Erectile Dysfunction Treatment With Sirolimus-Eluting Balloons Due to Bilateral Internal Pudendal Arterial Stenosis

Alberto Cereda, MD[1]; Marco Toselli, MD[1]; Francesco Gallo, MD[1]; Alessandra Laricchia, MD[1]; Antonio Mangieri, MD[1]; Gabriele Tumminello, MD[2]; Francesco Giannini, MD[1]; Antonio Colombo, Prof[1]; Giuseppe Massimo Sangiorgi, Prof[2,3]

[1]Interventional Cardiology Unit, GVM Care & Research, Maria Cecilia Hospital, Cotignola, Italy
[2]Division of Cardiology, ASST Santi Paolo e Carlo, Milan Italy
[3]Department of Biomedicine and Prevention, Cardiac Cath Lab, University of Rome Tor Vergata, Rome Italy

Abstract: Introduction: Erectile dysfunction often has a vascular substrate, sometimes treatable through a percutaneous approach. **Case Report:** In a patient with high cardiovascular risk, cardiovascular screening focused also on erectile dysfunction, and allowed us to identify bilateral stenosis of the pudendal arteries. The lesions were treated in an innovative way with sirolimus-eluting balloons (SEB). **Conclusions and Comments:** This diagnostic and therapeutic approach was effective and allowed us to resolve the patient's dependence on phosphodiesterase inhibitors using a percutaneous approach and the application of a drug-eluting balloon. Further studies will be needed to understand which patients to select to evaluate long-term safety and efficacy.

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A 52-year-old man with multiple cardiovascular risk factors, including arterial hypertension and diabetes mellitus type II, was referred to our interventional cardiology unit because of a poor response to year-long treatment with different phosphodiesterase type 5 inhibitors (PDE5i) taken for severe erectile disfunction (International Index of Erectile Function-5 = 6).

Initially, a lifestyle adjustment and optimization of cardiovascular therapy (antihypertensive drugs and lipid-lowering agent) were prescribed with no improvement in sexual capability. After a detailed stratification of the cardiovascular risk and exclusion of obstructive atherosclerotic lesions in the coronary, carotid, and lower limbs, angio-urological tests were prescribed.

A Doppler of the iliac-pudendal-penile arteries (IPA) was performed showing a significant reduction in the systolic peak velocity (bilateral PSV <15 cm/sec after a pharmacologically induced erection (local injection of 10 mg intracavernosal alprostadil) without diastolic flow reversal. A selective pudendal arteries angiography was performed with a right artery femoral access.

A significant stenosis of the mid left and the proximal right IPA were detected. Through a Judkins right 6 Fr guiding catheter and a 0.014' coronary guidewire, sirolimus-coated balloons (MagicTouch 2.0 x 20 mm) after pre-dilatation with semi-compliant balloon (Euphora 2.0 x 20 mm) was applied for one minute at nominal atmosphere on both lesions with a good final angiographic result. The exam showed increase in PSV velocity with a delta value of 6 cm/sec. The patient had an improvement in erectile function with an almost complete weaning from PDE5i oral therapy and a significant improvement in all five domains explored by the erectile dysfunction questionnaire (IIEF-5).

Erectile dysfunction is a common disease with relevant impact on the quality of life. ED shares the same modifiable risks factors (hypertension, diabetes, dyslipidemia, cigarette smoking, obesity, metabolic syndrome, and sedentary behaviors) with coronary artery disease and peripheral artery disease. The rate of ED is higher in diabetic and in high cardiovascular risk patients, but the disease is frequently underreported and poorly investigated due to the patients' embarrassment and the social stigma. The physician has the task to investigate the impact of sexual dysfunction in order to ensure the global physical and psychological health of the patient.

Considering the extensive overlap of ED with cardiovascular disease, a vascular Eco Doppler should be prescribed in symptomatic subjects complaining of erectile dysfunction. Interventional treatment may be considered a good treatment option for patients non-responding to PDE5i. Moreover, the improvement of interventional techniques and the availability of drug-coated balloons with greater deliverability and power in inhibiting intimal hyperplasia allow for the treatment of peripheral lesions in small vessels with better results compared to plain old balloon angioplasty.

A global approach to ED dysfunction should be managed by a multidisciplinary team including

urologists, cardiologists, and primary care physicians in order to identify those forms of vascular ED that may respond to early endovascular treatment. ■

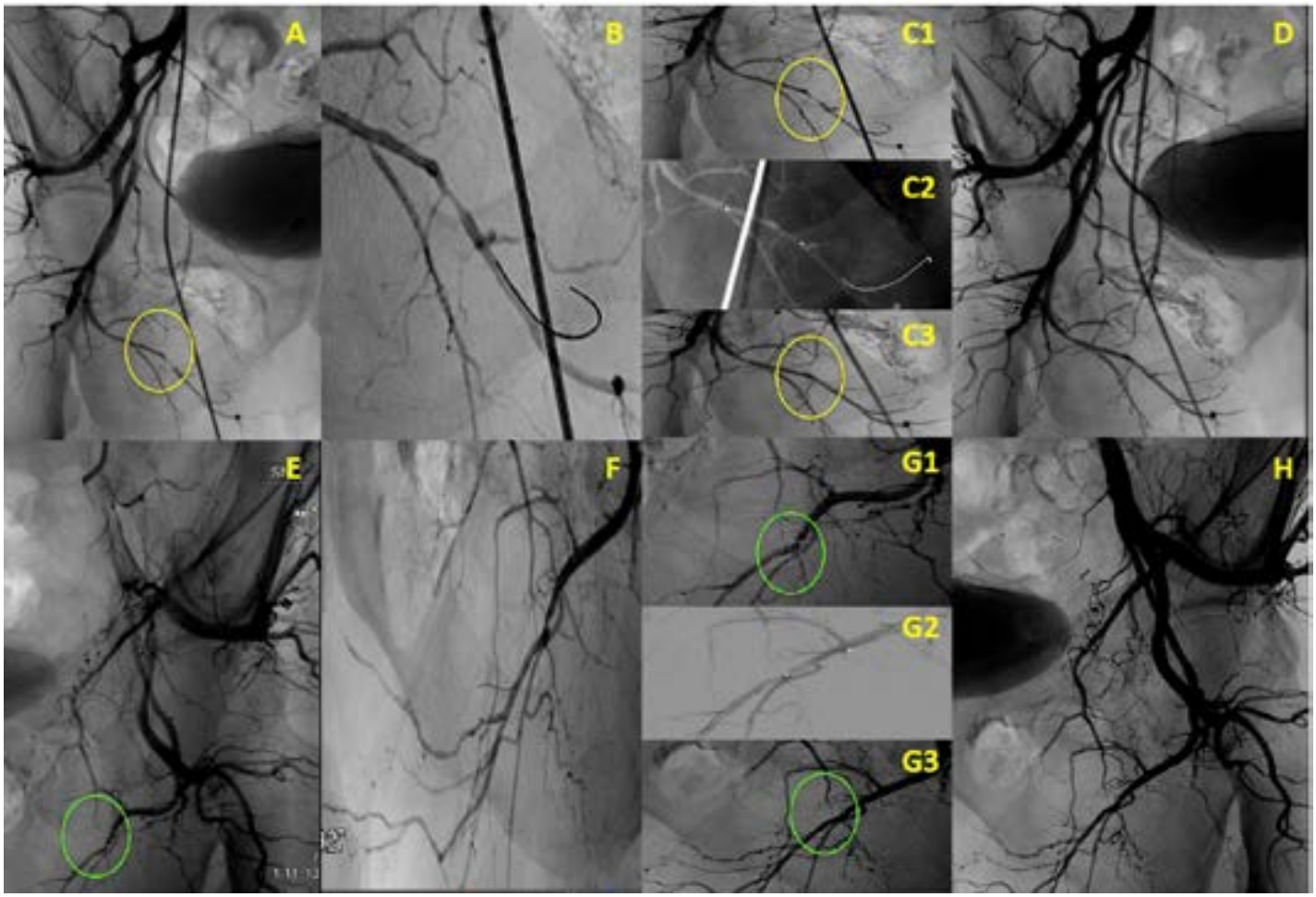

Figure 1. (A) Angiography of the right internal iliac artery and right pudendal artery (circled in yellow). (B) Highlight of the stenosis of the right pudendal artery (C1) Stenosis of the right pudendal artery before treatment (circled in yellow). (C2) Angioplasty with application of a drug-eluting balloon. (C3) Final angiographic result of the right pudendal artery (circled in yellow). (D) Final angiography of the right internal iliac artery. (E) Angiography of the left internal iliac artery and pudendal artery (circled in green). (F) Highlight of the stenosis of the left pudendal artery (G1) Stenosis of the left pudendal artery before treatment. (G2) Angioplasty with application of a drug-eluting balloon. (G3) Final angiographic result of the right pudendal artery (circled in green). (H) Final angiography of the left internal iliac artery.

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Address for Correspondence:
Alberto Cereda, MD
Email: alberto.cereda@email.it
Telephone: +393200883375

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