

Aborted Sudden Cardiac Death in a 14-Year-Old Athlete: The Anomalous Coronary Artery

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Conflicts of interest: None to report.

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KEY WORDS

Sudden cardiac death, anomalous coronary artery, athlete

A 14-year old female athlete with no significant medical history was admitted to the pediatric intensive care unit (PICU) after sudden cardiac arrest while playing field hockey. On the day of presentation, she experienced chest pain during a field hockey game and became unresponsive. Cardiopulmonary resuscitation (CPR) was performed by a bystander, and emergency medical services was called. Upon evaluation by paramedics, the initial cardiac rhythm was interpreted as torsades de pointes (Figure 1), and she successfully converted to normal sinus rhythm with defibrillation and administration of intravenous lidocaine. The patient was transported to a local emergency department, where she was intubated for respiratory distress and transferred to the PICU. According to her family, in the past few months the patient had reported chest pain with shortness of breath upon exertion, but it resolved with rest. Results of her last sports physical were normal.

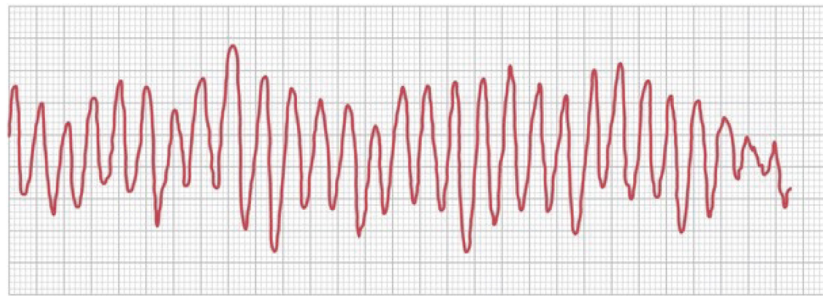
MEDICAL HISTORY

The patient was previously healthy. Her family history was noncontributory; there were no unexplained deaths in the family or a history of collagen vascular disorders or asthma. The patient was not taking any medications, and the family denied a history of drug, alcohol, or substance abuse.

INITIAL PHYSICAL EXAMINATION AND LABORATORY FINDINGS

Upon presentation to the PICU, the following vital signs were obtained: temperature, 36.1°C; pulse, 100 beats per minute; blood pressure, 130/80 mmHg; respiratory

FIGURE 1. An example of an electrocardiogram pattern of torsades de pointes ventricular tachycardia. This figure appears in color online at www.jpmedhc.org.



rate, 15 breaths per minute; and oxygen saturation, 100% ventilated with 60% oxygen. Her growth parameters were age appropriate. Except for a cervical collar in place and pale lips, findings of her head and neck examination were unremarkable. A respiratory examination revealed coarse lung sounds bilaterally with crackles noted in the bases. The patient's respiratory effort was synchronous with the ventilator. A cardiovascular examination demonstrated marginal perfusion with 1+ distal pulses and a capillary refill time of 3 to 4 seconds. A normal S₁S₂ was auscultated with no murmurs, rubs, or gallops. An abdominal examination was unremarkable, and no hepatosplenomegaly was noted. The patient was sedated but able to follow simple commands. Her pupils were equal and reactive to light. No rashes, lesions, or signs of trauma were noted.

Initial laboratory results from the outlying emergency department, presented in the [Table](#), were significant for hyperglycemia and elevated liver enzymes. In addition, arterial blood gas values revealed a mixed respiratory and metabolic acidosis with a pH of 7.12 (normal, 7.35-7.45); carbon dioxide, 55 mmHg (normal, 35-45 mmHg); oxygen, 160 mmHg (normal, 80-100 mmHg); bicarbonate, 17 mEq/L (normal, 21-24 mEq/L); base deficit, -12 mmol/L (normal, -1 to +1); and oxygen saturation, 98.1%.

PICU COURSE

An initial diagnosis of prolonged QT syndrome was made given the initial rhythm noted by emergency medical services, although her corrected QT interval was within normal limits on subsequent

TABLE. Laboratory data

Parameter	Patient's value	Normal value
White blood cell count	17,800/mL	4,500-13,500/mL
Hemoglobin	14 g/dL	12-16 g/dL
Hematocrit	40.7%	37-45%
Platelets	212,000/mL	150-350/mL
Sodium	142 mEq/L	135-147 mEq/L
Potassium	3.8 mEq/L	3.5-5.1 mEq/L
Chloride	109 mg/dL	97-107 mEq/L
Carbon dioxide	23 mEq/L	22-26 mEq/L
Blood urea nitrogen	13 mg/dL	6-20 mg/dL
Creatinine	0.9 mg/dL	0.5-1.0 mg/dL
Glucose	241 mg/dL	60-100 mg/dL
Total calcium	7.3 mg/dL	8.4-10.2 mg/dL
Ionized calcium	1.19 mmol/L	1.18-1.32 mmol/L
Magnesium	1.9 mEq/L	1.26-2.1 mg/dL
Phosphorus	5.1 mg/dL	2.4-4.4 mg/dL
Aspartate aminotransferase	338 U/L	13-45 U/L
Alanine aminotransferase	315 U/L	5-30 U/L
Alkaline phosphatase	298 U/L	100-320 U/L
Total bilirubin	0.3 mg/dL	<1.5 mg/dL
Total protein	6 mg/dL	6.0-8.0 g/dL
Albumin	3.7 mg/dL	3.6-5.2 g/dL

Note. Normal values are expressed in conventional units.

Data from Tschudy, M. M., & Arcara, K. A. (2012). *The Harriet Lane handbook (19th ed.)*. Philadelphia, PA: Elsevier.

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