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Embolinin Potansiyel Kaynağı Olarak Septal Poş

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SUMMARY

Septal Pouch As A Potential Source Of Emboli

Double atrial septum is a rare anomaly in which there is a double-walled atrial septum with a persistent midline space between the two atria. Left-sided obstructive anomalies and embolic events were associated with double atrial septum. Incomplete fusion of septum secundum and septum primum results in a pouch and slow flow pattern that can be a potential source of emboli. We presented a 22-year-old male patient with transient ischemic attack and septal interatrial pouch, which was a distinct space between two atriums, as a potential source of emboli.

Key words: *Septal pouch; Transient ischemic attact*

ÖZET

Çift atrial septum nadir görülen ve her iki atriyum arasında kalıcı bir boşluk ile çift duvarlı atrial septumdan oluşur. Sol taraflı tıkayıcı anomaliler ve embolik olaylar çift atrial septuma eşlik eder. Septum sekundum ve primumun tam olmayan birleşmesi embolinin potansiyel bir nedeni olan poş ve yavaş akım paternine neden olabilir. Biz embolinin potansiyel bir nedeni olarak her iki atriyum arasında kalıcı bir boşluk olan septal intertarial poş ile birlikte geçicici iskemik atak geçiren 22 yaşında erkek bir hastayı sunduk.

Anahtar Kelimeler: *Septal poş; Geçici iskemik atak*

Introduction

Double interatrial septum (IAS) is a rare anomaly in which there is a double-walled atrial septum with a persistent midline space between the two atria. Left-sided obstructive anomalies and embolic events were associated with double atrial septum. Incomplete fusion of septum secundum (SS) and septum primum (SP) results in a pouch and slow flow pattern that can be a potential source of emboli. We presented a 22-year-old male patient with transient ischemic attack and septal interatrial pouch, which was distinct space between two atriums, as a potential source of emboli.

Case Report

A 22-year-old man was admitted to neurology clinic with a complaint of sudden-onset right-sided hemiparesis, aphasia and numbness first time. His symptoms terminated in one hour. ABCD2 score for TIA was 3. He has not any potential risk factor for embolism such as diabetes mellitus, family history, hypertension, cigarette smoking, dyslipidemia and coagulation system abnormalities. His blood pressure and heart rate were normal. There was nothing remarkable on his physical examination and routine blood sample tests (complete blood count, fasting blood glucose, serum electrolytes, LDL-cholesterol, HDL-cholesterol and thyroid function tests). Thrombophilic risk factors including Protein C, Protein S was in normal limits. An electrocardiography revealed a sinus rhythm. Holter ECG for 24 hours didn't reveal any arrhythmias. For further evaluation immediately after TIA he underwent brain computerized tomography, magnetic resonance imaging, magnetic resonance angiography and carotid Doppler ultrasonography respectively. All of these were in normal limits. Clopidogrel and acetyl salicylic acid was started after TIA. He was referred to our cardiology clinic to evaluate the cardiac source of emboli after transient ischemic attack. Transthoracic echocardiography revealed a small lesion in the interatrial septum without other abnormalities (Figure 1A). Transesophageal echocardiography was performed two weeks later after TIA. It showed a high mobile membrane adjacent and parallel to the IAS . We defined anatomic and blood flow features by transesophageal echocardiography. We described isolated double IAS that is the orifice from the left atrium was unrestrictive, but the orifice to the right atrium was restrictive. We showed turbulent flow with colour Doppler at the orifice of the pouch as an evidence of low circulating flow within it (Figure 1B). Intravenous agitated saline contrast injection excluded the presence of patent foramen ovale (PFO) or interatrial septal defect (ASD) (Figure 1C). In order to better define the cardiac and IAS anatomy a cardiac magnetic resonance imaging scan was performed. Magnetic resonance imaging confirmed normal cardiac structure except double IAS (Figure 1D). The presented case demonstrates a rare, previously unrecognized cause for thrombus formation within the interatrial septum in the absence of PFO and ASD for peripheral embolism.

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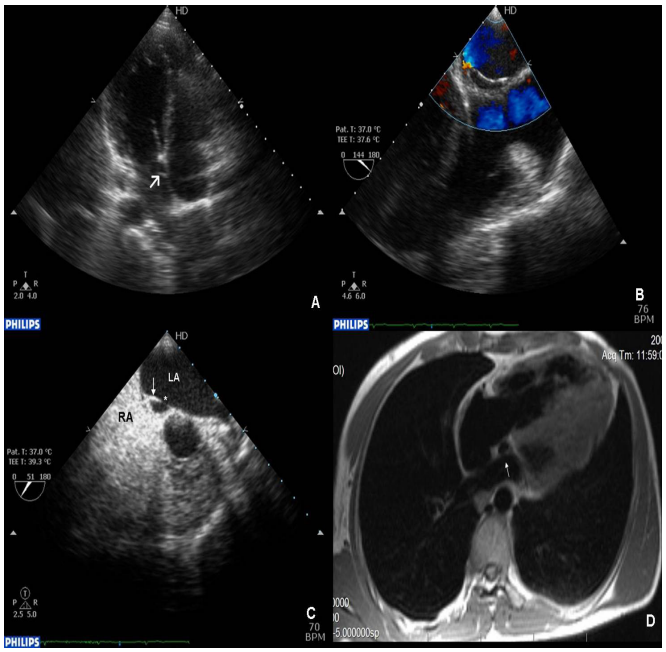

Resim 1: Transthoracic echocardiography showing a small lesion in the interatrial septum (A), colour flow doppler revealing turbulence at the orifice of double IAS at the transoesophageal echocardiographic bicaval view (B), agitated saline injection demonstrating absence of patent foramen ovale or atrial septal defect (C), cardiac anatomy and the interatrial pouch at cardiac magnetic resonance imaging (D) arrow: septal pouch; *:orifice of the septal pouch; RA:right atrium; LA:left atrium

Discussion

Double atrial septum with persistent IAS is a very rare anomaly that may be associated with left obstructive anomalies, pulmonary venous obstruction, or benign small left-to-right atrial shunt (1). Persistence of the embryologic left venous valve derived from the embryologic sinus venosus and abnormal duplication or persistence of either the primum or secundum atrial septal tissue are two possible causes double IAS (1). Cor triatriatum sinistrum is a rare congenital malformation, accounting for 0.1-0.4% of congenital heart disease, characterized by an abnormal fibromuscular membrane which subdivides the left atrium into two chambers (2). In the medical literature, there were five cases of adult cor triatriatum presenting as embolic stroke (four cases) or arterial embolism (one case) (3). Both pathology have a third chamber which can be possible source of embolism in the left atrium but the two are different anomalies. Echocardiography precisely defines the important anatomic and blood flow features in them.

To our knowledge a few double IAS cases reports were published. Roberson DA et al. reported four left-sided obstructive anomalies in patients with double IAS but absent in our patient (1). Two patients with double IAS were previously described but there was no report of echocardiographic features of this malformation (4,5). Fetal hemodynamics alternations caused by this anomaly suggested possible mechanism of obstructive anomalies (1). Therefore, it is clear that in some cases there is no major impairment of fetal blood flow patterns or left heart development. Older double IAS patients with only small left-to-right shunts were not clinically significant.

The anatomic features of double atrial septum are parallel atrial septal structures that form a distinct space between the two atria. A few cases with that anomaly have been reported, most of them with PFO and in some cases with other cardiac malformations. We evaluated cardiac anatomy for cardiac anomalies. Magnetic resonance imaging confirmed normal cardiac anatomy except double atrial septum. Transesophageal echocardiographic study was performed in order to define better the anatomy and assess for other anomalies. We prove the absence of PFO and ASD by agitated saline contrast transesophageal echocardiography. It displayed a high mobile membrane adjacent and parallel to the interatrial septum with slow flow into its chamber. One patient without PFO suffered a transient ischemic attack in the literature. In this case as in our case that low circulating flow was present into the third chamber (6). Incomplete fusion of septum secundum and septum primum results in a pouch and slow flow pattern that can be a potential source of emboli. Most important condition associated with double IAS is embolic complications. The patients with a history of systemic embolization should be ruled out other sources of embolism. Stasis at that distinct space may be a potential source of embolism. Coronary embolism was reported in a patient with double atrial septum (7). Operators should be aware of this anomaly during transseptal interventions. We speculate the possible mechanism of emboli as a result of low flow within this third chamber and ‘‘septal pouch’’, which is the result of the incomplete fusion of the septum primum and septum secundum so it may result the formation of thrombi. It represents the main dilemma in its clinical management. Depending on whether the patient is normal sinus rythm, which can be potentially source of systemic embolic complication.

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