A Simple Atraumatic Clamp Technique Without a Stabilizer in Off-Pump CABG: How to Do It

Nezihi Kucukarslan, M.D., Yucesin Arslan, M.D., Melih H. Us, M.D., and Ahmet T. Yilmaz, M.D.

Gata Haydarpasa Military Training Hospital, Cardiovascular Surgery Department, Uskudar, Istanbul, Turkey

ABSTRACT A method of stabilization of the heart and the coronary artery during the construction of the distal anastomosis in coronary artery procedures without cardiopulmonary bypass is described. The technique exposes and immobilizes the coronary artery, allowing a precise anastomosis on the beating heart. In addition, it is simple, safe, and inexpensive. doi: 10.1111/j.1540-8191.2005.200499.x (J Card Surg 2005;20:453-454)

Address for correspondence: Nezihi Kucukarslan, M.D., Gata Haydarpasa Military Training Hospital, Cardiovascular Surgery Department, Uskudar, Istanbul, Turkey. Fax: +00902163487880; e-mail: nkucukarslan@hpasa.gata.edu.tr; nezihimd@hotmail.com

Coronary artery bypass grafting without cardiopulmonary bypass has become a well-established procedure in selected patients.1,2 The rationale behind this method is the avoidance of the risks of extracorporeal
circulation and cardiac arrest. The disadvantage is the difficulty in performing a precise distal anastomosis on a beating heart. Several methods to reduce anastomotic site motion including a suction device and a mechanical stabilizer have been described. Although very effective, these devices often intrude on and crowd the operative field, take time to assemble, and are extremely expensive. During the last 3 years, and in over 200 cases, we have used a simple, inexpensive method of stabilization of the heart that provides excellent exposure during the construction of the distal anastomosis on the right coronary artery and LAD artery.

**SURGICAL TECHNIQUE**

After sternotomy, the pericardium is opened and traction sutures are applied to the edge of the pericardium. After placing deep pericardial sutures bilaterally on the left and the right, when performing the right coronary artery anastomosis, we use a simple technique. As the right coronary artery courses in the atrioventricular groove, it has no side branches. It is safe and easy to make a dissection from the epicardial surface and perivascular fat tissue in this plane. After the coronary artery is being dissected from the epicardium, an atraumatic side clamp (Derra®, Aesculap, Germany) is applied to the coronary artery with minimal pressure just enough to stop bleeding. And there was no need to apply snare loops to proximal and distal part of the coronary artery. With this exposure and stability, the distal anastomosis can be safely achieved (Fig. 1).

**COMMENTS**

Steady positioning of the heart, good exposure, and the stabilization of the coronary artery to be grafted are essential for performing a technically precise anastomosis without cardiopulmonary bypass. The methods of stabilization and clamping described here fulfill these requirements, are easy to use without assistance, do not intrude on or crowd the surgical field, and are safe and inexpensive. When there is little time to perform the anastomosis, it gives you enough time and comfort without any hemodynamic disturbance. And this can be safely used in the left anterior descending artery and diagonal branches as well. We find that this technique greatly simplifies the performance of the anastomosis. A potential risk of this technique is an atherosclerotic plaque disruption in a diffusely diseased vessel, in this condition it should be avoided. With this technique, we have never seen an arterial injury, dissection, or perforation. The clamps are applied in a 2 to 3 cm part of the coronary artery and facilitate the anastomosis.

**REFERENCES**


**Editor’s Note**

Anything that reduces the amount of time, trauma, and hardware required to perform a distal anastomosis in OPCAB surgery is welcome. The authors are to be congratulated on their success with this simple use of an atraumatic vascular clamp to isolate a segment of coronary artery for rapid construction of a distal anastomosis without the displacement of the heart. The authors correctly point out concerns regarding a diffusely diseased vessel and the possibility of disrupting an atheromatous plaque. The illustration suggests the construction of the distal anastomosis in the mid RCA. Most patients that we encounter have involvement down to and near the crux, obviously not candidates for the described technique. The procedure seems attractive for the usual location of a distal anastomotic site in the LAD—assuming that a sufficient amount of LAD and periarterial fat can be isolated and caught up in the vascular clamp.

Bernard S. Goldman, M.D., F.R.C.S.C.