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CLINICAL VIGNETTE

Postpartum thoracic aortic dissection coexistent with preeclampsia

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A 34-year-old primigravida was admitted to the Department of Obstetrics, Perinatology and Gynecology of Warsaw Medical University at 29 weeks and 6 days gestation due to high blood pressure (210/100 mmHg). The patient declined obstetrical care during her pregnancy. She was diagnosed with hypertension at the age of 18 years and never treated properly as she decided to follow alternative medicine instead (including fasting). Her body mass index (BMI) was within the norm — ca. 24 kg/m^2. The ultrasound scan confirmed fetal growth restriction (1000 grams, < 1st percentile). Biochemical parameters such as aspartate aminotransferase, alanine aminotransferase, platelet count and lactate dehydrogenase were within normal ranges. Significant elevation of cardiac troponin I — 268 ng/L was observed. The urine test showed proteinuria. The patient was diagnosed with preeclampsia, carefully monitored and treated with labetalol [20 mg *intravenous* (*i.v.*)], methyldopa and MgSO4 (one dose of 4 g, followed by a maintenance infusion of 1 g/h by infusion pump). She declined antenatal corticosteroid therapy. During the first day of hospitalization, due to the fetal

distress (decelerations in CTG tracing, STV 2,8 ms — absence of baseline variability) and patient's persistent high blood pressure (ca. 160/100 mmHg) an emergency C-section was performed. A male neonate (1290 g/43 cm/7–8–8 Apgar score) was delivered.

Three days postpartum the patient experienced severe chest pain, shortness of breath, high blood pressure and blurred vision. Despite intensive antihypertensive treatment, the patient's condition deteriorated. She was transferred to the Department of Cardiology of Warsaw Medical University. Upon clinical examination a diastolic murmur loudest at the left sternal border and crackles at the basis of both lungs were found. A diagnosis of Stanford type A aortic dissection with severe regurgitation of tricuspid aortic valve was made with bedside echocardiography (Fig. 1A). An urgent computed tomography (CT) scan showed type II De Bakey aortic dissection with the origin of the dissection above the right coronary artery with widening of the ascending aorta up to 48 mm (Fig. 1B, C). The patient undergone urgent cardiac surgery — supracoronary ascending aortic replacement. After the procedure, temporary anemia (hemoglobin 8.2 g/dL), increased C-reactive protein (235 mg/L) and deterioration of renal function (creatinine 1.35 mg/dL, eGFR 51 mL/min/1,73 m^2) were observed. Control laboratory tests after 4 days showed improvement in renal parameters, increased hemoglobin and normalization of inflammatory markers.

She was discharged on day 8 postpartum, after spending 5 days in the Cardiology Unit. She was given combination therapy to control blood pressure — nitrendipine, torsemide, metoprolol and methyldopa. Her hypertension seemed well controlled (130–140/80–90 mmHg), however she was re-admitted to the hospital 3 weeks later due to atrial fibrillation. As the patient was hemodynamically stable a decision to perform pharmacological cardioversion was made. Flecainide was chosen as it is the only antiarrhythmic drug that may be used for pharmacological cardioversion during lactation [1]. She was discharged after 1 day. In prevention of thromboembolic complications (CHA2DS2–VASc scale: 2 points) enoxaparin and then warfarin was prescribed under the control of the INR level.

DISCUSSION

Aortic dissection, a rare but potentially life-threatening condition, can occur at any time during pregnancy or postpartum period, however the third trimester is associated with the highest risk of this complication (50% of cases) [2]. Pregnancy alone increases the risk of aortic dissection 4 times [3]. During pregnancy, the aorta and the vessel wall structures are generally weaker and more sensitive to hemodynamic forces. This is due to the increased

stimulation of estrogen and progestogen receptors in aortic wall reaching its peak during late pregnancy [5].

CONCLUSION

There are some patient-specific risk factors for aortic dissection such as hypertension, previously recognized dilatation of aorta, bicuspid aortic valve, connective tissue diseases especially Marfan syndrome and family history of aortic diseases. In every pregnant or postpartum women, particularly with the risk factors listed above and with sudden onset of chest or back pain, aortic dissection needs to be considered during differential diagnosis. Studies show that precise follow up of pregnant women with hypertension during pregnancy may diminish the overall risk associated with this clinical condition [6]. That is why early diagnosis, pharmacological treatment of hypertension and regular controls of blood pressure levels are an important part of preventing preeclampsia and cardiac related complications.

Article information and declarations

Ethics statement

Ethics approval was not sought for the present study.

Author contributions

Karolina Kurlenko — research, concept, analysis of the results, article draft, corresponding author.

Aleksandra Okroj — research, concept, analysis of the results, article draft.

Ewa Szczerba — concept, article draft.

Piotr Wegrzyn — review of the manuscript.

Przemyslaw Kosinski — concept, article draft.

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Conflict of interest

All authors declare no conflict of interest.

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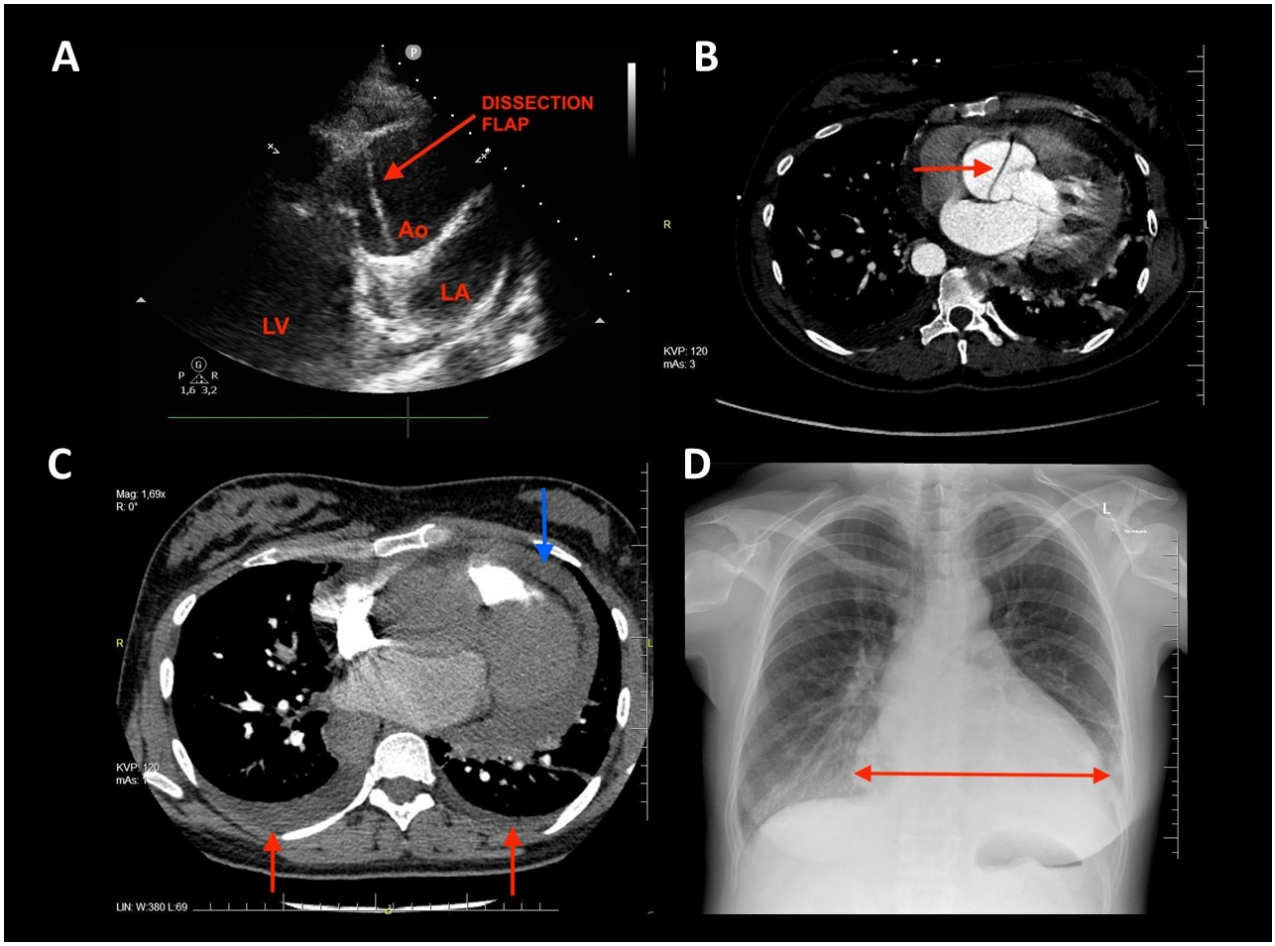

Figure 1. A. Echocardiography showing Stanford type A aortic dissection — dissection flap (red arrow), left atrium (LA), left ventricle (LV), aortic root (Ao); **B.** Chest computed tomography (CT) — type II De Bakey aortic dissection (red arrow); **C.** Chest CT — fluid in the pericardial sac (blue arrow) and both pleural cavities (red arrows); **D.** Chest X-ray — enlarged cardiac silhouette