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The Bioresorbable ABSORBTM stent for coronary stenosis in children

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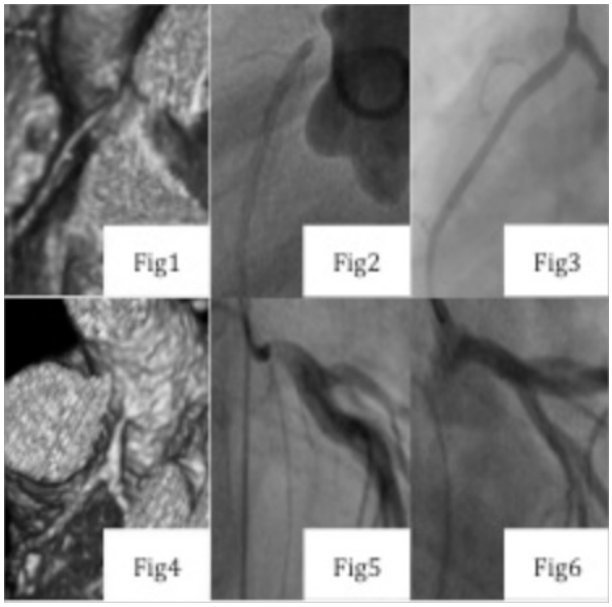
Introduction: Coronary stenosis is rare in children. Most lesions are acquired following surgical re-implantation or after Kawasaki disease. Revascularization has to take into account the small diameter of the coronary arteries and the need for growth of the child and the coronary artery.

Case report 1: a 4 year old (23 kg) boy was referred for management of asymptomatic abnormal origin of the right coronary artery arising from the left sinus. We elected for surgical reimplantation. The right coronary artery was reconnected in the anatomical position using a pericardial patch to enlarge the anastomosis. Six months later CT scan showed significant ostial stenosis (fig 1), confirmed by angiography (fig 2). Balloon angioplasty (non-compliant balloon) was unsuccessful. Implantation of a bioresorbable, everolimus coated stent (ABSORB^{TM} bioresorbable vascular scaffold- Abbott vascular) was considered. Informed consent was obtained. A 2.5 mm x 18 mm ABSORB^{TM} stent was implanted to match the distal coronary artery size, with good angiographic result (fig 3). Aspirin and clopridogel were given. Control CT scan 6 months later showed mild central restenosis that was successfully dilated with a 3 mm, non-compliant balloon.

Case report 2 : a 10 years old boy (37 kg) was referred for management of stress syncope with abnormal origin of the left coronary artery arising from the right coronary artery (single coronary), with stenosed inter-arterial course. Direct left coronary trunk reimplantation was performed into the anatomical position using a pericardial patch to enlarge the anastomosis. Acute restenosis was seen on echocardiography and confirmed by CT scan (fig 4). A 3.5 mm x 12 mm ABSORB^{TM} stent was implanted (fig 5, fig 6) after informed consent was obtained. Aspirin and clopridogel were administered. CT scan performed at 6 months showed good patency and exercise test was normal.



Conclusion : Data regarding pediatric coronary artery revascularization are scarce and disappointing. Bioresorbable stent implantation to treat post-surgical stenosis is a simple procedure that allows conservation of the artery's growth capital. However, the stents have not been approved yet for use in children. Radial strength is still a matter of debate. Close medium and long-term monitoring remain essential.