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Recovery and Revascularization Quality After Multivessel Minimally Invasive Coronary Artery Bypass Grafting

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KEYWORDS: minimally invasive coronary artery bypass grafting, multivessel coronary artery disease, postoperative recovery, complete revascularization, graft patency.

CITATION: Cardiol Croat. 2026;21(11-12):219. | https://doi.org/10.15836/ccar2026.219

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Avoiding sternotomy may improve recovery after multivessel coronary artery bypass grafting (CABG), but whether these benefits coexist with complete and durable revascularization remains uncertain.[1,2] We critically reviewed the MIST (Minimally Invasive compared to STernotomy) and STET (Sternotomy Versus Thoracotomy) randomized trials and selected comparative cohorts, distinguishing patient-reported recovery, surgical completeness, graft patency, hybrid procedures and overlapping populations. This was a focused narrative review, not a systematic review or meta-analysis.

In the open-label MIST trial (170 randomized; 91% men), minimally invasive CABG improved the one-month SF-36 Physical Component Summary score (mean difference 2.9 points, 95% CI 0.3–5.5; p=0.031). The estimate was below the protocol-specified five-point minimal clinically important difference, although its confidence interval included that threshold. Seventeen assessments were missing and addressed by multiple imputations; baseline scores were unavailable for adjustment. Median hospital stay was five days in both groups, whereas transfusion occurred in 11/85 versus 27/84 patients. Median graft counts were three in both groups, and the mean performed-to-intended graft index was 0.8; routine postoperative graft-patency imaging was not reported.

STET (184 patients), using an earlier thoracotomy approach, found no shorter time to fitness for discharge (medians six versus five days; p=0.53). In Gong's matched cohort (244 pairs), study-defined surgical completeness was 95.5% versus 96.3%. Early angiography showed 578 patent grafts among 601 assessed in 232 MICS patients; hybrid pathways were also used, including unplanned stenting in 13/244 patients. Ding's later report of the same cohort associated MICS with higher estimated ten-year survival, mainly reflecting fewer non-cardiac deaths, without routine long-term graft imaging. Ushioda (149 matched pairs) reported fewer MICS grafts and distal anastomoses. Liang (172 matched pairs) reported six-month graft patency of 92.0% versus 92.7%, with imaging unavailable for 60/344 patients.

MIST supports a modest patient-reported physical-health benefit at one month in selected patients treated by experienced teams, but not demonstrably earlier discharge. Available evidence does not establish equivalent long-term graft durability or clinical safety. Heart Team decisions should consider coronary targets, conduit strategy, potential PCI and local expertise alongside patient recovery preferences.

RECEIVED:
October 25, 2026
UPDATED:
November 4, 2026

LITERATURE

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