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Letter to the Editor

Paroxysmal supraventricular tachycardia following DTP and poliomyelitis immunization

Cahide Yılmaz*, Abdurrahman Üner, Mehmet Erol, Ahmet Sami Güven and Hüseyin Çaksen
Department of Pediatrics, Yüzüncü Yıl University Faculty of Medicine, Van, Turkiye

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Arrhythmias including paroxysmal supraventricular tachycardia (SVT), ventricular tachycardia and auricular fibrillation after vaccinations have rarely been reported in the literature [1,2]. Herein, we report on an infant with paroxysmal SVT, which developed following DTP (diphtheria, tetanus toxoids and pertussis), and poliomyelitis immunization because of very rare presentation.

A previously healthy 4-month-old girl was admitted to our hospital with fever, vomiting, and dyspnea. Three days before admission, DPT and oral poliomyelitis immunization were administrated. Aforementioned symptoms initiated about five hours after immunization and the symptoms gradually increased. The personal and family history was unremarkable. On physical examination fever was 35.5°C; pulse rate 220/min; and respiratory rate 100/min. Arterial pressure was too low to be measured. She was in lethargic. She had generalized cutis marmorata, severe respiratory distress, tachycardia, tachypnea, intercostal, subcostal and suprasternal retractions and 3-cm hepatomegaly. On laboratory investigation, hemoglobin was 10 g/dL; leukocyte count 22,000/mm^3; platelet count 455,000/mm^3; and erythrocyte sedimentation rate 4 mm/h. Blood glucose level was 6 mg/dL; serum electrolytes, renal and liver function tests were within normal limits. Blood gas analysis revealed severe metabolic acidosis. Serum antibodies against coxsackievirus and echovirus measured in a French laboratory were unremarkable. Thorax radiography was unremarkable. Electrocardiographic examination revealed SVT. At admission, echocardiographic examination revealed mild dilated cardiomyopathy, and mild pericardial effusion. She was hospitalized with the initial diagnosis of sepsis and cardiac failure. Aside from supportive therapy, she was immediately intubated and antibiotics, digoxin, dopamine, and vecuronium bromide were initiated. She was given ventilation therapy for 4 hours because of severe respiratory distress. In spite of digoxin, SVT was persisted. On the 6th hour of admission, a single dose of verapamil (0.1 mg/kg/dose) was given and SVT was completely improved about 30 minutes after giving verapamil. On the 2nd day of admission, her general condition was better and oral feeding was initiated. On the 6th day of admission digoxin was discontinued and she was discharged from hospital in a good health. She was admitted for control examination two weeks later. During that time, she had no any symptoms, but we did aware of her hypertension. A second echocardiographic examination was

*Correspondence: Cahide Yılmaz, MD, Yüzüncü Yıl University Faculty of Medicine, Department of Pediatric Neurology, Van, Turkiye. Tel.: +90 432 217 61 28; Fax: +90 432 215 04 79; E-mail: cahideyilmaz@yyu.edu.tr.

performed that showed coarctation of aorta, and hypertrophic cardiomyopathy. Coarctation of aorta could not be detected during the first echocardiographic examination because it was performed in emergency and only cardiac functions were globally evaluated. Later on follow-up cardiac catheterization and balloon dilatation was performed. After balloon dilatation systolic gradient on descendent aorta was decreased to 30 mmHg down from 50 mmHg. At the 3rd month of follow up, she is now treated with captopril and symptom- and sign-free for arrhythmia.

In children, SVT may be associated with or without a bypass tract and it may also occur in the presence of un-operated congenital heart diseases. In addition, SVT may be precipitated by exposure to sympathomimetic amines, e.g. in over-the-counter decongestants [3]. Gavrilesco et al. [2] reported an association of ventricular tachycardia and auricular fibrillation after anticholera vaccination. To the best of our knowledge, only one case of paroxysmal SVT following pertussis vaccine has been reported in the literature [1]. In conclusion, we think that paroxysmal SVT was primarily due to pertussis vaccine, but the other vaccines might also precipitate it. Additionally, the presence of coartation of aorta might also contribute to develop paroxysmal SVT because lethal arrhythmia has been reported in an adult patient with coarctation of the aorta and severe heart failure [4].

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