PERSISTENT LEFT SUPERIOR VENA CAVA IN PATIENT WITH PAROXYSMAL ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA

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Persistent left superior vena cava (PLSVC) is a rarely occurring congenital anomaly with the incidence of 0.3% in general population. This anomaly results from the persistence of the left anterior cardinal vein. In 90% of cases blood from PLSVC flows into the coronary sinus and then to the right atrium. It may complicate the placement of central vein catheters in the jugular and subclavian veins and, as such, cardiologists should be aware of the existence of this anatomic variant. Here we describe an adult patient with persistence of the left superior vena cava identified during made echocardiography test in a 57-year-old male patient with paroxysmal atrioventricular nodal reentrant tachycardia (AVNRT) who was admitted to a cardiac ward on a regular basis for ablation procedure.

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Key words: persistent left superior vena cava, atrioventricular nodal reentrant tachycardia.

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PLSVC — persistent left superior vena cava, AVNRT — atrioventricular nodal reentrant tachycardia.

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СТОЙКАЯ ЛЕВАЯ ВЕРХНЯЯ ПОЛАЯ ВЕНА У ПАЦИЕНТА С ПАРОКСИЗМАЛЬНОЙ АТРИОВЕНТРИКУЛЯРНОЙ УЗЛОВОЙ РЕЕНТЕРАБЕЛЬНОЙ ТАХИКАРДИЕЙ

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Стойкая левая верхняя полая вена (PLSVC) является редко встречающейся врожденной аномалией с частотой 0,3% в общей популяции. Это приводит к аномалии с сохранением левой передней кардинальной вены. В 90% случаев кровь из PLSVC впадает в коронарный синус и затем в правое предсердие. Это может осложнить размещения центральных венозных катетеров в яремной и подключичной венах и, об этом анатомическом варианте кардиологи должны быть осведомлены. Здесь мы опишем взрослого пациента с сохранной левой верхней полой веной, выявленной в ходе эхокардиографии, сделанной 57-летнему пациенту мужского пола с пароксизмальной атриовентрикулярной узловой возвратной тахикардией (AVNRT), который был госпитализирован в кардиологическое отделение на регулярной основе для проведения исследования.

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Ключевые слова: стойкая левая верхняя полая вена, пароксизмальная атриовентрикулярная узловая реентерабельная тахикардия.

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A 57-year-old male patient with paroxysmal atrioventricular nodal reentrant tachycardia (AVNRT) was admitted to a cardiac ward on a regular basis for ablation procedure. The patient's history revealed fast heart rate episodes for several years, arterial hypertension treated for five years, hyperlipidemia and peptic ulcer disease. Physical examination showed a regular heart rate of 70bpm, quiet systolic murmur over the mitral valve and normal breath sounds. Resting ECG showed no abnormalities. A routine transthoracic echocardiography revealed concentric left ventricular wall thickening and moderate mitral valve regurgitation. Special attention was paid to an untypical accessory structure detected in the left atrium area (Figure 1). Transthoracic echocardiography was performed in order to expand the diagnostic process. The investigation showed the vessel directly adjacent to the left atrium. The doppler examination showed flow inside the structure, yet without a visible connection with the left atrial cavity (Figure 2). A congenital venous anomaly was suspected in the form of persistent left superior vena cava. X-ray fluoroscopy was done to confirm the type of the anomaly. Administration of contrast into the peripheral vein of the left superior limb resulted in visualization of the investigated structure followed by visualization of the coronary sinus. Electrophysiological examination was done due to AVNRT previously documented in ambulatory ECG investigations. Programmed atrial stimulation repetitively induced nodal reentrant tachycardia with a ventricular rate of 140bpm. Radiofrequency ablation of slow pathway modified the conduction and caused a lack of inducibility of the tachycardia in control programmed stimulation.

Persistent left superior vena cava (PLSVC) is a rarely occurring congenital anomaly with the incidence of 0.3% in general population [1]. In the majority of cases the anomaly is asymptomatic, but it is frequently (12%) accompanied by other malformations such as atrial septal

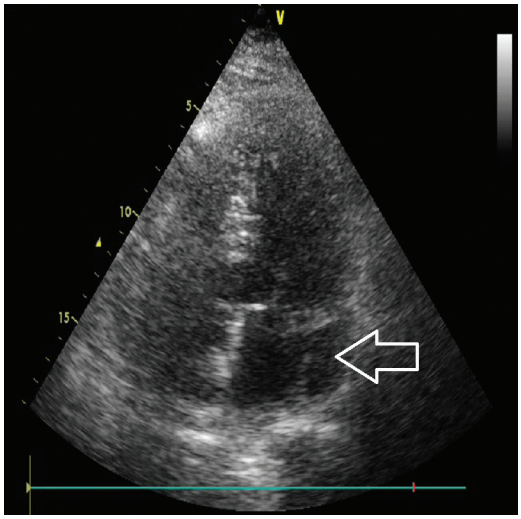

Figure 1. Transthoracic examination, four-chamber view. Persistent left superior vena cava (PLSVC) visible as an untypical accessory structure in the left atrium area.

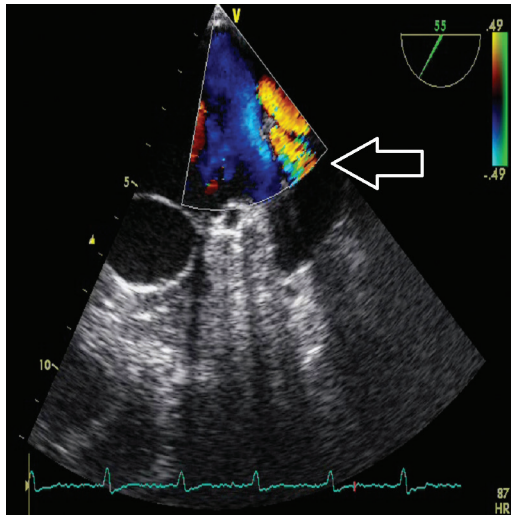

Figure 2. Transesophageal echocardiography, mid esophageal view 55º. Accessory structure between left atrial appendage and left upper pulmonary vein.

defect, ventricular septal defect, aortic coarctation, transposition of the great vessels, tetralogy of Fallot, anomalous connections of the pulmonary veins or single atrium [1, 2, 3]. In 90% of cases blood from PLSVC flows into the coronary sinus and then to the right atrium. In the remaining 10% of cases, the PLSVC is directly connected to the left atrium. Superior vena cava mostly occurs in the hypoplastic form (82-90%) [1]. In the presented case, PLSVC coexisted with the anomaly in the heart conduction system — an accessory pathway in atrioventricular node causing AVNRT.

Summarizing, attention should be paid to this rare developmental anomaly due to a possible difficulty in superior vena cava access in the case of medical procedures and a possibility of the coexistence of other cardiac pathologies. In the presented case, PLSVC was accompanied by an accessory pathway in atrioventricular node.

References

1. Povoski SP, Khabiri H. Persistent left superior vena cava: review of the literature, clinical implications, and relevance of alterations in thoracic central venous anatomy as pertaining to the general principles of central venous access device placement and venography in cancer patients (Review). World J Surg Oncol 2011; 9:173.
2. Granata A, Andrulli S, Fiorini F, et al. Persistent left superior vena cava: what the interventional nephrologist needs to know. J Vasc Access 2009; 10(3): 207–11.
3. Goyal SK, Punnam SR, Verma G, Ruberg FL. Persistent left superior vena cava: a case report and review of literature. Cardiovasc Ultrasound 2008; 6(1): 1-4.