A rare case of acute rheumatic fever with three different types of atrioventricular blocks in the same patient

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ABSTRACT

Acute rheumatic fever (ARF) is a systemic autoimmune disease that results from abnormal immune response to group A streptococcus (GAS) pharyngitis. Although first degree atrioventricular (AV) block is the most common rhythm problem associated with the disease other conduction abnormalities also could be seen. We reported three different types of conduction defects (First-degree AV block, second-degree AV block and complete AV block) in a 15 years old case diagnosed with ARF. 15 years old male patient presented with palpitation. Physical exam findings were unremarkable except dysrhythmic heart sounds. Acute phase reactants were positive, and electrocardiogram showed second degree type I AV block at hospital admission. In the second day of admission right first metatarsophalangeal arthritis as well as arthralgia involved both knees and ankles developed. Echocardiography revealed moderate rheumatic mitral regurgitation. First degree AV block with brief complete AV block episode was seen on 24 hours rhythm Holter recordings. Based on clinical and laboratory findings acute rheumatic fever diagnosis was made and anti-inflammatory therapy (naproxen sodium) with benzathine penicillin G was started to the patient. First degree AV block lasted 3 weeks and other conduction disorders were not seen again. First, second and complete AV block could be seen during acute rheumatic fever episode and acute rheumatic fever should be considered as a one of causes of arrhythmias.

Keywords: Acute rheumatic fever; atrioventricular block; arthritis.

A acute rheumatic fever is still one of the most common causes of acquired cardiac morbidity and mortality worldwide. Major and minor Jones criteria are used to diagnose the disease [1]. It is well known that acute rheumatic fever affects heart conduction system and frequently causes first degree AV block which is one of Jones minor criteria. Higher degree AV block, supraventricular tachycardia, atrial/ventricular ectopic beats, bundle branch block and accelerated nodal rhythm are other rarely reported rhythm disturbances. Although more than one conduction abnormalities were reported in the same patient with the disease, three different types of AV block in the same episode is very rare reported case to our knowledge.
CASE REPORT

Palpitation was the chief complaint of 15 years old male patient who visited emergency department. Two weeks ago, antibiotic was prescribed to him as he had sore throat and fever, but he was not compliant with the treatment. Physical examination findings were normal except dysrhythmia during emergency examination. Electrocardiogram showed 74 beat PER minute ventricular rate with second degree type I AV block (Fig. 1). In medical history, tonsillectomy was performed to the patient at 6 years old because of frequent tonsilopharyngitis, and patient’s mother had rheumatic heart disease. In the laboratory studies, C-reactive protein (CRP) was 13 mg/dl (Normal range: <5 mg/dl), anti-streptolysine O (ASO) was 599 IU/ml (Normal range: <250IU/ml) and erythrocyte sedimentation rate (ESR) was 77 mm/hour. Echocardiography revealed moderate rheumatic mitral valve regurgitation. Cardiothoracic ratio was %47 on the chest X-ray. Arthralgia on both knees and ankles as well as right first metatarsophalangeal arthritis developed on the third day of admission. Fulfilled two major, one minor criteria in the presence of supporting evidence of GAS infection, the case was diagnosed with acute rheumatic fever. Anti-inflammatory therapy with naproxen sodium (20 mg/kg/day, BID) and antibiotic therapy with benzathine penicillin G were started. Brief episode of complete A V block was seen on 24 hours rhythm holter (Fig. 2) and the rest of the record demonstrated marked first-degree AV block (Fig. 3, PR interval: 320 ms). Prompt resolution of joints manifestations was observed in the second day of anti-inflammatory therapy. The PR interval was prolonged during the acute phase of the disease, but PR interval shortened (135 msec) after normalization of acute phase reactants.

One week after discontinuation of anti-inflammatory treatment, PR interval prolonged to 220 msec again meanwhile acute phase reactants were elevated. These findings were explained with ARF relapse. Anti-inflammatory therapy was resumed and administered for 3 weeks. PR interval returned to normal once acute phase reactants were normal. This case has received penicillin prophylaxis since he was diagnosed with ARF and his outpatient visits has been made regularly for 6 months. During follow-up, dysrhythmias was not seen again neither on ECG nor on 24-hour rhythm Holter recordings. Informed consent was obtained from patient and family for this study.

DISCUSSION

Acute rheumatic fever remains the most common cause of acquired heart disease in some countries in the world. The most common conduction abnormality associated with the disease is first degree AV block which is also one of minor criteria [2–4]. The incidence of first-degree AV block during acute rheumatic fever episode has been reported between 34.2% and 72.3% [5, 6]. In addition to first-degree AV block, advanced degree AV blocks, junctional rhythm, premature atrial contractions, ventricular extrasystoles and ventricular/supraventricular tachycardias were observed in acute rheumatic fever patients [2–
We presented an uncommon case diagnosed with ARF and three types of AV block. The lesson we learnt from this experience is that ARF should come to mind when one encounters with particularly first-degree AV block but also other type of AV blocks. Twenty-four-hour rhythm Holter monitorization is a useful tool to reveal rhythm abnormalities in ARF patients.

**Informed Consent:** Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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**REFERENCES**


