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Abdominal mask of acute coronary syndrome or ...? The expediency of including abdominal aorta screening in routine echocardiography

Maska brzuszna ostrego zespołu wieńcowego czy ... ? Celowość włączenia badania przesiewowego aorty brzusznej do rutynowego protokołu badania echokardiograficznego

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Abstract

An 86-year-old woman with a history of hypertension, paroxysmal atrial fibrillation, chronic kidney disease, type 2 diabetes and hypothyroidism, was admitted due to weakness and atypical chest pain accompanied by dyspnoea, abdominal pain, vomiting and lack of appetite. Also, a month ago the patient underwent left lower limb erysipelas and reported a 10 kg decrease in body weight over the past year.

On admission, the patient was hemodynamically stable. Electrocardiography revealed sinus rhythm, first-degree atrioventricular block, and persistent ST-segment depression in the anterolateral loads. Biochemical tests revealed elevated high-sensitivity troponin level and high N-terminal pro-B-type natriuretic peptide concentration. Echocardiography showed normal left ventricle systolic function, ejection fraction of 50%, without evidence of significant valvular heart disease. Taking into consideration all of the above, the diagnosis of the acute coronary syndrome was proposed.

Due to the standards applied in our echocardiography protocol (screening of abdominal aorta dimension in people over 65-years-old), a significant widening of the abdominal aorta was found. In computed tomography angiogram, abdominal 57 mm aortic aneurysm with a haemorrhagic thrombus and right iliac aneurysm with a large thrombus with deep ulceration were confirmed.

The whole clinical picture suggests that the patien's complaints resulted from the presence of large abdominal aortic and common iliac artery aneurysms, accompanied by pressure on the adjacent abdominal organs and with a high risk of sudden rupture.

The described case confirms the validity of supplementing routine echocardiographic protocol with a screening assessment of the abdominal aorta, following European Society of Cardiology guidelines. Accurate diagnosis, in this case, protected the patient from acute coronary syndrome invasive treatment, which could result in intensive anticoagulant and antiplatelet therapy implementation and lead to life-threatening complications.

Key words: abdominal aorta screening, echocardiography, people over 65 years

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Introduction

The implementation of abdominal aorta assessment in routine echocardiography protocol is limited. Many factors, like insufficient time for examination and abdominal obesity, might contribute to this current state. However, thinking outside of the box and looking for a different cause of a patient's symptoms is extremely important in everyday practice. Therefore, European Society of Cardiology (ESC) guidelines from 2014 emphasize the usefulness of abdominal aortic aneurysm screening [1].

Case report

86-year-old woman with a history of hypertension, paroxysmal atrial fibrillation, chronic kidney disease in G4 Kidney Disease Improving Global Outcomes stage, type 2 diabetes and hypothyroidism was admitted due to weakness with atypical chest pain accompanied by dyspnoea, abdominal pain, vomiting and lack of appetite. Also, a month ago the patient underwent left lower limb erysipelas and reported a 10 kg decrease in body weight over the past year.

On admission, the patient was hemodynamically stable. Physical examination revealed small wounds covered with necrotic crusts on the left lower limb. Electrocardiography (ECG) revealed sinus rhythm 64 beats/minute, first-degree atrioventricular block, and persistent ST-segment depression in the anterolateral loads.

In biochemical tests elevated high-sensitivity troponin level and high N-terminal pro-B-type natriuretic peptide (NT-proBNP) concentration were revealed. Echocardiography showed normal left ventricle systolic function, ejection fraction of 50%, without evidence of significant valvular heart disease. Due to the standards applied in our echocardiography protocol (screening of abdominal aorta dimension in people over 65-years-old), a significant widening of the abdominal aorta was found (Figure A). In computed tomography angiogram, abdominal aortic aneurysm up to 57 mm with an 82 mm length haemorrhagic thrombus and right iliac aneurysm up to 64 mm, with a large thrombus with deep ulceration were confirmed (Figure B).

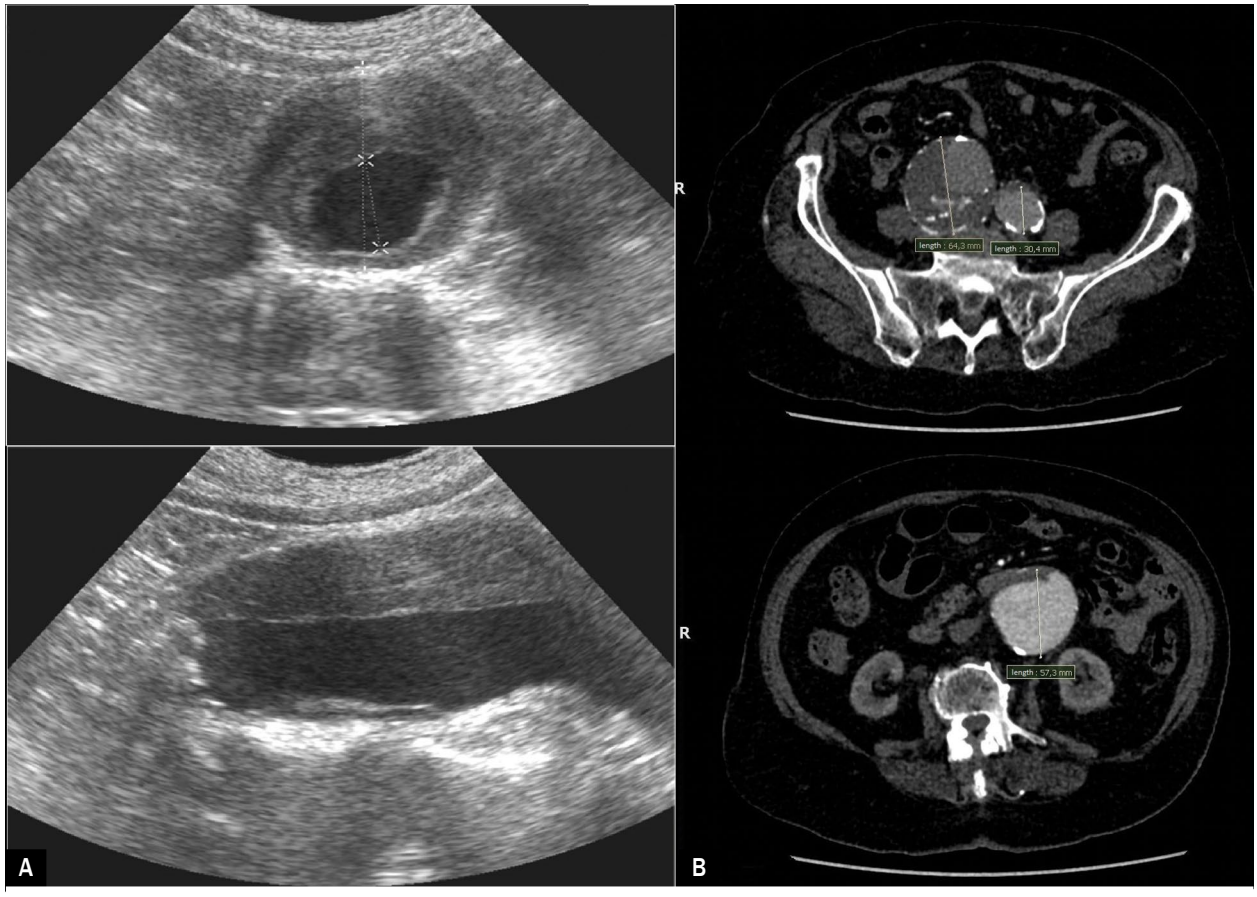

Figure 1. Abdominal aortic aneurysm with haemorrhagic thrombus (**A** — ultrasound; **B** — computed tomography angiogram) and right iliac aneurysm with a large thrombus with deep ulceration (**B** — computed tomography angiogram)

Discussion

The main question is what was the cause of the complaints reported by the patient?

The whole clinical picture suggests that the patient's complaints resulted from the presence of large abdominal aortic and common iliac artery aneurysms, accompanied by pressure on the adjacent abdominal organs and with a high risk of sudden rupture. This was not a typical picture of an acute coronary syndrome — as claimed initial diagnosis.

Vascular surgeon consultation resulted in disqualification from classical surgical treatment due to a very high risk of the procedure, as well as from transvascular treatment due to the tortuous course of the vessels.

Conclusions

The described case confirms the validity of supplementation the routine echocardiographic protocol with a screening assessment of the abdominal aorta, following ESC guidelines from 2014 [1]. Furthermore, a beneficial effect of this approach was underlined in the systematic review and meta-analysis of Argyriou et al. [2].

It is worth noting that the proper order of performing imaging tests, contribute to a specific diagnosis. Accurate diagnosis, in this case, protected the patient from acute coronary syndrome invasive treatment, which could result in intensive anticoagulant and antiplatelet therapy implementation and could lead to life-threatening complications.

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Conflict of interests

None of the authors declares conflicts of interest.

Streszczenie

Kobieta w wieku 86 lat, z wywiadem nadciśnienia tętniczego, napadowego migotania przedsionków, przewlekłej choroby nerek, cukrzycy typu 2 oraz niedoczynności tarczycy, została przyjęta do szpitala z powodu osłabienia z towarzyszącymi nietypowymi bólami w klatce piersiowej i uczuciem duszności. Występowały również bóle brzucha, wymioty i brak apetytu. Ponadto w wywiadzie stwierdzono przebytą przed miesiącem różę lewej kończyny dolnej oraz zmniejszenie masy ciała o około 10 kg w ostatnim roku.

Przy przyjęciu chora była stabilna hemodynamicznie. W elektrokardiogramie zarejestrowano: rytm zatokowy, blok przedsionkowo-komorowy I stopnia, przetrwałe obniżenia odcinka ST nad ścianą przednio-boczną. W badaniach biochemicznych stwierdzono podwyższone stężenie troponiny wysokoczułej i wysokie stężenie N-końcowego fragmentu propeptydu natriuretycznego typu B. Echokardiograficznie lewa komora o zachowanej prawidłowej funkcji skurczowej (frakcja wyrzutowa 50%), bez cech istotnej hemodynamicznie wady zastawkowej serca. Na podstawie obrazu klinicznego wysunięto podejrzenie ostrego zespołu wieńcowego.

Ze względu na przyjęte w lokalnej pracowni echokardiograficznej standardy (przesiewowe badanie ultrasonograficzne aorty brzusznej u osób > 65. rż.) stwierdzono istotne poszerzenie aorty brzusznej. W angiografii tomografii komputerowej potwierdzono tętniak aorty brzusznej do 57 mm z półokrężną skrzepliną oraz tętniak prawej tętnicy biodrowej z dużą skrzepliną z cechami głębokiego owrzodzenia.

Całość obrazu klinicznego sugerowała, że dolegliwości pacjentki wynikały z obecności dużego tętniaka aorty brzusznej i tętnicy biodrowej wspólnej, z towarzyszącym uciskiem na sąsiadujące narządy jamy brzusznej i wysokim ryzykiem nagłego pęknięcia.

Opisany przypadek potwierdza zasadność uzupełnienia protokołu rutynowego badania echokardiograficznego o przesiewową ocenę szerokości aorty brzusznej, zgodnie z wytycznymi Europejskiego Towarzystwa Kardiologicznego. Jednocześnie właściwe rozpoznanie uchroniło pacjentkę przed leczeniem inwazyjnym ostrego zespołu wieńcowego, co skutkowałoby wdrożeniem intensywnego leczenia przeciwzakrzepowego i przeciwpłytkowego i mogłoby doprowadzić do groźnych dla życia powikłań.

Słowa kluczowe: badanie przesiewowe aorty brzusznej, badanie echokardiograficzne, osoby po 65. roku życia

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