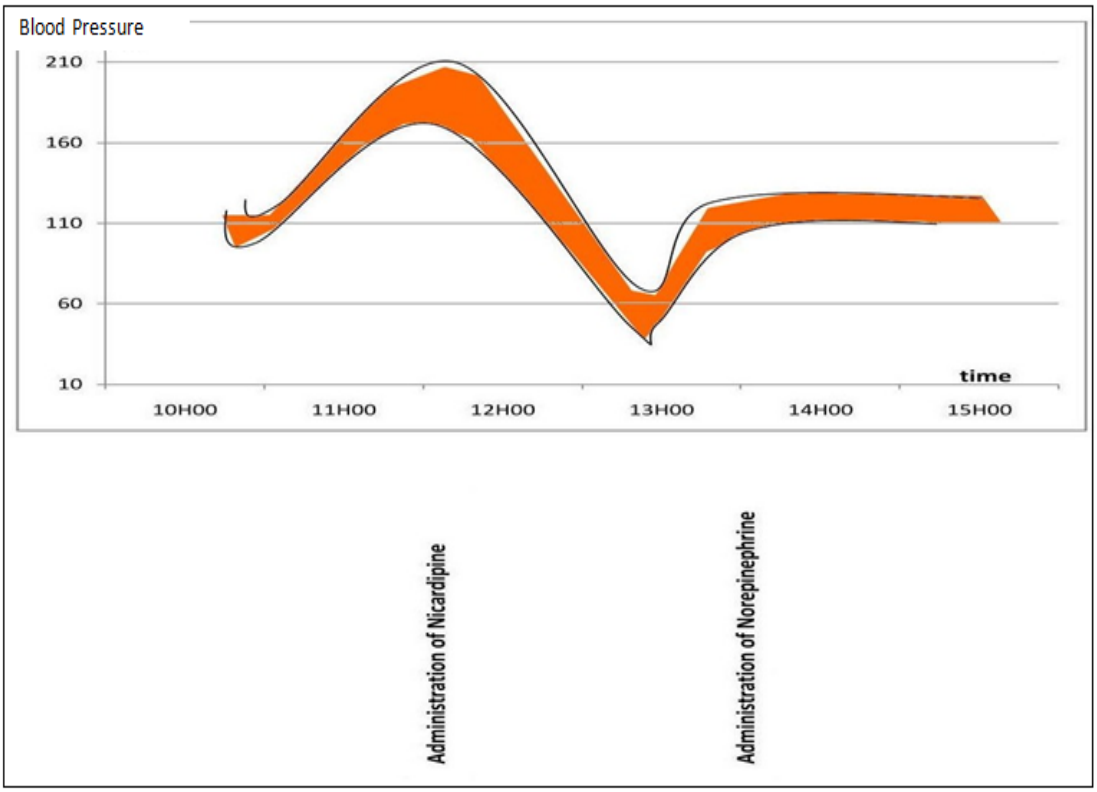

Figure 3: The perioperative management of hemodynamicvariation of blood pressure

DISCUSSION

Extra-adrenal paragangliomas have the ability, similar to pheochromocytomas, to be hormonally active. This onset of activity can result in sudden, life-threatening cardiovascular, neurological or metabolic crisis [2].

Retroperitoneal laparoscopy has some advantagescom- pared with transperitoneal laparoscopy. Itcauses only a small increase in intra-abdominalpressure and fewer haemodynamic changes [3].

In our patient, a retroperitoneal tumor was mistaken for pheochromocytoma on MRI findings, in spite of MRI's reported 91 percent sensitivity forextra-adrenal tumors [4].

Our patient's hypertension was treated with calcium chanel bloker intra-operatively andvasopressor for Hypotension

Therefore, when dealing with a patent with retroperitoneal tumor, it is crucial to consider the presence of a hormonally active paraganglioma Undiagnosed functional paragangliomas carry high morbidity and mortality rates and multiple pharmacotherapeutic interventions have beenproposed to minimize intra-operativecardiovascular complications. Only a few cases have been reported regarding management of accidental intra-operatively diagnosed functionalparagangliomas [5].

CONCLUSION

Paragangliomas are rare tumors, most often observed in young adults. Surgical treatment is the only radical treatment and should be performed even in paragangliomas in close contact with the great vessels.

This case attempts to comprehensively address the intraoperative and postoperative issues in the management of these challenging tumors with an emphasis on hemodynamic monitoring and anesthetic technique.

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Conflicts of interest: We have no conflicting interests.

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