

Left brachiocephalic vein occlusion in a patient with ascending aortic aneurysm: the dilemma of pacemaker implantation

Niedrożność lewej żyły ramiennie-głowej w przebiegu tętniaka aorty wstępującej: dylemat dotyczący wszczepienia stymulatora

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Successful cardiac electronic device implantation is determined by the patency and suitable anatomy of the vascular route used for cardiac lead insertion. The most common cause of vascular occlusion is prior, inflammation-induced thrombosis of the subclavian vein. Innominate veins, or brachiocephalic veins (BCV), are rarely affected by this condition, and BCV occlusion of non-thrombotic aetiology is even less common. We present a rare case of asymptomatic occlusion of the left BCV, detected while evaluating the indications for cardiac implantable electronic device therapy. In 2014, a 77-year-old female with breast cancer was admitted to our clinic to be evaluated for cardiac pacemaker implantation before long-term cancer treatment with cardiotoxic drugs. Cardiac pacing was considered due to electrocardiographic evidence of ventricular asymptomatic pauses up to 3.2 s in the presence of chronic atrial fibrillation. In 2005, the patient had had a thrombotic event in the left internal jugular vein. In 2012, she had undergone a supracoronary graft implantation due to ascending aortic aneurysm. Chronic antithrombotic treatment was initiated and maintained at therapeutic doses. Considering the patient's history and the resulting likelihood of post-thrombotic lesions in the veins used for cardiac lead insertion, an exploratory contrast venography was performed. The procedure revealed a complete occlusion in the initial segment of the left BCV, slightly inferior to the left internal jugular vein and the left subclavian vein. The presence of rich collateral circulation suggested the occlusion had occurred in the distal part (Fig. 1). A computed tomography scan demonstrated left BCV occlusion by the enlarged aortic arch (Fig. 2A, B). As the ventricular pauses were asymptomatic, the idea of pacemaker implantation was abandoned. Instead, it was proposed that heart rate be controlled during mastectomy with IV drugs and/or temporary pacing. Left BCV occlusion is a rare condition, detected during diagnostic or therapeutic procedures involving cardiovascular catheterisation or lead insertion via veins located in the upper left part of the chest. The case described here suggests the need to conduct a prior evaluation of the left BCV in patients with a surgically corrected, or uncorrected, aortic aneurysm. Left BCV occlusion in this case was responsible for a change in the nature and scope of the initial treatment plan.

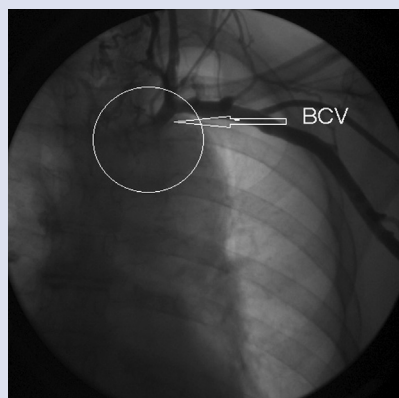


Figure 1. Venography — contrast agent administration illustrating a complete occlusion in the initial segment of the left brachiocephalic veins (BCV)

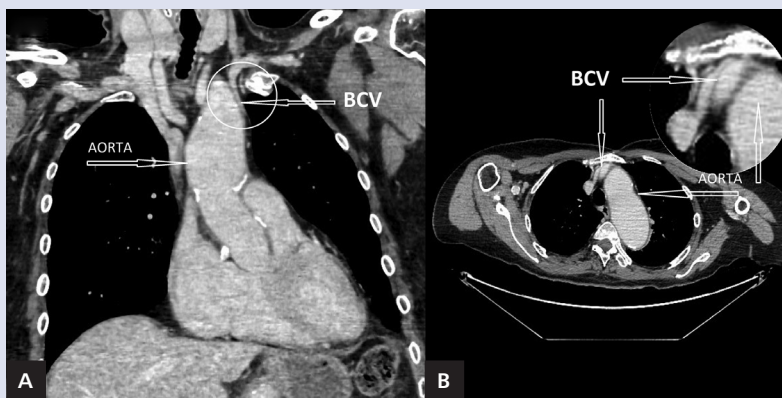


Figure 2. Computed tomography; **A.** Coronal plane: flattened left brachiocephalic veins (BCV), moulded by the enlarged aortic arch; **B.** Transverse plane: slit-like lumen of the left BCV due to the enlarged stent-fortified aorta

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