

A new presentation of sick sinus syndrome in two-month old infant

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Abstract: Sick sinus syndrome is rare in childhood, has low possibility of detection and a high risk to surgery. A two-month infant was presented with agitation, syncopal attacks and lack of consciousness, poor feeding, paleness and hiccups. After some diagnostic approaches like Electrocardiography, Electroencephalography and electrocardiography Holter monitoring by rejecting some other problems like seizure, detection was successfully performed and surgery was did.

Keywords: Sick sinus syndrome, infant, childhood, diagnostic approach, surgery.

INTRODUCTION

Sick sinus syndrome is a disease commonly occurs in adults or elderly mostly associated to underlying cardiac disease; in childhood the condition is rare. Also in children, we can mostly find this condition through cardiac surgery due to congenital anomalies which can be the result of injury to sinoatrial node or its blood supply. In this case we present a two-month old boy with sick sinus syndrome presented with syncopal symptoms and lack of consciousness. The patient was given ineffective therapy with the diagnosis of seizure, because of the normal EKG and ruling out the cardiac origin of these symptoms. Although sick sinus syndrome should be minded as a result of such symptoms even in pediatric cases.

CASE REPORT

A two-month old boy in Imam Khomeini Hospital was presented with agitation, syncopal attacks and lack of consciousness, poor feeding, paleness and hiccups. The symptoms were first detected at birth. His Electrocardiography was normal. In Echocardiography Partial Atrioventricular Septal Defect was detected with large Atrial Septal Defect, large Ventricular Septal Defect, and anterior Mitral Valve Cleft and Mitral regurgitation, normal Pulmonary Arterial Pressure, no Aortic Stenosis and no Aortic Regurgitation. As his Electroencephalography was normal and his cardiac anomaly couldn't fully explain the symptoms, he went through medication for seizure, mostly phenobarbital, since he was one-month old. Although the medication was ineffective. After further investigation and Electroencephalography Holter monitoring typical Sick Sinus Syndrome pattern was presented as shown in Fig 1. In his Electroencephalography Holter monitoring

there was sinus bradycardia accompanied with sinus tachycardia, sinus exit block, ectopic atrial bradycardia with no wide QRS. According to these findings and Chest X-ray Radiography, we diagnosed sick sinus syndrome for the patient and candidate him for permanent Pace Maker at the time, Fig 2. Surgical treatment was established in order to resolve his cardiac anomaly and placing the pace maker.

The patient was relieved completely from symptoms after placing pace maker. His Electroencephalography Holter monitoring after surgery was normal. Also in further follow-up in fourteen months after his surgery no symptom was detected.

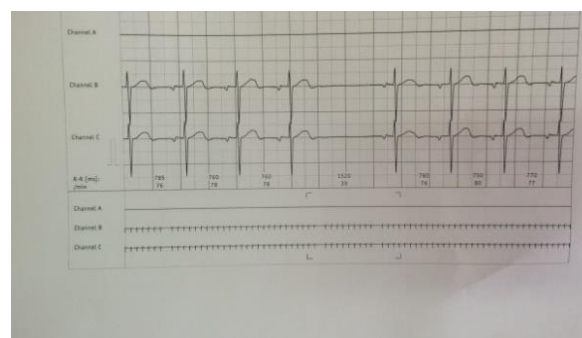


Fig-1: Electroencephalography

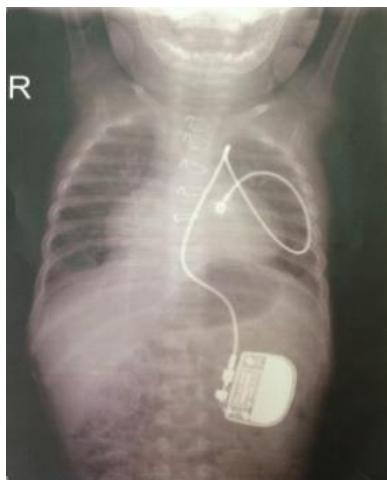


Fig-2: Chest X-ray finding

DISCUSSION

Sick sinus syndrome is a disorder characterized by sinus node dysfunction or atrial conduction pathway, manifested as inappropriate sinus bradycardia, sinus arrest, atrial standstill, tachycardia-bradycardia syndrome, or chronotropic incompetence[1]. The clinical symptoms range from asymptomatic to nonspecific such as palpitations, fatigue, confusion, and even syncope and sudden death[2].

It is mostly occurs in elderly and the condition is rare in childhood[3,4]. However it has been reported in children after intra-atrial surgery due to injury to sinoatrial node or it's blood supply[5]. Sick sinus syndrome also been reported in child without heart disease or other contributing factor[6] but the condition is rare. Congenital sick sinus syndrome can be caused by mutation in the cardiac sodium channel[7]. The treatment usually involve permanent pacemaker implantation in cases presented with symptoms[8].

When a patient presented with nonspecific manifestation such as syncopal attack, agitation and confusion, the most relevant differential diagnosis is central nervous system problem and cardiac problems which can lead to decreased cerebral perfusion.

In this case we performed cardiac investigation and the patient had normal electrocardiography and partial Atrioventricular Septal Defect in Echocardiography. These findings couldn't fully explain the symptoms because there was no left to right shunt in echocardiography that can cause cerebral hypoperfusion. The next relevant diagnosis was seizure in which anti-seizure medication was not effective. The next step was electrocardiography Holter monitoring which lead us to diagnosis of sick sinus syndrome.

It is important that we also have sick sinus syndrome as a differential diagnosis in pediatric cases.

Also we should note that normal electrocardiography cannot rule out Sick Sinus Syndrome.

CONCLUSION

In this case we performed cardiac investigation that negative result for seizure and abnormal electrocardiography Holter monitoring led to diagnosis of Sick Sinus Syndrome and finally a success surgery has done.

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