True dorsalis pedis artery aneurysm: case report

Aneurisma verdadeiro de artéria dorsal do pé: relato de caso

Uellinton Galli Ferreira¹, José Aderval Aragão²,³, Antonio Alexandre Lenik¹, Iapunira Catarina Sant’Anna Aragão⁴, Felipe Matheus Sant’Anna Aragão⁴, Wilson Barbosa Leão⁴, Carlos Eduardo Nunes¹, Francisco Prado Reis⁴

Abstract
A true aneurysm of the dorsal artery of the foot is a rare medical finding and its principal causes and clinical manifestations are not well known. A 49-year-old female patient presented with a pulsatile mass on the dorsal part of her right foot. Clinical and ultrasound examinations confirmed a diagnosis of aneurysm. The aneurysm was resected after dissection, exposure and isolation of the proximal and distal stumps of the dorsalis pedis artery. Simple ligature and resection of the aneurysm is proving to be a safe treatment option in patients with a patent plantar arch.

Keywords: aneurysm; artery; systemic arterial hypertension; vascular surgical procedures.

Resumo
O aneurisma verdadeiro da artéria dorsal do pé é um achado médico raro, e suas principais causas e manifestações clínicas são pouco conhecidas. Paciente do sexo feminino, 49 anos de idade, apresentou-se com uma massa pulsátil no dorso do pé direito. O exame clínico e a imagem ultrassonográfica confirmaram o diagnóstico de um aneurisma. O aneurisma foi ressecado após dissecação, exposição e isolamento dos cotos proximal e distal da artéria dorsal do pé. A ligadura simples e a ressecção do aneurisma vêm se mostrando um tratamento seguro quando o arco plantar se mantém pérvio.

Palavras-chave: aneurisma; artéria; hipertensão arterial sistêmica; procedimentos cirúrgicos vasculares.

¹ Fundação Beneficência Hospital de Cirurgia, Serviço de Cirurgia Vascular Dr. José Calumby Filho, Aracaju, SE, Brasil.
² Universidade Federal de Sergipe – UFS, Aracaju, SE, Brasil.
³ Universidade Tiradentes – UNIT, Aracaju, SE, Brasil.
⁴ Centro Universitário de Volta Redonda – UNIFOA, Volta Redonda, RJ, Brasil.
Financial support: None.
Conflicts of interest: No conflicts of interest declared concerning the publication of this article.

The study was carried out at Serviço de Cirurgia Vascular Dr. José Calumby Filho, Fundação Beneficência Hospital de Cirurgia, Aracaju, SE, Brazil.
INTRODUCTION

Aneurysms of the dorsal artery of the foot are extremely rare and their clinical manifestations are not well known. Descriptions available in the literature are contained in case reports and, since the first description published in 1907 by Cauff, a variety of different treatment methods have been proposed. However, the majority of dorsalis pedis aneurysms are pseudoaneurysms secondary to traumas.

CASE REPORT

A 49-year-old female patient described a pulsating mass on the dorsal aspect of the right foot with onset approximately 3 years earlier that had grown progressively before becoming painful a few months prior to presentation, which caused her to seek medical care. She stated that she had not suffered any traumas or undergone any surgical procedures to the foot, had no family history of aneurysms, diabetes, or dyslipidemia, but was a smoker and had hypertension as cardiovascular risk factors.

On physical examination, a pulsating mass, static and painful on palpation, was observed on the dorsal aspect of the right foot, suggestive of an aneurysm of the dorsal artery of the foot (Figure 1). Additionally, there was a strong pulse in the posterior tibial artery, with no signs of chronic ischemia or other detectable vascular disorders.

Ultrasonography showed an oval, anechoic image along the course of the dorsal artery of the right foot, measuring approximately 1.2 × 1.6 × 2.2 cm (Figure 2).

Exploratory surgery, under local anesthesia, was initiated with a longitudinal incision in the dorsal surface of the right foot, above the aneurysm. After careful and detailed dissection, a dilation with a saccular appearance was observed along the course of the dorsal artery of the foot. After exposure, the proximal and distal stumps of the dorsal artery of the foot were isolated and ligated and the aneurysm was resected (Figure 3).

Reconstruction of the artery was considered unnecessary, since the foot showed no signs of ischemia and duplex scanning revealed excellent flow to the interdigital and tibial arteries. Histopathological analysis of the aneurysm sac found intimal thickening and myxoid degeneration with inflammatory infiltrate and atherosclerotic changes (Figure 4).
Aneurysm of the dorsal artery of the foot

The most frequently described clinical manifestations of aneurysms of the dorsal artery of the foot are a pulsating mass, painful or painless, sometimes associated with itching and discomfort.5,7 In the case described here, the aneurysm was asymptomatic at onset and only began to cause pain and discomfort after progressive increase in the size of the pulsating mass on the dorsal aspect of the right foot, which may have been caused by compression of adjacent structures. The majority of patients with aneurysms of the dorsalis pedis artery were male (63%) and mean age was 55 years,7 in contrast with our patient who was female and 49 years old.

Several authors have proposed different methods to treat aneurysms of the dorsal artery of the foot, such as resection and simple ligature and revascularization with end-to-end anastomosis or saphenous vein interposition.1,5,9,12-15 In our case, we chose simple ligature and resection of the aneurysm sac because the limb showed no clinical signs of ischemia. However, patients at elevated risk of peripheral vascular diseases or diabetes and children may benefit from revascularization to avoid future complications, such as ischemia, necrosis, and limb loss.

CONCLUSIONS

True aneurysms of the dorsal artery of the foot are extremely rare. Simple ligature of the dorsalis pedis artery and resection of the aneurysm are proving to be a simple and safe treatment when the plantar arch is patent and the foot shows no chronic signs of ischemia. However, revascularization is recommended for patients with vascular risk factors and peripheral arterial disease, to avoid possible complications and amputation.

ACKNOWLEDGEMENTS

The authors are grateful to Programa de Residência Médica em Cirurgia Vascular, Fundação Beneficência Hospital de Cirurgia – FBHC.

REFERENCES


Correspondence
José Aderval Aragão
Universidade Federal de Sergipe – UFS
Av. Marechal Rondon, s/n – Jardim Rosa Elze
CEP 49100-000 - São Cristóvão (SE), Brasil
Tel.: +55 (79) 99191-6767
E-mail: adervalufs@gmail.com

Author information
UGF - Vascular surgeon, Serviço de Residência em Cirurgia Vascular, Fundação Beneficência Hospital de Cirurgia (FBHC).
JAA - Vascular surgeon; Full professor, Universidade Tiradentes (UNIT); Associate professor, Universidade Federal de Sergipe (UFS).
AAL, WBL and CEN - Preceptors, Serviço de Residência Médica em Cirurgia Vascular, Fundação Beneficência Hospital de Cirurgia (FBHC).
ICSA and FMSA - Medical students, Centro Universitário de Volta Redonda (UNIFOA).
FPR - Full professor, Faculdade de Medicina, Universidade Tiradentes (UNIT).

Author contributions
Conception and design: JAA, UGF, AAL, FPR
Analysis and interpretation: ICSA, FMSA, WBL, CEN
Data collection: UGF, CEN
Writing the article: JAA, UGF, FPR
Critical revision of the article: JAA
Final approval of the article*: UGF, JAA, AAL, ICSA, FMSA, WBL, CEN, FPR
Statistical analysis: N/A.
Overall responsibility: JAA

*All authors have read and approved of the final version of the article submitted to J Vasc Bras.