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IMAGE IN CARDIOLOGY

Polytetrafluoroethylene graft for anomalous left coronary artery from the pulmonary artery: 6-Year patency

Enxerto de politetrafluoroetileno para artéria coronária esquerda anómala a partir da artéria pulmonar: relatório de patência a seis anos

Cuitláhuac Arroyo-Rodríguez[a,*], Cyntia Zulema Machain-Leyva[b], Cesa Iván Vásquez-Serna[b], Francisco López-Borbón[a], Gerardo Rangel-Guerrero[b], Armando González-García[a], Francisco A. Martínez-Hernández[b]

[a] *Cardiology Department, Hospital San José Hermosillo, Sonora, Mexico*
[b] *UMAE Specialty Hospital No 2, Mexico*

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A 31-year-old female was evaluated for repeated syncope and chest pain. She had a history of three previous uncomplicated pregnancies. Her physical examination was otherwise unremarkable, except for a continuous murmur best heard at the apex.

Transthoracic echocardiogram revealed mildly dilated left chambers, left ventricular ejection fraction of 58% and moderate mitral regurgitation (Figure 1A). Extensive collateral circulation demonstrated by color Doppler (Figure 1B) raised suspicion of a congenital coronary anomaly. Computed tomographic angiography revealed an anomalous origin of the left coronary artery arising from the main pulmonary artery (ALCAPA) (Figure 1C), and a subsequent coronary angiography confirmed the diagnosis (Figure 1D).

Direct reimplantation was considered the first option of repair. However, the left coronary artery (LCA) originated from the non-facing sinus and a long distance from the aorta precluded this approach. Although the Takeuchi procedure is an alternative for patients with inadequate coronary length, the creation of an intrapulmonary baffle carries the risk of supravalvular pulmonary stenosis, aortic and pulmonary valve insufficiency, and baffle obstruction and leaks.[1] Owing to extensive collaterals, ligation of the LCA could be an option, however it does not provide a dual coronary system and would not likely have reduced the risk of mortality.[2,3] Another possible approach could have been to create a left subclavian-ALCAPA bypass; however, it is only described in children where the tissues still grow, thus enabling long term patency.[4] A saphenous and internal mammary artery graft was also considered; nonetheless, their diameter was much smaller than the LCA. Instead, she underwent surgically restoration of a dual coronary system utilizing a ringed 6 mm polytetrafluoroethylene (PTFE) graft (Figure 1E and F). Thereafter, anti-platelet therapy with clopidogrel was started.

At six years of follow-up, the patient is asymptomatic, with normal chamber size and only mild mitral regurgitation. In addition, a recent dipyridamole stress echocardiography

* Corresponding author.
E-mail address: cuitla88@hotmail.com (C. Arroyo-Rodríguez).

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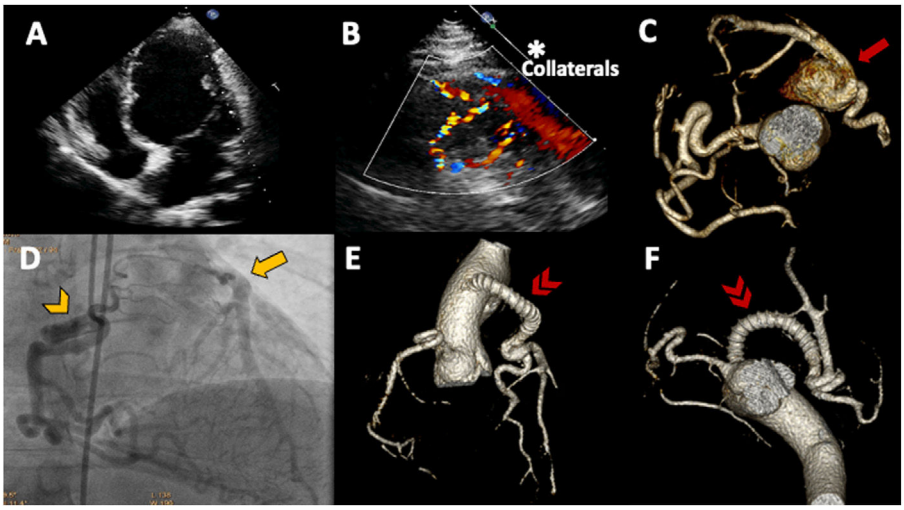

Figure 1 (A) Echocardiogram demonstrating a dilated left ventricle. (B) Extensive collateral circulation on echocardiogram (*). (C) Left coronary artery arising from the pulmonary artery seen on computed tomography (red arrow). (D) Invasive coronary angiography (yellow arrow), ectatic right coronary artery (yellow arrowhead). (E and F) Computed tomography signaling the polytetrafluoroethylene graft.

was negative to ischemia. Although poor compliance and the lack of endothelial cells lining the lumen of PTFE grafts contribute to their poor patency, a properly sized graft could aid in maintaining optimal wall shear stress and improving its patency.[5]

Conflicts of interest

The authors have no conflicts of interest to declare.

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