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Leopoldo Marine (1), Pablo Castro (2), Andres Enriquez (2), Douglas Greig (2), Luis Sanhueza (2), Renato Mertens (1), Michel Bergoeing (1), Albrecht Kramer (1), Francisco Valdes (1), Michel Serri (3)

(1) Department of Vascular Surgery, Pontificia Universidad Catolica de Chile
(2) Department of Cardiovascular Diseases, Pontificia Universidad Catolica de Chile
(3) Department of Infectious Diseases, Pontificia Universidad Catolica de Chile

Address for correspondence:
Dr Pablo Castro MD
Department of Cardiology and Cardiovascular Diseases
Pontificia Universidad Católica de Chile
Santiago, Chile
Email address: pcastroenator@yahoo.es
+562-354 3286
Fax: +562-632 5275

Case presentation

A 32-year-old homosexual man infected with HIV presented to the emergency department of our hospital complaining of pain, coldness, paresthesias and cyanosis in both feet and hands. The symptoms had started three days before with lower extremities claudication at 200 meters, which progressed to rest pain the day of admission, worse on right foot. He was on chronic antiretroviral therapy with 300 mg q.d. tenofovir (Viread®), 300 mg BID abacavir (Ziagen®), two 200/50 mg BID lopinavir/ritonavir (Kaletra®). His CD4 cell count was 245 cells/mm3 and his HIV viral load was 45 copies/ml. When directly interviewed, the patient remembered that he had taken a single dose ergotamine (1 mg) for migraine 24 hours before the onset of symptoms. He denied any recent drug intake. On examination, his four extremities were cold, cyanotic and pulseless (figure 1A). Only femoral pulses were weakly palpable. PVR revealed bilateral multilevel ischemia, with severe proximal disease and flat curves at popliteal and distal levels (figure 2A). A lower limb CT angiography showed diffuse arterial narrowing from external iliac arteries to distal, consistent with severe and diffuse spasm (figure 3A). A similar pattern was seen in upper extremities.

Antiretroviral drugs were withdrawn and the patient was started on therapeutic iv heparin, morphine and sodium nitroprusside infusion, with no evident response. An arteriography was then performed, confirming the presence of diffuse arterial spasm, with no images of thrombosis (figure 4). A selective intra-arterial prostaglandin E1 (Prostin®) injection was done, with partial improvement of right leg PVR curves and foot perfusion. Therefore, treatment with iv iloprost (up to 2.0 ng/kg/min), a synthetic prostaglandin I_2 analogue, was started in association with oral sildenafil (25 mg tid). The patient's condition improved dramatically, with progressive restoration of pulses in the following 24 hours (figure 1B). A repeat CT angiography after 3 days of therapy was normal (figure 3B) and he was discharged in good condition 5 days after admission.

Vasospasm is a rare but well recognized complication of ergot alkaloid agents. The term "St Anthony´s fire" was used in the Middle Age for referring to ergotamine intoxication due to consumption of grain infected with the fungus *Clariceps purpura*, with limb necrosis and burning pain. Ergotism mostly affects the lower extremities, but involvement of carotid, coronary, mesenteric and renal arteries have also been reported (1). Toxicity may occur with ergotamine overdose or with low doses in association with drugs that inhibit its hepatic metabolism. Protease inhibitors used for HIV treatment such as ritonavir and lopinavir are potent inhibitors of cytochrome P-450 isoenzymes, mainly CYP3A4, which is responsible for the metabolism of ergot (2). Severe ergotism has been described in patients taking ritonavir, even after a single dose of ergotamine (3). The optimum therapy has not been established. Pharmacological interventions include nitroprusside, nitroglycerin, prazosin, calcium channel blockers, heparin, iv iloprost and intra-arterial infusion of prostaglandin E1. In severe forms refractory to pharmacological treatment, intra-arterial balloon dilatation or surgical sympathectomy can be effective (4). Early and aggressive treatment of arterial spasm prevents limb amputations.

References

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Figure legends

Figure 1. Right foot perfusion: A) severe forefoot ischemia on admission. B) Improvement of perfusion after treatment, residual mild ischemia on first toe that recovered later.

Figure 2. Upper and Lower Extremities Pletismography (PVR): A) On admission, bilateral multilevel upper and lower extremities ischemia with flat curves at distal levels. B) Normal perfusion in upper and lower extremities after treatment.

Figure 3. Lower Extremities CT Arteriogram before (CTA pre) and after (CTA post) treatment. On CTA pre (left side A and B) MIP images show diffuse narrowing of right external iliac (figure A, arrow 1), superficial femoral (A2) and popliteal (B3) arteries. Arrow B4 shows absence of right leg arteries. Similar findings are seen on left side. On CTA post (right side A and B): normal CTA with complete resolution of vasospasm in both lower extremities arteries (figure B, arrow 5).

Figure 4. Lower Extremities Angiography: A) Distal abdominal aorta, common iliac and hypogastric arteries are normal; both external iliac arteries are hardly seen, with diffuse narrowing of their lumen (number 1). B) Spasm is also present in right femoral territory, especially on distal superficial femoral artery (2). C) Popliteal narrowing is worse at the level of its bifurcation (3,) no distal leg arteries are seen. D) A 4Fr Glide Catheter is placed on proximal posterior tibial artery for selective prostaglandin injection. Completion angiogram shows contrast in distal posterior tibial artery not seen before (4).


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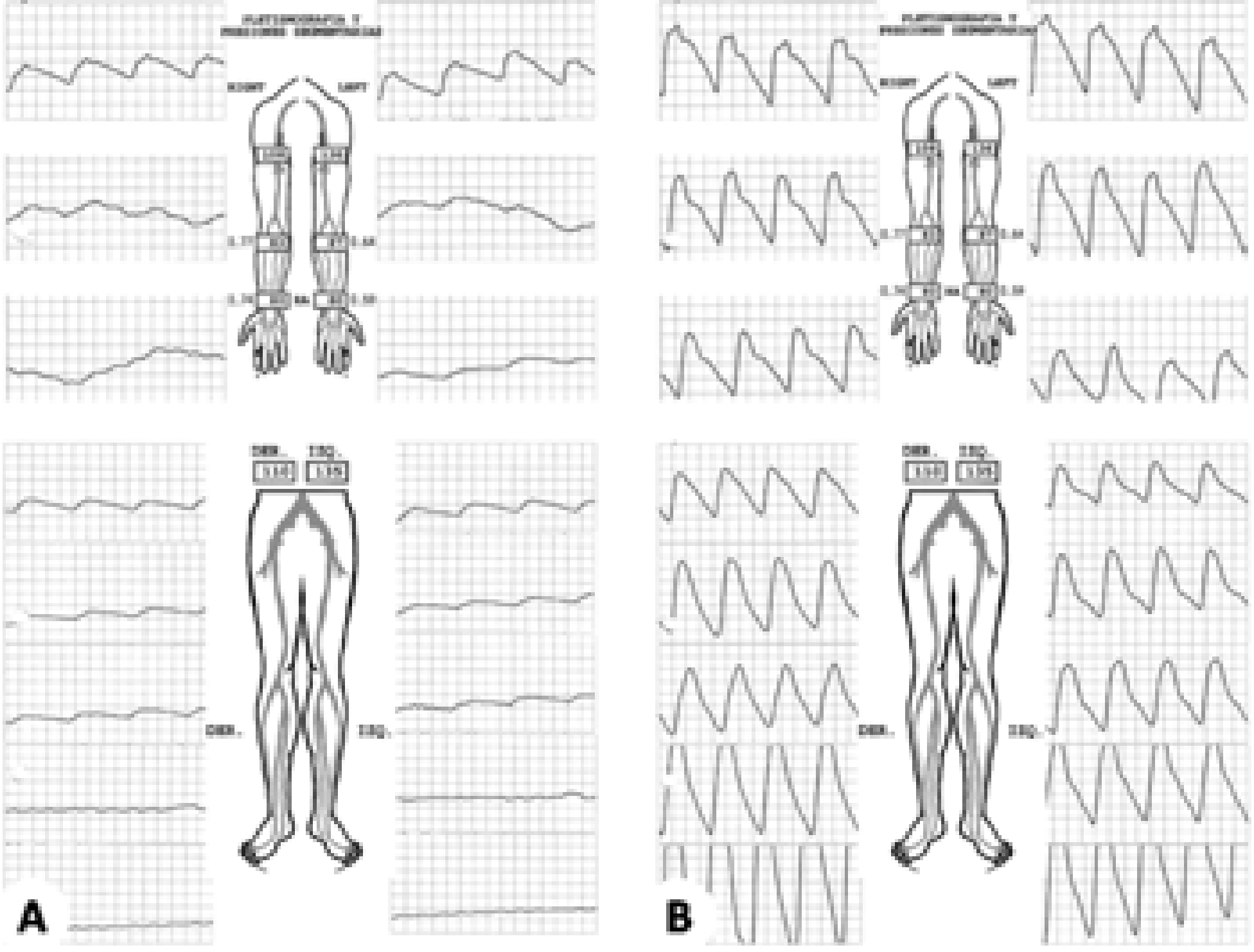
B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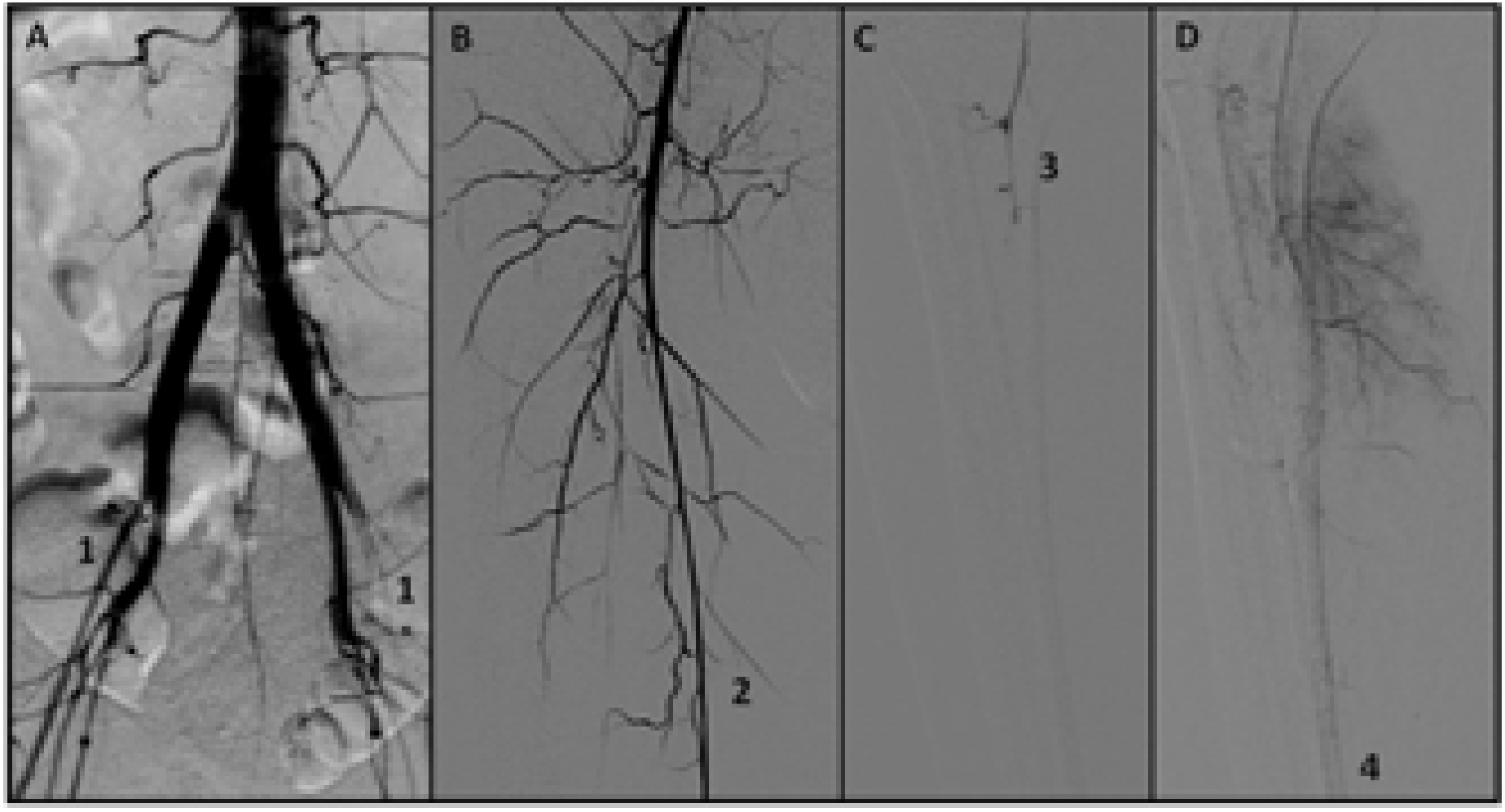
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