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Case Report Open Access

A Case of Highly Developed Chiari Network Mimicking a Right Atrial Thrombus

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Abstract

The Chiari network is a rare anatomical variant with no clinical consequences. His discovery is fortuitous to echocardiography. We report a case of a highly developed Chiari network in a 54-year-old patient who presented diagnostic confusion.

Keywords: Chiari network; Echocardiography

Introduction

The Chiari network represents an embryological vestige of the right valve of the coronary venous sinus. It is an anatomical variant found in 1 to 3% of normal hearts [1]. It is usually without clinical manifestation [2]. However, it can sometimes pose a diagnostic problem. In principle, this structure does not cause pathological conditions, although it has been blamed for the formation of thrombi in the right atrium and pulmonary embolism, arrhythmias and sometimes a physical barrier to invasive procedures [1,3]. We report a case of highly developed Chiari network that caused diagnostic confusion in echocardiography.

Case Report

This is a 54-year-old patient who consults at around 2 AM in the emergency room for discomfort with brief unconsciousness, no urine loss or tongue-biting. The patient declares that this discomfort occurred as soon as his sudden raising of the bed. In his antecedents, one notes the Lyme disease and the cyst of the left foot. He regularly practices physical activity 6 to 8 hours of cycling a day.

The clinical examination showed a regular bradycardia at 50 beats/min, a respiratory frequency rate at 18 cycles/min, a blood pressure at 130/70 mmHg at both arms, a temperature at 36.2°C. There was no peripheral sign of heart failure. The orthostatic hypotension test was negative.

The Electrocardiogram (ECG) recorded a regular sinus bradycardia at 45 cycles/min, an incomplete right limb block. No trouble repolarization (Figure 1).

In biology, the ultra-sensitive troponin was normal at 8 ng/l (normal <50 ng/l), the D-dimer was normal at 310 ng/l. The rest of the biological assessment was without abnormalities.

Echocardiography Transthoracique (ETT) objectifying an image hyperechoic snaking, movable in the right atrium (Figure 2). The systolic function of both ventricles was preserved. There were no significant valvulopathies.

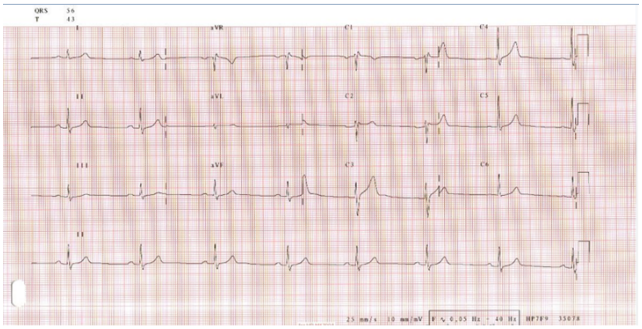

Figure 1: Regular sinus bradycardia at 45 cycles/min, incomplete right limb block.

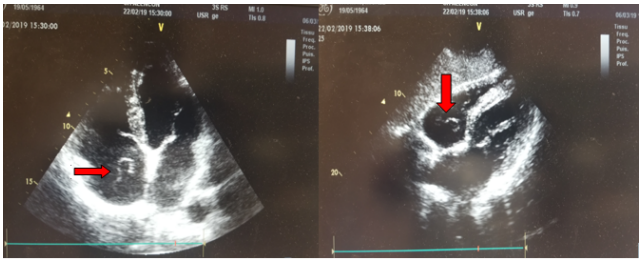

Figure 2: Image of transthoracic echocardiography showing the highly developed Chiari network (arrow).

Transesophageal Echocardiography (TEE) also found that image hyperechoic mobile serpentine, its base insertion at the side face of the right atrium and to the stoma of the inferior vena cava of sessile appearance (Figure 3).

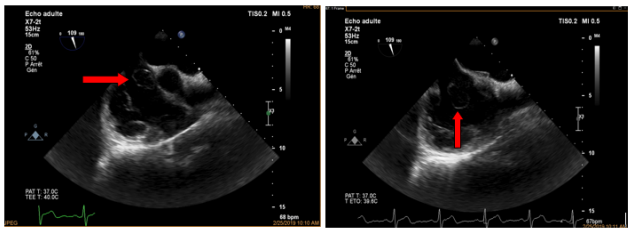

Figure 3: Image of transo-esophageal echocardiography showing a hyperechoic mass, mobile, serpentiform (Chiari network highly developed) arrow.

The CT angiography of the supra aortic trunks and Thorac imaging and cardiac Magnetic Resonance Imaging (MRI) t stay without abnormalities. Chiari's highly developed network diagnosis was retained. The patient was observed for three days. There was no recurrence of discomfort and a return home was allowed.

Discussion

The network Chiari was described for the first time in 1875 by Von Rokitansky [4]. The first cases were published by Chiari H [4] in 1897 by the findings on 11 patients a network of abnormal fibers in the right atrium.

It is more precisely the persistence of thin or thick musculo-membranous fibers originating from the Eustachi valve or the Thebesius valve (at the opening of the inferior vena cava or of ostium of the coronary sinus) and focusing on the top or side of the right atrium, the inter atrial septum or more rarely the tricuspid valve [1,5,6]. His discovery is mostly fortuitous and without clinical translation. This is the case of our patient who had no clinical examination. In our patient, his discomfort would probably be due to a lesser inhibition of baroreceptors than was observed during the abrupt transition from the supine position to the standing position. Transthoracic echocardiography and transesophageal echocardiography are essential contributions to the diagnosis of this anatomical structure. The Key elements noted on echocardiography that distinguish Chiari network include identification of at least two normal-appearing tricuspid valve leaflets and the presence of a rotary, highly mobile target that does not move into the right ventricular outflow tract or the right ventricle during diastole. While typically considered a benign anatomical variant, it has been associated with cardiac pathologies such as arrhythmia, paradoxical emboli, persistent patent foramen ovale, formation of an atrial septal aneurysm, a thrombi formation and entrapment of thrombi or catheters. However, other tests including cardiac magnetic resonance imaging (MRI) and 3D echocardiography can be used as a diagnostic tool [5]. Differential echo cardiographic diagnosis should be done with an artifact, a wide and redundant of Eustachi valve, but especially with a mass in the right atrium, a tricuspid cordage or rupture, an interatrial septal aneurysm, and a small thrombus [1,2,5]. The management consists of surveillance as in our case. But in some situations surgery may be proposed.

Conclusion

The Chiari network is a normal anatomical structure. It is without clinical translation. His diagnosis is usually fortuitous, discovered on echocardiography. Its management is usually surveillance.

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