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Case Report / Olgu Sunumu

Pheochromocytoma in Pregnancy

Gebelikte Feokromositoma

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Abstract: Pheochromocytoma is a neuro-endocrine tumor which secretes catecholamine. It is rare in pregnancy. Misdiagnosis as gestational hypertension or preeclampsia may cause delays in diagnosis. We aimed to discuss a case of pheochromocytoma during pregnancy presenting with hypertension. A 27-year-old female patient with 15-weeks of pregnancy was found to have a 45x55 millimeter mass on the left adrenal gland while she was complaining left side pain. Physical examination revealed hypertension. 24-hour urine catecholamine levels were elevated. Abdominal MRI was consistent with pheochromocytoma. After appropriate preparation, laparoscopic adrenalectomy was performed for the left adrenal gland in second trimester. Catecholamine levels decreased after the operation. The pathology was consistent with pheochromocytoma. The patient delivered a baby by cesarean section at 37th gestational week. Pheochromocytoma during pregnancy is a rare but important cause of morbidity and mortality for mother and fetus. Therefore, it should be considered in the differential diagnosis especially in pregnant women presenting with hypertension in first trimester.

Keywords: pregnancy, hypertension, pheochromocytoma, catecholamine, malign pheochromocytoma.

Özet: Feokromositoma, katekolamin salgılayan bir nöro-endokrin tümördür. Hamilelikte nadir görülür. Yanlışlıklar gestasyonel hipertansiyon veya preeklampsi tanısı konulması feokromositoma tanısında gecikmelere neden olabilir. Bu çalışmada, gebelikte hipertansiyon ile başvuran ve feokromositoma tanısı konulan bir olguyu tartışmayı amaçladık. Sol yan ağrısı şikayeti olan 27 yaşında onbeş haftalık gebe hastada sol adrenal bezde 45x55 milimetre kitle tespit edilmiştir. Fizik muayenede hipertansiyon saptanan hastanın 24 saatlik idrar katekolamin düzeyleri yüksek tespit edildi. Abdominal MR feokromositoma ile uyumlu saptandı. Preoperatif hazırlığın ardından ikinci trimesterde sol adrenal beze laparoskopik adrenalektomi uygulandı. Ameliyattan sonra katekolamin düzeyleri düştü. Patoloji feokromositoma ile uyumluydu. 37. gebelik haftasında bebek sezaryen ile doğdu. Hamilelik sırasında feokromositoma nadirdir fakat anne ve fetus için önemli bir morbidite ve mortalite nedenidir. Bu nedenle, özellikle ilk trimesterde hipertansiyon ile başvuran gebelerde ayırıcı tanıda düşünülmelidir.

Anahtar Kelimeler: gebelik, hipertansiyon, feokromositoma, katekolamin, malign feokromositoma.

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1. Introduction

Pheochromocytoma is a catecholamine-secreting neuroendocrine tumor originating from adrenal medulla chromaffin cells (1). It is seen equally in both sexes and more frequently in the third and fourth decades of life (2). The prevalence of pheochromocytoma in patients with hypertension is around 0.1-0.6% (3). Pheochromocytoma occurring during pregnancy is rare, with an incidence of less than 0.2 per 10000 pregnancies (approximately 1 in 54,000) (4). Since the signs and symptoms of pheochromocytoma may be confused with common diseases such as hyperemesis, gestational hypertension, preeclampsia, eclampsia and gestational diabetes mellitus, there may be delay in the diagnosis during pregnancy (5-7). Pheochromocytoma management is quite challenging for healthcare workers (8). Delays in diagnosis and treatment of the disease can lead to fatal and life-threatening conditions in mother and fetus (9).

In this case report, we aimed to discuss the case of a pregnant patient with presenting with hypertension diagnosed with pheochromocytoma.

2. Case

A 27-year-old female patient with a 15-week gestation was referred to our center because of a 5-centimeter mass lesion in the left adrenal gland on ultrasound performed due to left-side pain. The patient was hospitalized because of hypertension on physical examination, and occasional hypertension and tachycardia attacks occurred despite the nifedipine treatment initiated at the external center.

Obstetric examination performed by the obstetrician did not reveal any pathological findings. Biochemical tests and thyroid hormone levels were normal: Cortisol value: 20.54 mcg/dl, ACTH value: 7.45 pg/ml, aldosterone value: 309 pg/ml, renin activity 31 ng/ml/h, aldosterone/renin ratio was 0,9. 24-hour urine catecholamine and metanephrine levels were measured. Urine noradrenaline and normetanephrine levels were significantly elevated: Noradrenaline level was 40076 mcg/24 h (normal range: 23-105) and normetanephrine level was 15182 mcg/24 h (normal range: 88-444). Few micro hemorrhagic areas were detected in the fundus examination of the patient. Echocardiography showed no signs of heart failure. Abdominal MRI report revealed a 5x4.5 cm non-adenoma lesion with progressive heterogeneous contrast enhanced diffusion that did not show fat suppression in the left adrenal gland in the dual echo sequence (pheochromocytoma?). The patient was started on alpha blocker therapy. The patient developed tachycardia and beta-blocker was added to the treatment. Laparoscopic left adrenalectomy was performed at 21 weeks of gestation after preoperative preparation of the patient was completed. The patient did not have any problems in the postoperative period. Blood pressure follow-up was normal and antihypertensive drug doses were decreased and then discontinued. The pathology report of the patient was reported as: a 6.5x5.5x3.5-centimeter tumor, invasion into periadrenal adipose tissue, areas of focal necrosis, and tumor showing diffuse growth pattern in large area, the Ki-67 proliferation index was 2-3% and the result was consistent with pheochromocytoma (figure1, 2). As the calculated PASS (pheochromocytoma of the adrenal scaled score) score was 6, the patient was considered to have malignant tumor and a close follow-up was planned.

Urine catecholamine and metanephrine levels at the postoperative 4th week were normal. The patient delivered by cesarean at 37th gestational week. There were no problems in mother and baby during delivery.

3. Discussion

Patients with pheochromocytoma may be asymptomatic and some patients may present with life-threatening clinical conditions (1, 3). On the other hand, pregnant patients have symptoms such as paroxysmal hypertension, headache, sweating and palpitation which are typical symptoms of pheochromocytoma (3).

In the case report presented by Ghalandarpoor et al., pheochromocytoma was detected in a patient with flank pain as main complaint

(10). On the other hand, Dugas et al. detected pheochromocytoma in a patient who presented with nausea, vomiting, headache and dizziness at 34 weeks of pregnancy (11). Our patient had intermittent hypertension and tachycardia attacks that started in the first trimester that could not be controlled by single antihypertensive treatment.

Since the symptoms are nonspecific, it is important to differentiate pheochromocytoma from preeclampsia in pregnancy (1). If treatment is started considering preeclampsia, delayed diagnosis of pheochromocytoma may lead to fatal consequences (1, 5). In pheochromocytoma, blood pressure may be normal while the patient is sitting and standing, but supine position may result in supine paradoxical hypertension as a result of the uterus pressing on the tumor (1).

It is not common for patients with preeclampsia to present with paroxysmal hypertension and to have hypertension before the 20th week of pregnancy. The classic preeclampsia triad consisting of hypertension, proteinuria and edema generally does not suggest pheochromocytoma but postural hypotension is (5). Excess catecholamine in pregnant pheochromocytoma may lead to hypertensive crisis, syncope, catecholamine-mediated cardiomyopathy, acute coronary syndrome, arrythmia, acute heart failure, cardiogenic shock (12-14). In a case series of 25 patients, Liao et al. showed abnormal EKG findings and chest pain as rare manifestations (15). Rarely, pheochromocytoma may present with non-cardiac pulmonary edema, aortic dissection and stroke (16). Pheochromocytoma should be suspected in case of unexplained cardiomyopathy during pregnancy in any pregnant patient (1).

If pheochromocytoma is suspected, plasma or 24-hour urine fractionated metanephrine and catecholamine levels are measured. In their study, Natrajan et al suggested that catecholamine levels are similar in pregnant and non-pregnant patients (17).

MRI without gadolinium is the first-line imaging modality in patients with suspected pheochromocytoma. Abdominal ultrasound may be useful in the first trimester, but its sensitivity is low in the second and third trimesters (1).

In our patient, urine normetanephrine and noradrenaline levels were markedly elevated and MRI was consistent with pheochromocytoma, so the patient was diagnosed with pheochromocytoma.

Management of a pregnant pheochromocytoma patient includes control of blood pressure and avoidance of paroxysmal changes in blood pressure. In order to prevent fetal death and deterioration of fetal development, it is important to maintain a balance between vasodilatation and vasoconstriction (1). Although definitive treatment is surgical, medical preparation is required before operation (1, 18). The aim of medical treatment is to block the effect of released catecholamines (19). Lower maternal and fetal mortality has been shown in pregnant women prepared with alpha adrenergic blockade (20). Beta adrenergic blockade is initiated a few days after the appropriate alpha blockade to prevent and treat tachyarrhythmias (3). Methyldopa, an indirect adrenergic antagonist, which is frequently used in pregnancy hypertension, is not recommended in patients with pheochromocytoma because it may cause worsening in blood pressure control and pheochromocytoma symptoms (1). As mentioned in the study of Prete et al., methyldopa may cause false high values in urine metanephrine levels. Therefore, use of alpha methyldopa should be avoided in patients with suspicion of pheochromocytoma during pregnancy (21).

Laparoscopic adrenalectomy is generally recommended in the second trimester because it is associated with an increased risk of miscarriage in the first trimester (1, 22). Since vaginal delivery has a higher mortality rate for both mother and fetus, cesarean delivery is the recommended mode of delivery (1). In our patient, laparoscopic adrenalectomy was performed in the second trimester. There was no problem in the obstetric follow-up of the baby and which she delivered by cesarean section at 37 weeks of gestation.

Annual follow-up of at least ten years is recommended for operated patients. Postoperative catecholamine levels were completely normal in our patient. However, as indicated in the pathology report of the patient, due to the high PASS score, the patient should be closely monitored for recurrence and metastasis.

The patient is still being followed up in our center.

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