An unusual finding in a case of syncope

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1 PRESENTATION

A 42-year-old male presented to the emergency department (ED) for syncope. Shortly after an uncomplicated hydrocele aspiration in the urology clinic, he suddenly felt lightheaded and nauseated. He then became diaphoretic, vomited, and experienced a syncopal episode, witnessed by his wife. Per chart review, the patient had atrial fibrillation, but the patient did not convey this to us and was taking no medications. He had no significant family history. Upon arrival to the ED, he was alert and oriented, had a blood pressure of 100/62, heart rate of 78,
This patient has cor triatrium dextrum (CTD) as seen on ultrasound. CTD is a rare congenital heart anomaly where the right atrium is divided into 2 chambers by an incomplete membrane usually made of fetal eustachian and thebesian valves.\textsuperscript{1,2} It represents 0.1% to 0.4% of all congenital heart diseases and can be associated with other congenital heart defects with the most common being ostium secondum atrial septal defect and patent foramen ovale. Although it is typically diagnosed in childhood, a delay in symptom presentation can lead to later diagnoses.\textsuperscript{3} The majority of CTD is asymptomatic and is discovered incidentally during surgery for another pathology or after death in post-mortem exams.\textsuperscript{4} When symptomatic, the presentation may include heart failure, arrhythmia, syncope, cyanosis, pulmonary embolism, and sudden cardiac death.\textsuperscript{5-7} Pediatric literature suggests that syncope in CTD may be owing to pulmonic valve obstruction.\textsuperscript{8,9} Atrial fibrillation, although more common in CTD’s counterpart, cor triatriatum sinister, has been reported previously and warrants consideration of anticoagulant agents.\textsuperscript{10} Management can be expectant, symptomatic treatment or surgical resection.\textsuperscript{11}

In a patient with syncope, the ED differential diagnosis should consider cardiogenic causes of syncope. CTD can be screened through use of echocardiography during standard ED protocols.\textsuperscript{12} The ED where this patient was seen uses the 5 Es as a standardized approach...
to echocardiography. In this approach, Effusion, Ejection fraction, Equality of the ventricle, Exit, and Entrance are assessed, as previously described in literature.\(^\text{13}\) As seen in our report, CTD can best be screened for in the apical 4 chamber and subxiphoid views of the heart. If visualized, cardiology consult is recommended and discharge of the stable patient should occur only if the patient has close follow-up.

Our patient was initially treated with 1 liter of normal saline, 4 mg of IV ondansetron, and 5-325 mg of hydrocodone-acetaminophen. Although his presentation was most consistent with vasovagal syncope, the rare findings seen on echocardiography prompted cardiology consultation and evaluation for high-risk syncope. Further cardiac workup revealed a chest X-ray with cardiomegaly with mild pulmonary vascular congestion, troponin <0.02 ng/mL, and B-type natriuretic peptide 368 pg/mL. Complete blood count and metabolic panel were within normal limits. Cardiology felt that this syncopal event was likely a vasovagal response and unrelated to the patient’s CTD. The patient required promethazine 12.5 mg for nausea and an additional dose of hydrocodone for pain control with complete resolution of symptoms. Our patient was discharged with close cardiology follow-up and referral to cardiothoracic surgery.

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REFERENCES
1. Hussain ST, Pettersson GB. Cor triatriatum dexter in adults: clinical implications. J Thorac Cardiovasc Surg. 2016;151:277-278.
2. Jha AK, Makhija N. Cor triatriatum: a review. Semin Cardiothorac Vasc Anesth. 2017;21:178-185.
3. Humpl T, Reineker K, Manlhiot C, Dipchand AI, Coles JG, McCrindle BW. Cor triatriatum sinistrum in childhood. A single institution’s experience. Can J Cardiol. 2010;26:371-376.
4. Mohd Zainudin A, Tiong K, Mokhtar S. Cor triatriatum dexter: a rare cause of childhood cyanosis. Ann Pediatr Cardiol. 2012;5(1):92-94.
5. Vicol C, Danov V, Struck E. Paradoxical embolism in the presence of right-to-left shunt due to tricuspid occlusion. Ann Thorac Surg. 1995;60:1111-1112.
6. Hussain ST, Mawulwade K, Stewart RD, Pettersson GB. Cor triatriatum dexter: a rare cause of myocardial infarction and pulmonary embolism in a young adult. J Thorac Cardiovasc Surg. 2015;149:e48-e50.
7. Trakhtenbroit A, Majid P, Rokey R. Cor triatriatum dexter: ante-mortem diagnosis in an adult by cross sectional echocardiography. Br Heart J. 1990;63:314-316.
8. Eichholz JL, Hodroge SS, Crook JJ. Cor triatriatum sinister in a 43-year-old man with syncope. Tex Heart Inst J. 2013;40(5):602-605.
9. Lin YJ, Lee PC, Meng CC, Hwang B. Cor triatriatum with repeated episodes of syncope in an eighteen-month-old girl: a rare cause of cardiogenic syncope. Int Heart J. 2005;46(5):915-922.
10. Ullah W, Sattar Y, Rauf H, et al. A systematic review of a long-forgotten cause of atrial fibrillation and stroke: cor triatriatum. Cureus. 2019;11(12):e6371.
11. Shirani J, Kalyanasundaram A, Pourmoghadam KK. Cor tri-atriatum. eMedicine. 2006. http://www.emedicine.com/med/topic458.htm. Acc 2019.
12. Labovitz AJ, Noble VE, Bierig M, et al. Focused cardiac ultrasound in the emergent setting: a consensus statement of the American Society of Echocardiography and American College of Emergency Physicians. J Am Soc Echocardiogr. 2010;23(12):1225-1230.
13. Hall MK, Coffey EC, Herbst M, et al. The “SEEs” of emergency physician-performed focused cardiac ultrasound: a protocol for rapid identification of effusion, ejection, equality, exit, and entrance. Acad Emerg Med. 2015;22(5):583-593.

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