

Total arterial myocardial revascularization using the radial artery: 26 years of experience

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Introduction: Total arterial myocardial revascularization offers better long-term graft patency, lower incidence of major adverse cardiac and cerebrovascular events and better long-term survival compared to revascularization using single arterial graft^{1,2}. Specifically, the radial artery has shown distinct advantages over other grafting options. This retrospective study presents 26 years of experience using the radial artery in coronary artery bypass grafting (CABG) at our institution, emphasizing its role as an excellent second or third arterial graft.

Patients and Methods: Data were collected from all patients who underwent CABG using the radial artery. Demographic information, perioperative outcomes, and intraoperative transit-time flow measurement (TTFM) were extracted from our clinical database.

Results: From February 1998, a total of 1765 radial artery grafts were used in 1423 patients with an average age of 59.1±8.6 years. Left main coronary artery disease was present in 352 patients (25%). Total arterial revascularization, without venous grafts, was achieved in 90% of patients. The left radial artery was the most frequently used graft (90%), followed by the right radial artery (2%), and both radial arteries (8%). The mean number of distal anastomoses was 2.6±0.6. Off-pump CABG was performed in 42% of patients with isolated coronary artery disease, with no reported ischemic complications or wound infections. Radial nerve injury occurred in only two patients (0.12%). The radial artery grafts were primarily used in the circumflex (45%) and right coronary (39%) territories. TTFM results showed excellent mean flow (50.6 ml/min), diastolic filling (63.9%), and a pulsatility index of 2.5.

Conclusion: While long-term graft patency and patient survival were not assessed, the study demonstrates that the radial artery can be routinely used in multi-arterial myocardial revascularization, showing excellent intraoperative blood flow and a very low rate of complications.

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LITERATURE

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