



The *Heart* of the Matter

Cardiology Associates, P.C.

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A Message from Cardiology Associates



Dear Colleagues,

Welcome to the August 2011 Cardiology Associates newsletter. In this edition Dr. Reed Shnider discusses his experience of treating a young man as a visiting physician at the Foundation for African Medicine and Education (FAME) clinic in Karatu, Tanzania. Karatu, an impoverished town with limited access to healthcare, is home to Victor - an adolescent male who at the age of 19 has already been diagnosed with heart disease. Dr. Shnider discusses his diagnosis and treatment of Victor's heart condition and the challenges of working at an isolated facility with

limited resources.

About the Author

Dr. Reed Shnider sees patients in our Olney, MD location. He has a special interest in preventative cardiology and mind-body medicine. Dr. Shnider is board -certified in internal medicine and cardiology. He is the Director of Preventative Cardiology and Wellness at Montgomery General Hospital, an Instructor at Advanced Cardiac Life Support, and a Provider at Advanced Trauma Life Support. Additionally, Dr. Shnider is a Fellow of the American College of Cardiology.

Cardiology Without Borders: Improving Access to Preventative Care



Case Presentation

During my recent trip to Tanzania, I had the opportunity to see and treat patients at the FAME clinic in Karatu. Karatu is a small Tanzanian town on the edge of the Ngorongoro Crater, a place of indescribable beauty, considered to be a prime destination for safaris. The town is a cluster of shanties, unpaved rugged roads, safari lodges, orphanages, and NGOs. Access to water is determined by proximity to wells, which are sprinkled throughout the town. Electricity is sporadic and often interrupted. Chickens, goats, and children roam freely throughout the streets and yards.

FAME Clinic is arguably the only source of credible healthcare within a 50-mile radius. Government hospitals in Karatu and Arusha, a nearby larger town are avoided due to the poor reputation (well-deserved).



The residents of Karatu, Tanzania

Victor P. was a typical example of adolescence in Katau who rarely seek medical care unless severely symptomatic. Victor is a 19-year-old male, member of the Ombay clan within the Iraqw tribe. He presented with fever, shortness of breath, and lower extremity edema occurring over an uncertain period of history, but presumably 5-7 days. Fever, shortness of breath and a nonproductive cough had been noted with subsequent worsening lower extremity edema. Victor is known to have heart disease, which had been noted at the time of previous FAME evaluation. He has been subject to bouts of orthopnea and dyspnea on exertion for 5-6 years and had been treated with a variety of medications in the past but was currently not on medical therapy. A previous cardiologic evaluation was notable for a limited echocardiographic study demonstrating at least moderate mitral valvular stenosis, right ventricular enlargement, well-preserved left ventricular systolic function, and mixed aortic valvular disease. Victor may have experienced episodes of pharyngitis as a child according to his report, but they were almost uniformly untreated with antibiotics. His current review of systems was notable for the absence of arthralgias, rash neurologic symptoms, or chest discomfort. He had been vaguely aware of some irregularity of his heart rate but this was not a predominant symptom.

At the time of his evaluation, Victor's physical exam was remarkable for a temperature of 36.7 C, a blood pressure of 110/70, a heart rate of 110-120 (and regular), and a respiratory rate of 18 and minimally-labored at rest in an upright position. His chest examination was notable for rates at both bases. His cardiovascular examination was notable for prominent parasternal presumed RV heave. Both S1 and S2 were regular with a loud P2 component of S2. A systolic ejection murmur was heard at the left sternal border radiating to the right second intercostal space in the carotids associated with a very soft decrescendo diastolic murmur. Carotid upstrokes were brisk. A systolic murmur was heard at the fourth intercostal space, left of the midsternal line, which was holosystolic in quality and radiated to the axilla.

A diastolic murmur was heard in the same area, which was associated with an early-presumed opening snap and was low-pitched in quality. Abdomen was soft and nontender to palpation. Lower extremities were notable for 2+ bilateral pitting edema without associated induration. The neurologic exam was grossly intact. His EKG was notable for a junctional tachycardia in association with right axis deviation and voltage criteria for right ventricular hypertrophy. Limited laboratories consisted of only a sed rate and CBC. Victor's sed rate was 10, his white count was 11.2, his hematocrit was 37.4, and his platelet count was 416,000. A 2D echo was performed using a portable device, which was able to obtain 2D echocardiographic views and color flows in two dimensions. Unfortunately, a pulse-wave Doppler could not be obtained. A 2D echocardiogram demonstrated markedly enlarged left atrium with an internal dimension of approximately 55 mm in the parasternal view. The mitral valve appeared to be thickened. There was characteristic leaflet motion consistent with rheumatic mitral valvular stenosis with moderate thickening of the subvalvular apparatus. The planimetered valve orifice area was estimated at 0.9-1 cm squared. There was evidence of relatively modest mitral valvular insufficiency. The aortic valve appeared to be thickened but only minimally restricted. Doppler examination suggested relatively mild aortic valvular insufficiency. No significant valvular vegetations were appreciated and no pericardial effusion was noted.

Discussion:

My impression at the time of this evaluation was that Victor was experiencing pulmonary and systemic venous congestion secondary to rheumatic valvular heart disease with a superimposed junctional rhythm. This was likely related to his underlying valvular disease in association with febrile illness. Possibilities such as acute rheumatic fever and subacute bacterial endocarditis were entertained. Acute rheumatic fever appeared unlikely as Victor's clinical presentation was notable for the absence of major criteria (no evidence of pancarditis, migratory arthritis, neurologic symptoms, erythema marginatum or subcutaneous nodules). Minor criteria were notable only for transient fever by history and otherwise were also not observed. Subacute endocarditis remained a possibility; however Victor did not demonstrate gross evidence of valvular vegetation and had no associated findings such as splinter hemorrhages or Osler nodes. His low sed rate was also inconsistent with both endocarditis and acute rheumatic fever. Unfortunately, transesophageal echocardiography was not available and blood cultures also could not be obtained.

Rheumatic heart disease remains common in this region of Africa where strep A infections, namely pharyngitis, are common and are often not treated due to lack of access to medical care. Children will often present with late sequelae such as congestive heart failure triggered by other illnesses. The mainstay of treatment is medical and preventative. Victor was treated with propranolol to address his junctional tachycardia, restore atrial kick, and improve diastolic left ventricular filling. Diuretic therapy was initiated to reduce his lower extremity edema, systemic and pulmonary venous pressure. Oral and parenteral antibiotic therapy for presumed respiratory tract infection was also given in the form of ceftriaxone (IM) and azithromycin (oral) followed by arrangements for monthly IM procaine penicillin to reduce the likelihood of future group A infections.

Programs such as the Renata project (named after a 12-year-old with severe symptomatic mitral stenosis, who recently received surgical intervention in Germany) are targeted at identifying Tanzanian adolescents with symptomatic valvular lesions. This is done through clinical and echocardiographic evaluation. Once at risk patients are identified, the project aims to facilitate percutaneous or surgical intervention at centers in the United States and Europe. Victor will likely be a future candidate for the Renata project.



Dr. Reed Shnider at the FAME clinic

When seen in a follow-up appointment after 1 week post treatment, Victor felt considerably improved. His rhythm had converted to normal sinus with an average heart rate of 60-70. His peripheral edema had resolved and the shortness of breath he had experienced before his treatment had lessened significantly. Victor is scheduled for regular follow-up visits and will continue to receive oral propranolol therapy with monthly penicillin injections. His long-term prognosis, however, remains uncertain and will likely depend on more definitive future therapy such as percutaneous valvuloplasty.

Further information about the Renata project can be obtained through Dr. Reed Shnider at Cardiology Associates. Additional information about the FAME clinic can also be obtained through Dr. Shnider or by accessing the FAME website, www.fameafrica.org.

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