

# Acute limb ischemia due to paradoxical embolism treated with systemic thrombolysis

Veronika Pokorna<sup>1</sup>, Svetlana Bodikova<sup>1</sup>, Jozef Kaluzay<sup>1</sup>, Zuzana Liskova<sup>2</sup>, Olga Jurkovicova<sup>1</sup>

<sup>1</sup>4<sup>th</sup> Department of Internal Medicine, Faculty of Medicine, Comenius University in Bratislava and University Hospital Bratislava, St. Cyril and Method Hospital, Slovak republic

<sup>2</sup>Rádiológia, s. r. o., University Hospital Bratislava, St. Cyril and Method Hospital, Slovak Republic

We present a case report of a patient with acute upper and lower limb ischemia due to paradoxical embolism. A 67-year old woman without history of venous thromboembolism suffered dislocated patellar fracture requiring surgery in November 2017. Two months after surgery she presented to the emergency room with bilateral pulmonary embolism, occlusion of the left subclavian artery, left common femoral artery and superior mesenteric artery. Transesophageal echocardiography detected patent foramen ovale. Vascular surgeon decided against embolectomy, interventional radiologist against pharmacomechanical thrombolysis due to the extent of the occlusions. Systemic thrombolysis (alteplase) was administered successfully with resolution of the emboli in the left subclavian artery, left common femoral artery and superior mesenteric artery.

**Key words:** acute limb ischemia, orthopedic surgery, paradoxical embolism, patent foramen ovale, systemic thrombolysis, venous thromboembolism.

## Akútna končatinová ischémia v dôsledku paradoxnej embolizácie liečená systémovou trombolýzou

Predstavujeme prípad pacientky s akútnou ischémiou na hornej aj dolnej končatine v dôsledku paradoxnej embolizácie. 67-ročná žena bez anamnézy venózneho tromboembolizmu utrpela v novembri 2017 dislokovanú fraktúru pately s potrebou operačného riešenia. Dva mesiace po operácii bola rehospitalizovaná pre obojstrannú embóliu do arteria pulmonalis, oklúziu ľavej arteria subclavia, ľavej arteria femoralis communis a arteria mesenterica superior. Transezofageálna echokardiografia zistila prítomnosť foramen ovale patens. Cievný chirurg neindikoval embolektómiu a intervenčný rádiológ neindikoval farmakomechanickú trombolýzu z dôvodu veľkého rozsahu oklúzie. Následne bola úspešne podaná systémová trombolýza (altepláza) s rozpustením embolov v ľavej arteria subclavia, v ľavej arteria femoralis communis a v arteria mesenterica superior.

**Kľúčová slova:** akútna končatinová ischémia, ortopedická operácia, paradoxná embolizácia, foramen ovale patens, systémová trombolýza, venózne tromboembolizmus.

## Introduction

Orthopedic surgery significantly increases the risk of venous thromboembolism (VTE). Major orthopedic surgery is associated with approximately twice the risk of VTE than major general surgery (1). Timing of postoperative VTE depends on the type of surgery (2). The minimum recommended pharmacological prophylaxis (10–14 days) is not always sufficient (3), resulting into deep vein thrombosis with/without pulmonary embolism. Significant pulmonary embolism elevates the pressure in right heart's chambers and might cause paradoxical embolism in patients with patent foramen ovale (10–35 % of the population) (4). The emboli can affect various arteries at

the same time leading e.g. to stroke, limb ischemia or visceral ischemia. There is no best recommended therapeutical approach for the treatment of multiple-site ischemia caused by paradoxical emboli.

## Case description

A 67-year old woman (height 163 cm, weight 85 kg, BMI 32 kg/m<sup>2</sup>) with history of arterial hypertension, thyreopathy and hypercholesterolemia, on treatment with perindopril (5 mg), amlodipin (5 mg), L-thyroxine (50 µg) and atorvastatin (10 mg) suffered an injury of left knee with dislocated patellar fracture requiring surgery of 1 hour and

KORESPONDENČNÍ ADRESA AUTORA: Veronika Pokorna, MD, PhD., MPH, vpokorna@gmail.com

4<sup>th</sup> Department of Internal Medicine, Faculty of Medicine, Comenius University, St. Cyril and Method Hospital  
Antolska 11, 851 07 Bratislava, Slovak Republic

Cit. zkr: Vnitř Lék 2020; 66(2): e48–e51

Článek přijat redakci: 29. 5. 2019

Článek přijat po recenzích k publikaci: 2. 9. 2019