Several limitations of our study need to be recognized. This is a retrospective study of a small non-randomized cohort of patients. A control group of patients with similar disease undergoing conventional surgery would be ideal, but may not be feasible. The absence of clinical ischemic events, while encouraging, does not prove the patency of the endarterectomy sites. The observational nature of the study prevents us from drawing conclusions other than the feasibility and safety of the technique.

Conflict of interest: none declared.

REFERENCES


We read with great interest the work by Takahashi et al. [1], investigating early- and mid-term outcomes of off-pump endarterectomy of the left anterior descending (LAD) artery. The study spanned a 5-year period (2008-2012) and included 12 patients. The results of the present study indicate that coronary endarterectomy can be carried out with a low operative risk in suitable patients, for whom a vascular territory would otherwise not have been revascularized. Of note, there were no ischemic events in the early- and mid-term follow-up period.

Surgeons are faced with an increasing number of patients with diffuse and advanced coronary artery disease. Therefore, many patients with diffuse LAD are currently considered inoperable by conventional coronary artery bypass grafting (CABG). Coronary endarterectomy of the LAD and the on-lay patch with a left internal thoracic artery are considered by many as a valuable option when applied in a highly selective manner to only that small percentage of target vessels otherwise not graftable [2, 3]. Indications for endarterectomy of the LAD artery include the absence of a vessel lumen, failure to pass a 1-mm probe or in-stent restenosis [4]. Coronary endarterectomy is technically challenging and care must be taken in dissecting the core from the adventitia and during the on-lay anastomosis because side diagonal artery branches could inadvertently be occluded. The surgeon must ensure that the entire plaque is removed with proper distal tapering. If distal tapering is not observed, then the arteriotomy should be extended.

The left internal thoracic artery to LAD graft has long been established as the cornerstone of improved early and late surgical outcomes for CABG. If the atherosclerotic core is removed, then competitive flow from the native coronary bed may cause occlusion of the inflow conduit, raising concerns about long-term durability of the left internal thoracic artery in this patient population. Although the internal thoracic artery is the best-equipped arterial conduit to withstand the competition between graft flow and native coronary flow, the risk of graft attrition is not insignificant [5]. Therefore, coronary patch reconstruction after endarterectomy without an inflow conduit can be performed in the absence of proximal LAD stenosis in order to avoid graft failure.

The merits of endarterectomy and arterial patch reconstruction have been reiterated by the present study. In some patients, coronary endarterectomy may be considered as the last option, but there are still many unanswered questions regarding the indications and long-term results of this treatment.

Conflict of interest: none declared.

References


eComment. Does off-pump coronary endarterectomy improve long-term outcomes?

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The publication by Takahashi et al. highlights an area with limited data [1]. They successfully performed off-pump coronary endarterectomy to the left anterior descending (LAD) artery in 12 patients. We congratulate the authors for their effort and successful results.

In this report, there are a few topics we would like to discuss. The study population belonged to a consecutive series of 232 off-pump cases performed by a single surgeon. We believe that the surgeon’s preference and experience played major role on the outcomes of coronary artery bypass grafting (CABG), particularly on
graft patency. The ROOBY trial, which represents the largest randomized controlled study on off-pump versus on-pump CABG to date, documented that graft patency was significantly and consistently lower in the off-pump group. The results were consistent with 3 major coronary regions, including the LAD. The graft patency rates in the LAD region were 89.0% in the off-pump group and 93.2% in the on-pump group ($P = 0.01$) on 1-year angiograms. Moreover, the effective revascularization rate was lower in the off-pump group (50.1% vs 63.9%, $P = 0.001$) [2].

In on-pump coronary endarterectomy cases propensity-matched to CABG alone, Lapar et al. documented comparable operative mortality, major complication and long-term survival rates [3]. Similarly, Schwann et al. reported survival benefits in on-pump CABG patients with endarterectomy similar to that described in isolated CABG patients with the use of multiple arterial grafts [4]. There are no studies documenting this relation between off-pump endarterectomy and isolated CABG. Due to the abovementioned facts, we do not think that patients will really benefit from off-pump endarterectomy.

Conflict of interest: none declared

References


