Retro-Aortic Right Internal Thoracic Artery Routed Via The Transverse Sinus

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Background: The left-sided bilateral internal thoracic artery (ITA) configuration of choice remains undetermined. Concerns over inaccessible retro-aortic bleeding from right ITA (RITA) side-branches or insufficient length renders this technique controversial. Outcome analysis and technical aspects are discussed.
Methods: Between 2006 and 2011, 301 patients underwent left-sided bilateral ITA grafting in whom a skeletonized RITA was routed via the transverse sinus to revascularize the circumflex territory. Included are patients in whom RITA was directed through the oblique sinus.
Results: In all patients side-branches of the retro-aortic RITA were regularly clipped without additional manipulations. Anastomoses were performed to ramus intermedius (n=37, 11.2%), first marginal (M1) (n=244, 73.9%), second marginal (M2) (n=43, 13%), third marginal (n=6, 1.8%) or to both M1-M2 (n=31, 9.4%). The respective number of grafts/ patient and ITA grafts/ patient was 3.9 ± 0.6 and 2.8 ± 0.7, respectively. Re-exploration for bleeding was documented in 7 patients (2.3%), nevertheless, in neither was the source of bleeding the retro-aortic graft. The observed incidence of early mortality, myocardial infarction and stroke compared favorably with the literature.
Conclusions: In-situ retro-aortic skeletonized RITA, routed through the transverse sinus, appears feasible. Contradictory to T-grafts and ante-aortic RITA crossover this strategy provides two in-situ ITAs and avoids retro-sternal crossover ITA. These benefits may outweigh the risk of inaccessible retro-aortic bleeding. In the majority of patients the circumflex territory is readily accessible.