VIA MEDICA

CASE REPORT

Int Marit Health
2024; 75, 3: 177–180
10.5603/imh.101747
www.intmarhealth.pl

ISSN 1641-9251
eISSN 2081-3252

Pretibial hematoma as a cause of significant health issue in an elderly traveler

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ABSTRACT

This paper presents a case of a 77-year-old patient diagnosed with type 2 cardio-renal syndrome, who has undergone a Transcatheter Aortic Valve Implantation surgery due to aortic stenosis associated with permanent atrial fibrillation and type 2 diabetes. This patient, despite their multi-morbidity, undertook family travels to Egypt. Despite disease symptoms and plethora of medication, the patient did not seek medical advice on preventative measures or potential health risks prior to the departure. During the stay in Egypt, the patient sustained a lower limb injury, which resulted in pretibial hematoma requiring a 2-week stay in a local hospital. The patient's condition was systematically deteriorating and after returning to Poland a continued multi-specialist treatment in the field of surgery, nephrology and cardiology was required. The medical history of the described patient and the severity of heart failure and chronic kidney disease were clear contraindications to long-distance travels. Despite those risks, the patient did not seek pre-travel medical advice from specialists and did not undertake any preventative measures. As a result of an accident during travel, an elderly patient with multiple diseases suffered serious health complications that significantly and permanently worsened his general health condition. Due to the aging population and the increasing amounts of elderly patients traveling internationally, proper preparation of seniors before departure is one of the key aspects of modern travel medicine.

(Int Marit Health 2024; 75, 3: 177–180)

Keywords: elderly travelers, pre-travel consultation, injuries, cardiovascular diseases

INTRODUCTION

The United Nations World Tourism Organization (UNWTO) estimates that by 2030 there will be up to 2 billion travelers; 20% of them will be above the age of 60 [1]. Elderly travelers are statistically at a higher risk of developing civilization diseases, such as hypertension, circulatory diseases, and diabetes [2]. Even though elderly individuals are at an elevated risk of chronic diseases, around 40% of them fail to seek pre-travel medical consultations [3]. This further increases their risk of health-related complications during traveling.

CASE REPORT

This paper presents a case of a 77-year-old patient diagnosed with type 2 cardio-renal syndrome (CRS), who has

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Received: 25.07.2024 Accepted: 26.08.2024

Table 1. Results of microbiological tests performed during hospitalization at the Clinic of Nephrology, Transplantology, and Internal Medicine, Szczecin, Poland, 2024

Data	Examination type	Result	Antibiotic
17.05.2024	Swab from the ulcer	*Candida guilliermondii*	Voriconazole fluconazole
17.05.2024	Swab from the anus	Negative	
17.05.2024	Aerobic and anaerobic blood cultures	Negative	
24.05.2024	Galactomannan antigen	Negative	
28.05.2024	Aerobic and anaerobic blood cultures	Negative	
31.05.2024	Urine culture	*Enterococcus faecium* VRE, *Candida glabrata*	Linezolid
31.05.2024	Mannan antigen	Negative	
02.06.2024	Aerobic and anaerobic blood cultures	Negative	
02.06.2024	Rotaviruses and adenoviruses in stool	Negative	
03.06.2024	*Clostridium* — stool	*Clostridioides difficile* — DNA Toxin B (tcdB) — positive, Binary Toxin (cdtA and cdB) — positive, deletion in TcdC nt 117-gene, genetic profile of the „hypervirulent epidemic strain"	Vancomycin
18.06.2024	Urine culture	*Klebsiella pneumoniae* ESBL(+)	Meropenem

undergone a Transcatheter Aortic Valve Implantation (TAVI) surgery due to aortic stenosis (in 2022) associated with permanent atrial fibrillation and type 2 diabetes. The patient was under nephrology clinic care for three years due to chronic kidney disease (CKD). During the first visit, CKD in stage 3B was diagnosed using KIDIGO (Kidney Disease: Improving Global Outcomes). Cardiorenal syndrome has been identified as the main cause of kidney disease. A year after TAVI, CKD progressed to stage 5. Unfortunately, the patient did not attend the following visits. In May 2024, the patient went on a family vacation to Egypt. Prior to the trip, the patient did not seek medical attention or advice, although he presented with symptoms of heart failure. The patient was taking diuretics (loop diuretics), acenocoumarol (a vitamin K antagonist), a drug from the B-blocker group, and an ACE inhibitor. This traveler sustained a lower limb injury while getting on a bus at the airport in Egypt. As a result, a hematoma formed on the patient's tibia (PH, pretibial hematoma) and there was an urgent need to hospitalize the patient in a foreign country. After the patient had been admitted to the Red Sea Hospital in Hurghada, he was diagnosed with a complete heart block, which required the implantation of an artificial cardiac pacemaker. Moreover, the tibia injury was infected with a yeast-like fungus, *Candida* spp. The medical records from the hospital stay contained only information about laboratory tests, cardiological and surgical procedures performed on a given day. It was not possible to determine on what basis the patient received subsequent antibiotics (meropenem, piperacillin with tazobactam, linezolid, levofloxacin, moxifloxacin), because the result of only one wound culture was available, which was performed during hospitalization. After 2 weeks of hospitalization in Egypt and after returning to Poland, the patient was qualified for the renal replacement therapy in the Department of Nephrology, Transplantology and Internal Diseases. The indications were high urea concentration (228 mg/dL) and oliguria (600 mL/d). The tibia injury required a surgical debridement and a Vacuum-Assisted Closure (VAC). The patient had positive microbiological tests results and presented with symptoms of an infection, and therefore he required the use of a broad-spectrum antibiotic therapy (Table 1).

Unfortunately, the therapy resulted in an infection with a hypervirulent strain of *Clostridium difficile*. On top of that, the patient experienced severe gastrointestinal bleeding and for this reason he needed multidisciplinary treatment provided by specialists from the surgery, nephrology, cardiology, and physiotherapy departments of the Pomeranian Medical University in Szczecin. After two months of hospitalization, the injury showed signs of healing, which allowed for the transplant of a skin flap from the other lower limb (Fig. 1). The "Sorin" pacemaker that had been implanted in Egypt could not be checked following the patient's arrival in Szczecin because the only available monitoring device

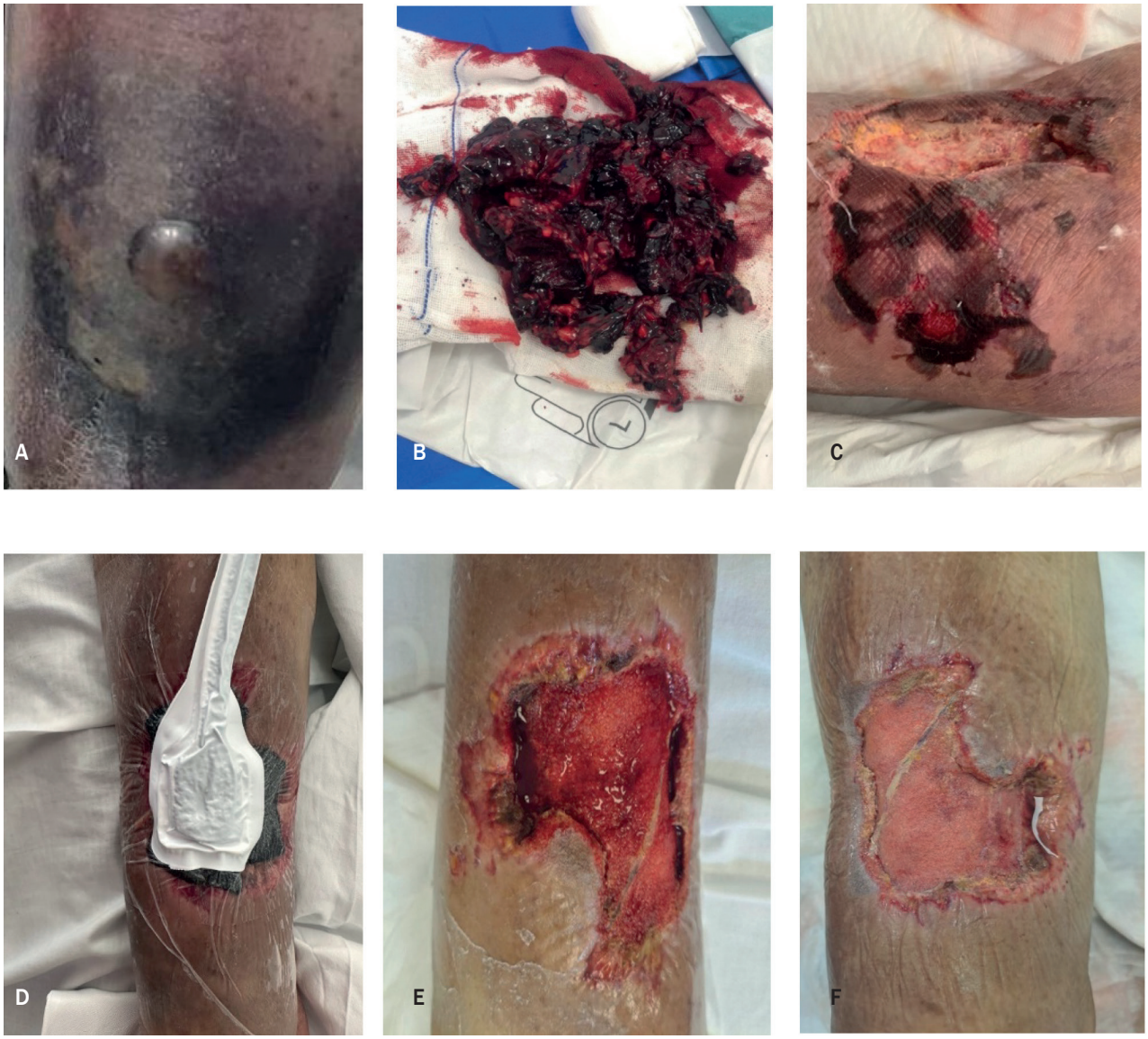

Figure 1. Pretibial hematoma a day after the injury, hospital in Egypt (**A**), the insides removed after the surgery (**B**), the right limb injury two weeks after the traumatic incident, Department of Nephrology, Transplantology and Internal Diseases in Poland (**C**), VAC (**D**), the open wound after the removal of VAC — 5 weeks after the traumatic incident (**E**), wound granulation process — 7 weeks after the incident (**F**)

which could be used for this purpose was accessible in Warsaw, which is 500 km away.

In recent years, TAVI has become an alternative procedure for patients with strong aortic stenosis and high perioperative risk associated with surgical replacement of the aortic valve. Due to the anatomical correlation between the aortic valve structure and the heart conducting system, one of the most common complications of TAVI are conduction system disorders, which most often include left bundle branch block (LBBB) and complete heart block [4]. Conduction disorders seen after TAVI treatment are complications that usually occur shortly after the intervention but can also be revealed up to several months post procedure [5]. Moreover, limb injuries are frequent among the elderly and are often associated with higher mortality, especially if classical coagulants are used [6, 7].

SUMMARY

This case highlights the importance of pre-travel medical consultations in elderly individuals, as people above the age of 60 are more likely to present with multimorbidity. 60% of elderly individuals have at least one chronic condition, while around 40% have two or more. Elderly travelers have a higher risk of both health complications and death during traveling [8]. Data analysis shows that deaths among travelers are mainly caused by injuries

(40%) and chronic diseases (60%), whereas the main causes of death among elderly travelers are cardiovascular diseases [9, 10]. Providing proper pre-travel advice to an elderly person can be difficult and requires scheduling specialist consultations with a diabetologist, cardiologist, and nephrologist (assuming the patient themselves would seek advice before traveling in the first place). The patient's history described in this paper, as well as the congestive heart failure and CKD were clear contraindications to long-distance travel. There is no recommendation constructed on evidence-based medicine (EBM), that shape the pre-travel consultations for elderly individuals with multi-morbidity. It is important to note the importance of assessing general physical fitness, which is usually limited in older people. Then, even simple activities involving little physical effort become a problem. Another issue, which is rarely discussed in the assessment of health before travel are mental disorders related to advanced age.

ARTICLE INFORMATION AND DECLARATIONS

Data availability statement: The authors confirm that the data supporting the findings of this study are available within the article.

Author contributions: Małgorzata Marchelek-Myśliwiec — preparation of the project and typescript; Emilia Marchelek — translation; Mirosława Kijko-Nowak — selection of the data; Piotr Wiśniewski — selection of the data; Marta Grubman-Nowak — selection of the data; Krzysztof Korzeniewski — preparation of the final version of manuscript.

Funding: No funding.

Acknowledgements: No acknowledgements.

Conflict of interest statement: Authors declare no conflict of interest in relation to this article.

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