
Preface

For many years, the diagnosis of congenital cardiovascular anomalies was based on conventional radiography, catheterization and angiography. Non-invasive cardiac imaging was dramatically improved in the middle of the 1970s with the development of echocardiography, which considerably reduced the need for cardiac catheterization. This book summarizes years of “clinical collaborative work” to confirm the value of MRI, alongside echocardiography, in the management and follow-up of patients with congenital cardiovascular anomalies. This adventure began in 1987 in Strasbourg in close collaboration with Angelo Livolsi (hospital paediatric cardiologist), during examinations performed on Saturday afternoons and Sundays and often as an emergency at night, Philippe Germain (cardiologist) and Lionel Donato (hospital paediatrician). When I was appointed Professor of radiology at Besançon hospital, this adventure continued with the help of Yvette Bernard (Professor of cardiology) and her skills and competence in paediatric cardiac echocardiography.

MRI is a unique non-invasive imaging modality, a highly desirable feature in a paediatric population, which combines in one examination depicting complex cardiac anatomy measuring cardiac function and flow in one examination. The indications for MRI have been clearly established; it is perfectly complementary to echocardiography and has replaced diagnostic angiography. The primary indications are visualization of great vessels, especially coarctation of the aortic and aortic arch anomalies, right ventricular outflow tract anomalies, particularly to study the pulmonary artery and its branches, and anomalous systemic and pulmonary venous connections. MRI is also very useful for the diagnosis of complex forms and for postoperative follow-up after specific surgical procedures. Cardiac catheterization is now reserved for some types of congenital heart disease when obtaining hemodynamic information is mandatory.

The future of MRI is clearly ensured, as the spectacular progress in magnetic resonance have been accomplished these last years (imaging speed, flow analysis, angiography), will only reinforce contribution of this fundamental imaging modality and keep its indications essential.

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