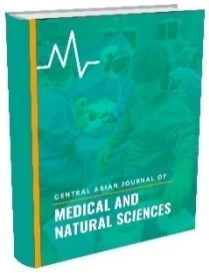
CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES



Volume: 02 Issue: 04 | Jul-Aug 2021 ISSN: 2660-4159

http://cajmns.centralasianstudies.org

Diagnostic Features Abnormal Drainage of Pulmonary Vines

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Received 28th May 2021,
Accepted 29th Jun 2021,
Online 30th Jul 2021

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Abstract: The incidence of abnormal drainage of the pulmonary veins (ADPV), has been described. Despite the success in the surgical treatment of abnormal pulmonary vein drainage some issues of the clinical diagnosis of this defect remain unresolved. In this regard, the study of the clinical course and diagnostic methods of ADPV, is relevant, which makes it possible to timely identify the defect, rational planning of the examination and choosing the optimal method of correction. In specialized cardiac surgery clinics Andijan State medical institute (ASMI) and Republican Specialized Scientific Practical Center for Surgery (RSSPCS) them. Acad. V.V.Vakhidov, 214 patients with various types of ADPV were examined, in 173 cases there was a partial ADPV and in 41 - TADPV. The diagnosis of the defect was based on the analysis of a set of data from traditional and special research methods, including echocardiography, catheterization of the cardiac cavities with angiocardiography, and MSCT with angiography was performed in 18 patients.

Keywords: cardiac surgery, abnormal drainage of the pulmonary veins (ADPV), total abnormal drainage of the pulmonary veins (TADPV), congenital heart disease (CHD), right atrium (RA), pulmonary hypertension (PH), angiocardiography (ACG).

INTRODUCTION

Abnormal pulmonary vein drainage (ABDV) is a complex and relatively rare congenital heart disease (CHD) characterized by the flow of one or more pulmonary veins into the right atrium (RA) or its tributaries. In isolation, the defect is rare. In most cases, ADPV is associated with an atrial reversal defect (ARD). According to various authors, ADPV ranges from 0.6% to 9% among all CHD [1, 4, 17]. It is customary to distinguish between partial ADPV (TADPV), when one or several pulmonary veins (but not all) flow into the RA or the main veins of the systemic circulation, and total ADPV (TADPV), characterized by drainage of all pulmonary veins into the right heart. With forms of defect, the inflow of the pulmonary venous system of the systemic circulation occurs at different levels. Depending on this, four types of defect are distinguished according to the generally accepted classification of R. Darling et al, [16]: Type I supracardial - the pulmonary veins enter the vena cava superior (VCS) or its tributaries; Type II cardiac - pulmonary veins flow into the PN or coronary sinus (CS); III type infracardial - pulmonary veins flow into the inferior vena cava or its tributaries; Type IV mixed - drainage of the pulmonary veins occurs in the two above levels.

To date, the issues of surgical treatment of ADPV have been largely resolved, as evidenced by the publications of recent years [1,3,9,10,11,14]. However, despite the success in the surgical treatment of ADP, some issues of the clinical diagnosis of this defect remain not fully resolved. In this regard, the study of the clinical course and diagnostic methods of ADPV is relevant, which makes it possible to timely identify the defect, rational planning of the examination and choosing the optimal method of correction.

Material and methods

In specialized cardiac surgery clinics (ASMI) and (RSSPCS) them. Acad. V.V.Vakhidov, 214 patients with various types of ADPV were examined, among them there were 86 men and 128 women. The patients' age ranged from 5 to 42 (on average 12.1- 0.11) years. Of the 214 examined patients, 173 cases were diagnosed with PADPV and 41 with TADPV. The diagnosis of the defect was based on the analysis of a set of data from traditional and special research methods, including echocardiography, catheterization of the cardiac cavities with angiocardiography (ACG), and MSCT with angiography was performed in 18 patients.

Research results and discussion

The clinical manifestations of PADPV depend on the volume of the discharge of blood, the duration of its existence, the degree of pulmonary hypertension (PH), concomitant defects and the size of the ASD, the degree of hemodynamic disturbance. In the clinical course, the partial and total forms of ADLV significantly differed from each other. Thus, patients with PADPV complained of shortness of breath, palpitations during exercise and increased fatigue, and in patients with TADPV the complaints were more intense, in 1/3 of patients they were observed at rest. General examination of 214 patients examined by us in 12 patients with TADPV revealed cyanosis of the skin, which intensified after physical exertion, however, some authors [1,2] note that cyanosis occurs more often. On examination, it is possible to establish a deformation of the chest in the form of a "heart hump" that was observed in 11% of cases, an increase in the heart beat - in 32% of cases. When analyzing the anamnestic data of the residents, we found that 78% of the patients had frequent colds. Heart disease in the majority of patients (67%) with PADPV was detected at an older age, which shows a relatively favorable course of this form.

In patients with TPADPV, in most cases, the defect was accompanied by heart failure, more often from birth [12]. According to some authors, at least 70% of patients with TPADPV die before the age of one [2,13,16]. The auscultatory picture of the defect was characterized by a systolic murmur of moderate intensity along the left edge of the sternum with an epicenter of 2-3 m / r, an increase in 2 tones over the pulmonary artery (PA) with its splitting regardless of the phases of respiration.

These auscultatory signs were typical for many CHD with arteriovenous discharge, but some authors [2] note an increase in 1 tone and the appearance of an additional 3 tone. According to NA Belokon, VP Podzolkov et al [5], in the later stages a gentle systolic murmur appears over the LA. However, in our observations, these auscultatory signs were not observed. The intensity of 2 tones over the LA depended on the degree of PH [15]. Electrocardiographic data did not provide an accurate diagnosis of ADPV: almost all patients had a deviation of the electrical axis of the heart to the right, signs of hypertrophy of the right ventricle and right ventricle (RV), as well as overload of the latter. The degree of these changes depended on the amount of blood discharge and the duration of the defect. According to VI Burakovsky and L.A Bokeria [1,4], patients with TADPV often have a high "P" wave in 11 standard right chest leads, which characterize RP overload; we observed these violations in 40% of the surveyed. Despite the low information content of the electrocardiography, I.B. Dvinyaninov and G.U. Malsagov [6] noted characteristic ECG signs for ADLV, characterized by a higher voltage of the R wave in the right chest leads and a longer P-Q distance, more pronounced hypertrophy of the right heart than in ASD.

Echocardiographic examination showed signs of volume overload of the right heart, enlargement of the RV and expansion of the PA in 90% of the patients examined by us. revealed indirect signs of arteriovenous discharge. In 90% of the examined, the left heart was relatively small and displaced back, which is characteristic of this defect [15]. However, these signs did not allow to establish an accurate ADLV. Despite this, A.V. Ivanitsky et al. [7] F. Girard with sauvt. [17] Some diaphognomonic echocardiographic signs are distinguished: so if in two-dimensional echocardiography, in addition to the above changes, ASD looks small or generally poorly differentiated, then this gives reason to suspect abnormal drainage of the pulmonary veins. Another very significant sign that allows us to propose this diagnosis is the absence on echocardiography of several or all of the orifices of the pulmonary veins (LL) in the projection of the left atrium in TADLV; a more valuable diagnostic feature is the detection of enlargement of the CS mouth on echocardiography. However, a similar picture can be observed when the accessory SVC flows into the coronary sinus. Another diaphognomonic sign of TADPV is the location of the PV collector behind the left atrium [7,17]. In general, the diagnostic "rating" of echocardiography in ADPV is not very high, although, according to N.A.Belekon and VP Podzolkov [5]; F. Girard et al. [17], transesophageal echocardiography is quite informative.

X-ray semiotics of ADPV is richer and contains a number of pathognomotic signs [8]. So, common to the types of defect are signs of an increase in pulmonary blood flow according to the arterial type, although with TDLV there is also a venous type of increase in pulmonary blood flow; the shadow of the heart is enlarged due to the RV and RV, and the left sections are usually not enlarged or hypoplastic, especially in TADPV.

With various anatomical variants of ADPV, the possibilities of non-contrast radiography are ambiguous. Along with general X-ray manifestations, there are pathognomonic symptoms that in some cases make it possible to suspect or recognize certain types of ADPV. So, in the supracardial type of PAPV, studying the architectonics of the pulmonary vessels, one can find an atypical arrangement of the pulmonary veins running more horizontally than normal, and a local expansion of the SVC shadow [7,8,16]. The indisputable X-ray sign of the supracardial type of TADPV is the presence of the so-called “figure eight” or “snow woman” symptom in the anterior - posterior projection. The cardial type of ADLV practically does not have specific radiological signs, and only with TADPV in the coronary sinus in some patients on radiographs in the left lateral projection it is possible to reveal the compression of the contrasting esophagus by the dilated CS. The infracardial type of ADLV is characterized by the presence of the so-called “scimitar” symptom [16, 18], or the Muslim sword, which is formed by a saber-shaped shadow in the middle zones of the lower pulmonary field on the right. In some cases, we used MSCT-angiography to examine patients with ADPV, which made it possible to clarify the diagnosis and determine the tactics of surgical treatment.

Taking into account our observations, we can conclude that abnormal venous drainage is a rare and complex birth defect of the heart, the diagnosis of which can be suspected by conventional X-ray methods and confirmed with the help of other studies. Probing of the right heart with ECG allows you to clarify the diagnosis and determine the tactics of surgical treatment. MSCT angiography of the chest is a highly informative, minimally invasive diagnostic method that allows you to clearly and accurately visualize the type of abnormal drainage, the course and place of the manifold confluence, the presence of anastomoses with the left heart, which directly affects the determination of the tactics of surgical correction of the defect. In the postoperative period, the use of MSCT - angiography of the chest organs makes it possible to evaluate the results of surgical treatment.

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