Case Report

Pamukkale Medical Journal
doi:https://dx.doi.org/10.31362/patd.1248280

Rheumatic carditis presented with only palpitation

Sadece palpitasyon ile kendini gösteren romatizmal kardit

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Posted date:06.02.2023 Acceptance date:05.05.2023

Abstract

Acute Rheumatic Fever (ARF) remains a serious public health problem and is common in the developing countries. Arrhythmias such as atrioventricular nodal blocks, premature beats, accelerated nodal rhythm, ventricular tachycardia and Torsades de pointes can be seen in the early stages of the disease.

We present a case of narrow QRS tachycardia in which palpitation was the only symptom of rheumatic carditis. After the disease became inactive with acetylsalicylic acid treatment, the tachycardia returned to normal sinus rhythm.

Key words: Child, rheumatic carditis, tachycardia.

Aslan E, Karadeniz C. Rheumatic carditis presented with only palpitation. Pam Med J 2023;16:506-509.

Öz

Akut Romatizmal Ateş (ARF) ciddi bir halk sağlığı sorunu olmaya devam etmektedir ve gelişmekte olan ülkelerde yaygındır. Atriyoventriküler düğüm blokları, erken atımlar, hızlanmış nodal ritim, ventriküler taşikardi ve Torsades de pointes gibi aritmiler hastalığın erken evrelerinde görülebilir.

Romatizmal karditin tek semptomunun çarpıntı olduğu bir dar QRS taşikardisi olgusunu sunuyoruz. Asetilsalisilik asit tedavisi ile hastalık inaktif hale geldikten sonra taşikardi normal sinüs ritmine döndü.

Anahtar kelimeler: Çocuk, romatizmal kardit, taşikardi.

Aslan E, Karadeniz C. Sadece palpitasyon ile kendini gösteren romatizmal kardit. Pam Tıp Derg 2023;16:506-509.

Introduction

Acute rheumatic fever (ARF) remains a serious problem for public health, and it is common in developing countries. It has a wide range of presentation and in some settings it can appear a dramatic event. Various rhythm problems such as first, second and third-degree atrioventricular blocks, premature contractions, accelerated junctional rhythm, ventricular tachycardia, and Torsades de pointes may occur during the acute stage of the disease [1-4]. The exact mechanism of conduction disturbances is unknown.

We present a case of narrow QRS tachycardia in which palpitation was the only symptom of rheumatic carditis. After the disease became inactive with acetylsalicylic acid treatment, the tachycardia returned to normal sinus rhythm.

Case report

A 10-year-old girl was referred to the paediatric cardiology department owing to palpitation for three hours. Her initial vital signs revealed a blood pressure of 122/72 mmHg, heart rate of 136 beats per minute (bpm), respiratory rate of 22 breaths per minute, and a temperature of 36.8°C. A grade 1/6 systolic murmur was at the left sternal border. She had no history of druge use, joint pain and/or arthritis; but it was reported of sore throat over the past three weeks prior to the presentation. An electrocardiogram (ECG) in the emergency room revealed narrow and regular QRS tachycardia (130 bpm). Accelerated nodal tachycardia or sinus tachycardia with first degree AV block with excessively long PR interval were suspected because the p wave was not clearly seen

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(Figure 1a). Transthoracic echocardiography revealed that, there was trace mitral valve regurgitation 8 mm in length, visible only at one view, no cardiac chamber enlargement (left ventricle end-diastolic diameter was 42 mm) and normal contractility (ejection fraction 68%, shortening fraction 38%). When AV nodal blocking via administered adenosine (100 µg/kg) to explain the rhythm, atrial sinus beats with 80 bpm were remained. Then the narrow QRS tachycardia repeated with 130 bpm short after again. (Figure 1b).

Laboratory investigations revealed neutrophilic leukocytosis (WBC 17.750/mm^3, N 82%), elevation of erythrocyte sedimantation rate (ESR) and C-reactive protein (CRP) (106 mm/hr, 27.8 mg/L (n<5), respectively), and elevated antistreptolysin O (ASO) titer 1230 IU/mL (n<200). Other biochemical laboratory findings, including level of troponin I, thyroid functions and serum electrolits were normal. It was conducted that laboratory examinations to the causes of elevations of the acute phase reactants. Peripheral smear, viral seralogy and urine examinations were normal. Chest radiography and abdominal ultrasound revealed also normal.

A first episode of ARF is diagnosed when a patient has evidence of recent streptococcal infection in addition to either two major or one major and two minor criteria according to the Modified Jones Criteria [5]. To be considered carditis, which is the major criterion, pathological mitral regurgitation must meet all four criteria: seen in at least two views, jet length ≥2 cm in at least one view, peak velocity >3 m/s, pansystolic jet in at least one envelope [5]. In addition to tachycardia, our patient had trace mitral valve regurgitation that did not meet the criteria for carditis, however she had elevated acute phase reactants. Although it did not meet the Modified Jones Criteria to diagnose ARF, we suspected rheumatic carditis because we could not found any other reason that lead to tachycardia and increased acute phase reactants. In addition, the ASO titer was also high. Finally, the diagnosis was considered as sinus tachycardia with first degree AV block with excessively long PR interval, secondary to rheumatic carditis. Acethylsalisilic aside (80 mg/kg/day) was administered for suspected inflammatory etiology. At the fourth hour of follow-up, the rhythm formed to sinus with 80 bpm with first degree atrioventricular (AV) block (PR:280 ms) (Figure 1c). Acethylsalisilic aside remained for two weeks, then progressively reduced followed two weeks and stopped. Electrocardiogram performed on fourth day after admission showed a sinus rhythm with a normal PR interval duration.

At the fourth month of follow-up just with penicillin prophylaxis, the patient had trace mitral regurgitation, and normal ECG with no complaints.

Signed informed consent forms were obtained from the parents of the patient.

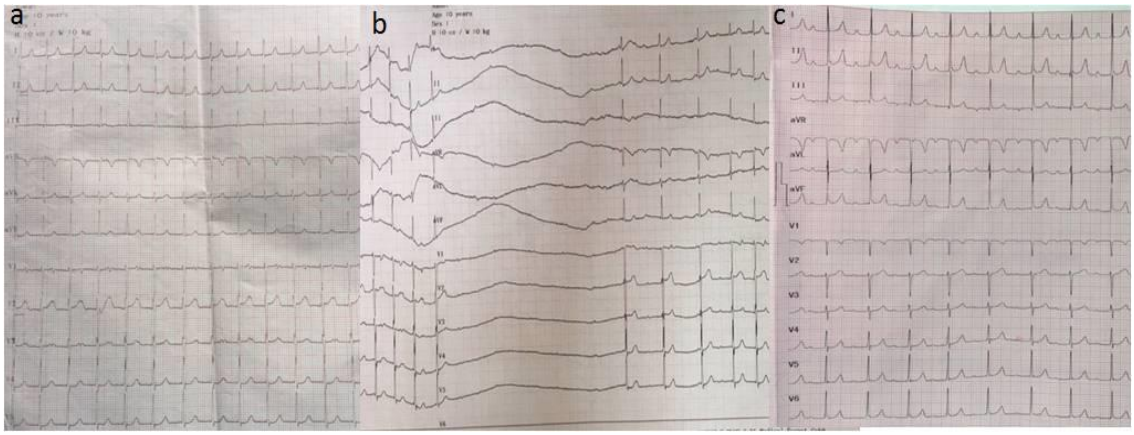

Figure 1. (a) The electrocardiogram of the patient showing narrow QRS tachycardia with a heart rate of 130 beats/min, (b) atrial beats remained 80 beats/min after adenosin administration, (c) first degree AV block with PR (280 msec) after acethylsalisilic aside treatement

Discussion

First degree AV block is a minor criterion in the Modified Jones Criteria [6]. Although not among the criteria, rhythm disorders such as second or third degree atrioventricular blocks, ventricular tachycardia, Torsades de pointes can also be seen [3, 4, 7]. In cases where no other cause of rhythm disturbance can be found, it may be considered to expand the definition of mitral regurgitation according to Doppler findings and to diagnose ARF.

Presence of arrhytmia was significantly related to the presence of carditis [8]. However, most rhythm problems are independent of valvular involvement, and they are thought to be due to inflammation of the myocardium and myocardial oedema. The tachycardia may occur in both rheumatic carditis and viral myocarditis. Unlike viral myocarditis affecting myocytes, rheumatic carditis seems to be less destructive on myocyte, which supported by the lack of myocardial necrosis observed in biopsy specimens from patients with active rheumatic carditis [9]. The authors preferred the term “myocyte degeneration” instead of “myocyte necrosis” on their histologic specimens [9]. This sparing affect on myocytes does not result in elevated troponin levels in acute rheumatic carditis [10]. In our patient there was only a trace mitral valve regurgitation, high levels of acute fase reactants, normal troponin level and narrow QRS tachycardia (130 bpm), considered in rheumatic carditis. Polat et al [11] found that QT dispersion increased in rheumatic fever and Kucuk et al. [12] showed that increased transmural dispersion of ventricular repolarisation parameters (Tp-e) which interval between the peak and the end of the T wave, can be used as an index of transmural dispersion of ventricular repolarisation which may lead to ventricular dysrhythmia. Inflamed myocardium is prone to dysrhythmia, and anti-inflammatory therapy may be beneficial in the treatment of dysrhythmias. After beginning the acethylsalisilic aside treatment, the rythym formed to sinus (80 bpm), with the first degree AV block (PR:280 ms). Most rhytm problems are temporary and self-limited to the acute stages of the disease and resolve completely with anti-inflammatory treatment by healing the myocardium [3]. With acetylsalicylic acid treatment, first degree AV block gradually resolved in four days.

In conclusion various types of rhythm disturbances may develop in the acute stages of rheumatic carditis. We present a rare case of AV nodal tachycardia following first degree AV block associated with rheumatic carditis. This diagnosis should be considered in patients, even though when there is not evidence with other features of ARF. Conduction disorders associated with rheumatic carditis often resolve following anti-inflammatory treatment.

Conflict of interest: No conflict of interest was declared by the authors.

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Informed consent: Written informed consent was obtained from the patient.

Authors' contributions to the article

E.A. constructed the main idea of the study. E.A. and C.K. developed the theory and arranged/edited the material and method section. E.A. and C.K. has done the evaluation of the data in the Results section. Discussion section of the article written by E.A. C.K. reviewed, corrected and approved the article. In addition, all authors discussed the entire study and approved the final version.