

Unexpected cause of persistent hemolytic anemia

Andrzej Gackowski¹, Katarzyna Zbierska², Bogdan Kapelak³, Jadwiga Nessler¹

¹ Department of Coronary Disease, Jagiellonian University Medical College, John Paul II Hospital, Kraków, Poland

² Jagiellonian University Medical College, Kraków, Poland

³ Department of Cardiovascular Surgery, Jagiellonian University Medical College, John Paul II Hospital, Kraków, Poland

A 66-year-old farmer with 2 old-type Lillehei-Kaster mechanical mitral and aortic valve prostheses implanted 30 years earlier was admitted to the hospital due to a 6-month history of progressing exertional dyspnea (New York Heart Association class III). He had no history of fever or chills. On admission, the patient was

hemodynamically stable, with a slight jaundice. Auscultation revealed an apical systolic murmur. Laboratory tests showed severe anemia (hemoglobin, 87 g/l; red blood cells, $2.5 \times 10^{12}/l$; hematocrit, 0.27; normal eosinophil count), hyperbilirubinemia (49.9 $\mu\text{mol}/l$), and normal serum iron and ferritin levels. Transthoracic and

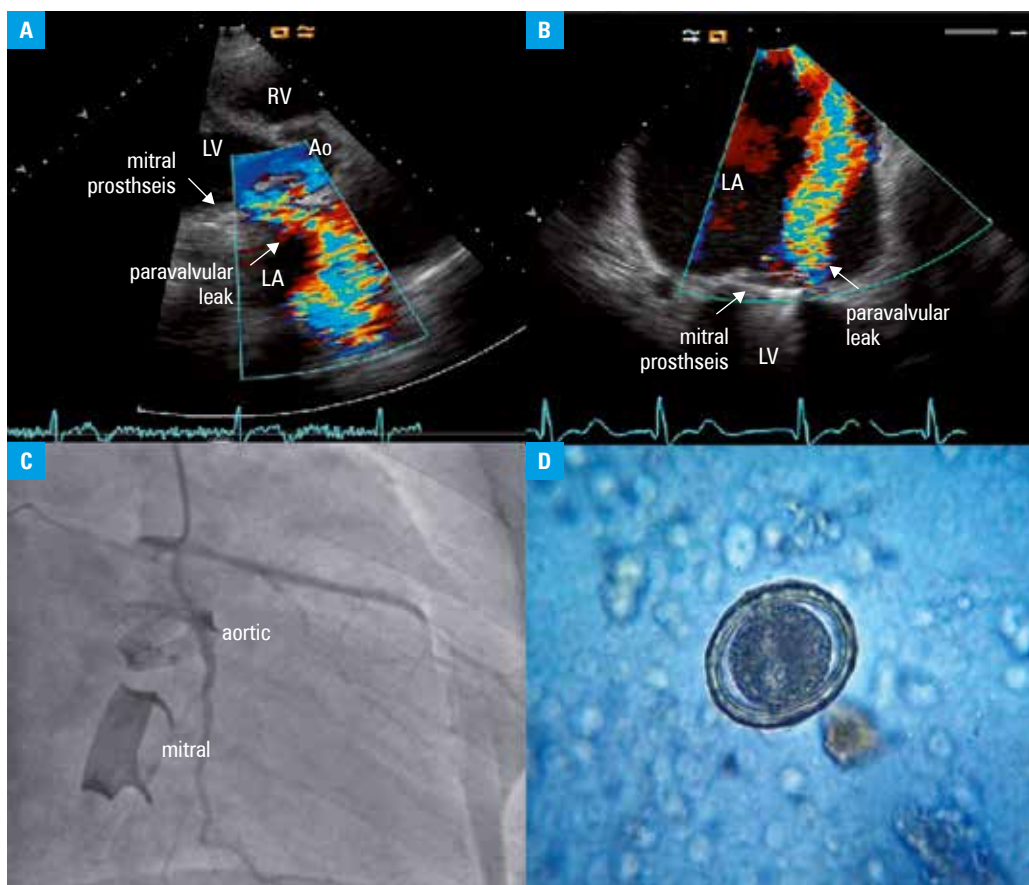


FIGURE 1 **A** – transthoracic echocardiography: mitral paravalvular leak; **B** – transesophageal echocardiography: mitral paravalvular leak caused by prosthesis dehiscence; **C** – coronary angiography: mitral and aortic Lillehei-Kaster prosthetic valves; **D** – microscopy: fertilized egg of *Ascaris lumbricoides*
Abbreviations: Ao – aorta, LA – left atrium, LV – left ventricle, RV – right ventricle

Correspondence to:

Andrzej Gackowski, MD, PhD, FESC,
Instytut Kardiologii, Krakowski Szpital
Specjalistyczny im. Jana Pawła II, ul.
Prądnicka 80, 31-202 Kraków, Poland,
phone/fax: +48-12-633-67-44,
agackowski@szpitalip2.krakow.pl

Received: April 11, 2013.

Revision accepted: April 22, 2013.

Conflict of interest: none declared.

Pol Arch Med Wewn. 2013;

123 (6): 323-324

Copyright by Medycyna Praktyczna,

Kraków 2013

transesophageal echocardiography showed a moderate mitral paravalvular leak with prosthesis dehiscence at approximately 20% of the valve circumference (FIGURE 1AB). No vegetations were found and blood cultures were negative. The rocking motion of the valve ring was confirmed by coronary angiography (FIGURE 1C). Mechanical hemolysis due to paravalvular leak was suspected, and the patient was scheduled for surgical replacement of both valves with biological prostheses. After the procedure, he developed severe low cardiac output syndrome and was treated with catecholamines, prolonged artificial ventilation, hemodialysis, and blood transfusions. Antibiotics were used due to fever, high levels of C-reactive protein, and positive blood cultures (*Staphylococcus haemolyticus*); however, cultures of the removed valves were negative. After 1 month, hemolytic anemia was still present. Due to ascariasis detected in patient's relatives, a stool examination in search for parasites was performed, and multiple eggs of *Ascaris lumbricoides* were found (FIGURE 1D). The patient was treated with albendazole and, after a month, red blood cell count and bilirubin levels were normal. The patient soon returned to his normal activity.

Ascaris lumbricoides is a human roundworm that is one of the most common parasites, infecting 1.2 billion people worldwide.¹ In Europe, ascariasis is a rare condition, affecting mostly rural citizens and people who are in regular contact with animals for professional reasons. The prevalence of ascariasis was estimated at 1.2%.² The parasite may cause liver and lung pathology as it migrates through those organs to reproduce itself.³ Though the infection has an immunomodulatory effect in allergy and asthma, it has not been described to induce allergic hemolysis.⁴ However, Zhang et al.⁵ reported slight hemolytic activity of *Ascaris suum* antibacterial factor – a peptide produced by the worm after it comes in contact with bacteria.⁵

The case of our patient is untypical. Because there was initially no increase in eosinophil count, we did not suspect ascariasis. Hemolysis was most probably caused not only by valvular defect but mainly by the parasite. Antiparasitic treatment was administered and the patient was cured.

REFERENCES

- 1 Dold C, Holland CV. *Ascaris* and ascariasis. *Microbes Infect.* 2011; 13: 632-637.
- 2 Lonc E, Okulewicz A, Kopczyńska-Maslej J, et al. [Intestinal parasites in inhabitants of Wrocław and Wałbrzych]. *Wiad Parazytol.* 1999; 45: 75-81.
- 3 Holland CV. Predisposition to ascariasis: patterns, mechanisms and implications. *Parasitology.* 2009; 136: 1537-1547.
- 4 Arruda LK, Santos AB. Immunologic responses to common antigens in helminthic infections and allergic disease. *Curr Opin Allergy Clin Immunol.* 2005; 5: 399-402.
- 5 Zhang H, Yoshida S, Aizawa T, et al. In vitro antimicrobial properties of recombinant ASABF, an antimicrobial peptide isolated from the nematode *Ascaris suum*. *Antimicrob Agents Chemother.* 2000; 44: 2701-2705.