Pheochromocytoma manifestation associated with acute infectious disease


Abstract. Pheochromocytoma (PHEO) manifestation can be triggered by many different factors, including infectious diseases. In 2019, measles continued to spread in global outbreaks around the world. According to WHO data, more than 60% of all measles cases in European Region were reported in Ukraine, a leader in measles occurrence. Measles is a dangerous viral disease, which remains an overwhelmingly important problem for healthcare system. Measles cause various life-threatening complications, which not only affect patients’ health and decrease quality of their lives, but can also lead to onset of many other medical conditions. Authors provide an example from their own clinical experience, which they have observed during the measles outbreak. Patient D., 22 y.o., female, was admitted to Lviv Infectious Diseases Communal Clinical Hospital because of measles. Condition was followed by severe intoxication, fever, hacking cough, skin rash all over the body. On 4th day after the appearance of rash patient developed atypical hypertensive crisis: in supine position started severe tachycardia, thumping headache, tremor of proximities and whole body, arterial blood pressure increased to 180/110 mm Hg; after changing the sitting position, symptoms started slowly decrease, in this regard patient had to spend a few days crouched in bed, she also complained about exaltation, insomnia, psychic tension, asthenia. Patient has undergone surgical treatment — laparoscopic left adrenalectomy. Perform differential diagnostics of hypertension accurately, paying special attention to determining its’ reason. Take into consideration, that PHEO manifestation and hypertonic PHEO crises can be provoked by multiple reasons. If PHEO is suspected, hormonal, visualization and morphological examination methods should be performed. Keep in mind, that PHEO can be a constituent part of number of hereditary diseases: MEN 2A, MEN 2B, Von Recklinghausen’s Disease (Neurofibromatosis 1), Von Hippel-Lindau syndrome and can be possibly malignant.

Keywords: pheochromocytoma; acute infectious disease; manifestation; clinical case

Introduction

Pheochromocytoma (PHEO) is a chromaffin cells tumor, which is capable of producing and depositing catecholamines [1]. Typically, PHEO develops in adrenal medulla, but sometimes it can also develop outside the adrenal gland: in sympathetic ganglia or close to anywhere along the sympathetic nervous chain, then they are called paragangliomas [2, 3].

Clinical signs and pathological signification of these tumors are mainly connected with catecholamines secretion. The most common sign is hypertension, paroxysms of increased blood pressure, also called attacks or PHEO crises, occur more than in half cases. Attacks are severe, with bright manifestation, and resistant to standard treatment. PHEO crisis can be triggered by a variety of factors and disguised with many other diseases [4, 5].

Complications of PHEO are multifarious, first of all cardiovascular: myocardial infarction, transitory ischemic attacks, ischemic and hemorrhagic stroke, pulmonary edema, cardiogenic shock, sudden cardiac death. Delayed diagnostics of PHEO leads to wrong treatment tactic, which, in turn, causes high rate of disablement and mortality. Rapid and reasonable diagnostics is crucial for effective therapy with no amplifications.

PHEO manifestation can be triggered by many different factors, including infectious diseases. In 2019, measles continued to spread in global outbreaks around the world.
According to WHO data, more than 60% of all measles cases in European Region were reported in Ukraine, a leader in measles occurrence. Measles is a dangerous viral disease, which remains an overwhelmingly important problem for healthcare system. Measles cause various life-threatening complications, which not only affect patients’ health and decrease quality of their lives, but can also lead to onset of many other medical conditions.

Case presentation

We provide an example from our own clinical experience, which we have observed during the measles outbreak.

Patient D., 22 y.o., female, was admitted to Lviv Infectious Diseases Communal Clinical Hospital because of measles. Condition was followed by severe intoxication, fever, coughing cough, skin rash all over the body. On 4th day after the appearance of rash patient developed atypical hypertensive crisis: in supine position started severe tachycardia, thumping headache, tremor of proximities and whole body, arterial blood pressure increased to 180/110 mm Hg; after changing the sitting position, symptoms started slowly decrease, in this regard patient had to spend a few days crouched in bed, she also complained about exaltation, insomnia, psychic tension, asthenia.

According to physical examination: height — 165 cm, weight — 60 kg, BMI — 21,35 kg/m²; BP — 110/60 mm Hg, pulse — 100 bpm, t — 37,5 °C; skin with maculopapular rash (typical for measles), dry, warm; breathing — without features; thyroid gland enlarged to 1a stage, palpatory non-tender, elastic, painless, without nodules, clinically — euthyreosis; tongue dry, partially covered with white fur, abdomen soft, non-tender; bowel and bladder functions normal. Clinical blood count was typical for acute viral infection.

Considering patient’s complaints about occasional hypertensive crises, thyroid USG, abdomen and adrenal glands USG was recommended. During the examination left adrenal gland was found cystic and solid mass, sized 61 × 47 mm, round-shaped with sharp contour.

In order to identify and differentiate renal mass lesion was prescribed contrast computer tomography of abdomen: adrenals are located typically; extraperitoneally; on the left, adjusted to the basis of left adrenal gland — oval-shaped mass with sharp smooth contour, heterogenic, with multiple irregularly shaped fluid inclusions and tiny vessel elements, size — 47 × 54 × 53 mm; tissue actively uptakes contrast, component (clear fluid), 3/5 solid component (pale pink color). Microscopically: polymorphonuclear cells with light-toned cytoplasm (chromaffin tissue cells). Conclusion: pheochromocytoma.

Perform differential diagnostics of hypertension accurately, paying special attention to determining its’ reason. Take into consideration, that PHEO manifestation and hypertonic PHEO crises can be provoked by multiple reasons. If PHEO is suspected, hormonal, visualization and morphological examination methods should be performed. Keep in mind, that PHEO can be a constituent part of number of hereditary diseases: MEN 2A, MEN 2B, Von Recklinghausen’s Disease (Neurofibromatosis 1), Von Hippel-Lindau syndrome and can be possibly malignant.

According to data, received by the clinical, laboratory and instrumental methods, the diagnose was made: Mass lesion of the left adrenal gland (pheochromocytoma). Secondary hypertension, stage I, grade 3. HF, stage A.

For further treatment patient was referred to 3rd surgical department of Lviv Clinical Regional Hospital. During preparations for surgical management, assessment of cardio-vascular system was performed: electrocardiogram (sinus rhythm, heart rate — 74 bpm, cardiac axis located typically, ECG showed normal findings) and echocardiogram (size of heart chambers — normal, structure and functions of heart valves normal, contractility of left ventricular myocardium remained constant). To prevent hypertonic crises, patient was prescribed α-adrenoreceptor antagonist (alpha-blocker) for 10—14 days: prazosin 1 mg per os twice a day, dose was gradually increased to 4 mg per day; at that point, normal levels of blood pressure were achieved.

Patient has undergone surgical treatment — laparoscopic left adrenalectomy. Gross specimen examination: left adrenal gland with tumor, which consists of 2/5 fluid component (clear fluid), 3/5 solid component (pale pink color). Microscopically: polymorphonuclear cells with light-toned cytoplasm (chromaffin tissue cells). Conclusion: pheochromocytoma, examination findings have proven clinical diagnosis. Postsurgical period was without complications; patient was discharged in satisfactory condition, recommended to monitor blood pressure and stay under medical supervision of endocrinologist and cardiologist.

In aim to detect possible relapse of tumor or onset of hormonal-active metastases, 6 month after the operation, follow-up USG and 24-hour urinary metanephrine test were performed. In prospect, therapeutic advice is to repeat these assessments annually. Additionally, family members should also consider doing genetic and screening tests.

Conclusions

Perform differential diagnostics of hypertension accurately, paying special attention to determining its’ reason. Take into consideration, that PHEO manifestation and hypertonic PHEO crises can be provoked by multiple reasons. If PHEO is suspected, hormonal, visualization and morphological examination methods should be performed. Keep in mind, that PHEO can be a constituent part of number of hereditary diseases: MEN 2A, MEN 2B, Von Recklinghausen’s Disease (Neurofibromatosis 1), Von Hippel-Lindau syndrome and can be possibly malignant.

References

Маніфестація феохромоцитоми, пов’язана з гострим інфекційним захворюванням

Резюме. Прояв феохромоцитоми (ФЕО) може бути спрово- кований багатьма різними факторами, у тому числі інфекцій- ними захворюваннями. У 2019 році відзначалися глобальні спалахи кору. За даними Всесвітньої організації охорони здоров'я, понад 60 % усіх випадків кору в Європейському регіоні зареєстровано в Україні, яка є лідером за захворюваністю на кір. Кір — небезпечне вірусне захворювання, що залишається надзвичайно важливою проблемою для системи охорони здоров'я. Кір викликає різні небезпеки для життя ускладнення, що не тільки впливають на здоров'я пацієнтів і погіршують якість їхнього життя, але й можуть призвести до маніфестації багатьох інших захворювань. Автори наводять приклад із власного клінічного досвіду, який вони спостерігали під час спалаху кору. Хвора Д., 22 роки, потрапила до Львівської інфекційної комунальної клінічної лікарні з приводу кору. Стан супроводжувався вираженою інтоксикацією, лихоманками, надривним кашлем, висипкою на шкірі по всьому тілу. На четверть добу після появи висипки у хворій розвинувся атиповий гіпертонічний криз: у положенні лежачи почалася виражена тахікардія, інтенсивний головний біль, трімтіння рук і всього тіла, артеріальний тиск підвищився до 180/110 мм рт.ст.; після переходу в сидяче положення симптоми повільно зменшилися. У зв’язку з цим пацієнтки змушена була декілька днів перебувати у вимушеному положенні, також виникли скар-ги на збудження, безсоння, психічне напруження, астенію. Хворій проведено оперативне лікування — лапароскопічну адреналектомію зліва. Автори рекомендують проводити ре- тельну диференціальну діагностику гіпертонічної хвороби, приділяючи особливу увагу встановленню її причини. Слід враховувати, що прояви ФЕО і гіпертонічні кризи при ФЕО можуть бути спровокованими різними причинами. При підозрі на ФЕО необхідно застосувати гормональні, візуалізаційні й морфологічні методи дослідження. До того ж ФЕО може бути складовою низки спадкових захворювань: MEN 2A, MEN 2B, хвороби фон Реклінгхаузена (нейрофіброматоз 1-го типу), синдрому Гіппеля — Ліндлі, і може бути злоякісною.

Ключові слова: феохромоцитома; гостре інфекційне захворювання; маніфестація