A pseudoaneurysm of the ascending aorta associated with aorta-coronary artery saphenous graft

Tętniak rzekomy aorty wstępującej związany z żylnym pomostem aortalno-wieńcowym

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Abstract

Ascending aortic pseudoaneurysms are very rare entities generally occurring after heart surgery associated with cannulation for cardiopulmonary pump or aorta-coronary artery graft implantation. The pseudoaneurysm should be treated due to the potential risk of expanding, penetrating to adjacent tissues and rupturing. We present a case with a pseudoaneurysm of the ascending aorta associated with aorta-coronary artery saphenous graft, which is a rare but an important entity.

Key words: pseudoaneurysm, ascending aorta, therapy.

Streszczenie

Tętniaki rzekome aorty wstępującej występują bardzo rzadko, głównie u pacjentów po operacjach kardiochirurgicznych, w których używane są kaniule do krążenia pozaustrojowego lub wszywa się pomosty aortalno-wieńcowe. Tętniaki rzekome powinny być leczone z uwagi na potencjalne ryzyko powiększenia się tętniaka, penetracji do okolicznych tkanek lub pęknięcia. Przedstawiamy przypadek tętniaka rzekomego aorty wstępującej związanego z żylnym pomostem aortalno-wieńcowym, co jest rzadkim, ale istotnym zagadnieniem.

Słowa kluczowe: tętniak rzekomy, aorta wstępująca, leczenie

The 83-year-old man had suffered from chest pain and exercise dyspnoea for 3 years. He was operated on for coronary artery disease 10 years ago. Three months ago, a VVIR mode pacemaker was implanted because of 3rd degree AV block. He was admitted to our clinic with non-ST elevation myocardial infarction and we decided to perform coronary angiography (CAG). Coronary angiography revealed left anterior descending artery (LAD) occluded at the mid portion and a functional LIMA-LAD bypass. Critical stenosis was observed which was not feasible for angioplasty at the obtuse marginal branch of the circumflex artery (LCx). The right coronary artery (RCA) was ectatic and occluded at the distal part and also the aorta-RCA saphenous graft was occluded. A wondering large, radio-opaque pouch with a narrow neck was seen just caudal to the aorta-RCA saphenous graft ostium. The cranial part of the pouch was full-filled by opaque, but not the caudal part, due to thrombus, and the border was just revealed by the calcification line (fig. 1, 2). The edge-to-edge diameter of the pouch was 32 mm. The pouch was assessed as an ascending aortic pseudoaneurysm (AAP). We planned to occlude it via transcatheter intervention but the patient deceased by sudden cardiac death.

Pseudoaneurysm results from the interruption of layers of the aortic wall; the wall of the pseudoaneurysm is formed by either the remaining layers of the aortic wall or the adjacent structures of the mediastinum. Ascending aortic pseudoaneurysm s are very rare entities, generally occurring after heart surgery associated with cannulation for cardiopulmonary pump or aorta-coronary artery graft implantation. Also, infection and cystic medial necrosis are other possible predisposing factors for pseudoaneurysm formation [1, 2]. Diagnostic tools include aortography, multi-slice computed tomography and cardiac magnetic resonance imaging. The pseudoaneurysm should be treated due to the potential risk of expanding, penetrating

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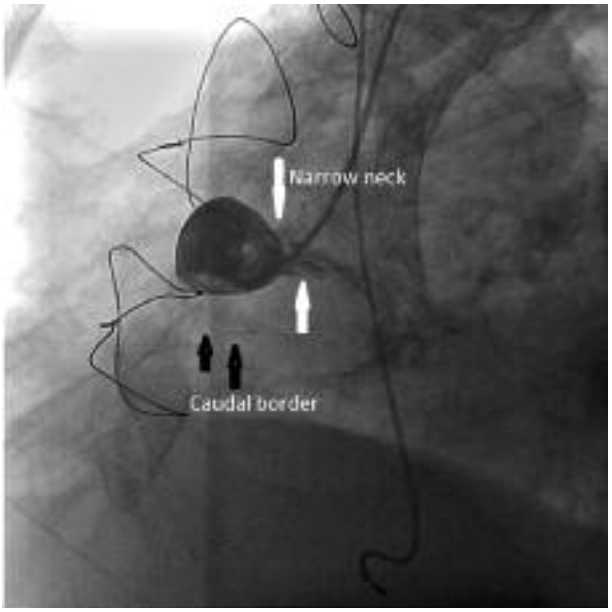

Fig. 1. Aortic pseudoaneurysm with a narrow neck from left anterior oblique view
Ryc. 1. *Widoczny tętniak rzekomy aorty z wąską szyją. Widok w projekcji lewej, przedniej skośnej*

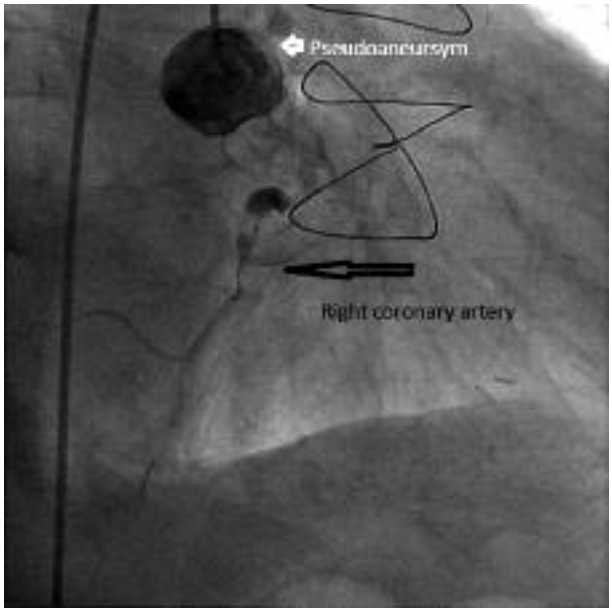

Fig. 2. Aortic pseudoaneurysm dyed just after the right coronary artery imaging from anterior-posterior cranial view
Ryc. 2. *Tętniak rzekomy aorty uwidoczniony bezpośrednio po obrazowaniu prawej tętnicy wieńcowej. Projekcja przednio-tylna dogłowowa*

to adjacent tissues and rupturing. Because of localization at the posterior of the sternum and non-encapsulated nature, surgery of the postoperative AAP is of high risk. Transcatheter closure of AAP with high success rate and safety with different devices such as the Amplatzer atrial septal occluder [3] and vascular plug [4] have been reported in the last decade.

References

1. Sullivan KL, Steiner RM, Smullens SN, et al. Pseudoaneurysm of the ascending aorta following cardiac surgery. Chest 1988; 93: 138-143.
2. Razzouk A, Gundry S, Wang N. Pseudoaneurysms of the aorta after cardiac surgery or chest trauma. Am Surg 1993; 59: 818-823.
3. Hussain J, Strumpf R, Wheatley G, Diethrich E. Percutaneous closure of aortic pseudoaneurysm by Amplatzer occluder device-case series of six patients. Catheter Cardiovasc Interv 2009; 73: 521-529.
4. Scholtz W, Jategaonkar S, Haas NA. Successful interventional treatment of a retrosternal pseudoaneurysm of the ascending aorta with an Amplatzer Vascular Plug II. J Invasive Cardiol 2010; 22: E44-E46.