

A Novel Approach to Treatment of Anomalous Coronary Arteries – Surgical Revascularisation using the Pure Internal Thoracic Artery Technique

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April 11, 2022

Abstract

OBJECTIVES: To evaluate the use of CABG utilising an isolated pedicled Right Internal Thoracic Artery (RITA) or Left Internal Thoracic Artery (LITA) or the Pure Internal Thoracic Artery (PITA) technique to treat anomalous aortic origin of coronary artery (AAOCA). **METHODS:** A retrospective review of all patients at our institution over an 8-year period (2013-2021) who underwent surgery for AAOCA was performed. Data assessed included patient demographics, initial presentation, morphology of coronary anomaly, surgical procedure, cross-clamp time, cardiopulmonary bypass time and long-term outcome. **RESULTS:** 14 patients underwent surgery which included 11 males (78.5%) with a median logistic EuroSCORE of 1.605 (IQR 1.34). Median age was 62.5 years (IQR 48.75). Presentation was angina (7 patients), acute coronary syndrome (5 patients), incidental findings in aortic valve pathology (2 patients). AAOCA morphology varied: RCA from left coronary sinus (6), RCA from left main stem (3), left coronary artery from the right coronary sinus (1), left main stem arising from right coronary sinus (2) and circumflex artery arising from the right coronary sinus (2). Seven patients had co-existing flow-limiting coronary artery disease. CABG was performed using either a pedicled skeletonized RITA, LITA or PITA technique. There was no perioperative mortality. Overall median follow-up time was 43 months. One patient presented with recurrent angina secondary to graft failure at 2 years and there were 2 non-cardiac related deaths at 4 and 35 months. **CONCLUSION:** The use of internal thoracic artery grafts can provide a durable treatment option in patients with anomalous coronary arteries. The potential risk of graft failure in patients with no flow limiting disease should be very carefully considered. However, a proposed benefit of this technique is the use of a pedicle flow to increase the long-term patency. More consistent results are obtained when ischaemia can be demonstrated preoperatively.

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