

## LETTERS TO THE EDITOR

**Routine Use of Unilateral and Bilateral Radial Arteries for Bypass Surgery**

I was rather alarmed by use of the word "routine" in the title of the recent article by Brodman et al. (1). According to *Webster's New World Dictionary*, routine means "a regular, more or less unvarying procedure." If this policy were indeed to be adopted by all cardiovascular surgeons, they would certainly lose a lot of their interventional cardiologist colleagues and, indirectly, patients.

With the recent introduction of the percutaneous transradial approach for coronary arteriography and angioplasty, one should think twice before removing the radial artery and using it as a conduit for coronary artery bypass graft surgery. The transradial angiographic-angioplastic approach has gained increasing popularity in recent years among the interventional cardiologists because of its suitability as an alternative to approaches through the femoral and brachial arteries which have occlusive arteriosclerosis, low risk of vascular complications, high rate of success, early patient ambulation and shortened postprocedure hospital stay (2). Therefore, instead of routine use, the radial artery as a conduit for coronary artery bypass surgery should be used only as a last recourse. I agree with the recommendations by Manasse et al. (3) in favor of using the radial artery of the nondominant arm only and against using both radial arteries in the same patient.

There is another risk of routine use of unilateral and bilateral radial arteries for coronary artery bypass graft surgery. If patients forgot to inform health care providers of previous radial artery catheterization, or if patients fainted for any noncardiac reasons, the absence of a palpable radial pulse, especially on both sides, would automatically lead to immediate cardiopulmonary resuscitation, which could not only lead to potentially disastrous consequences but also create rather embarrassing moments for all concerned.

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**References**

1. Brodman RF, Frame R, Camacho M, Hu E, Chen A, Hollinger I. Routine use of unilateral and bilateral radial arteries for coronary artery bypass graft surgery. *J Am Coll Cardiol* 1996;28:959-63.
2. Cheng TO. Minimally invasive coronary catheterization: Western technology and Eastern dexterity. *Cathet Cardiovasc Diagn* 1997;40:164-5.
3. Manasse E, Sperti G, Suma H, et al. Use of the radial artery for myocardial revascularization. *Ann Thorac Surg* 1996;62:1076-83.

**Reply**

We appreciate Cheng's pithy comments. He has echoed some important concerns regarding our use of both radial arteries and the radial artery from the dominant forearm if the nondominant forearm radial

artery cannot be safely harvested. The intended purpose of using one or both radial arteries is to achieve total or near total arterial revascularization when used in conjunction with the left internal thoracic artery using an intraoperative protocol that is "more or less unvarying" or routine. Our use of one or both radial arteries as coronary bypass graft conduits emphasizes our desire to use the highest quality arterial bypass grafts currently available. We have found that there are benefits to avoiding routine saphenous vein bypass graft harvest that include less immediate morbidity, such as decreased pain, decreased wound infection rates, rapid ambulation and reduced length of hospital stay. The perceived long-term benefits of a surgical protocol that utilizes maximally other arterial grafts along with the internal thoracic arteries are longer relief of angina, reduced rate of coronary events, improved long-term survival and a reduction or elimination in the need for reoperative surgery due to the development of bypass graft atherosclerosis. The potential for reducing the need for cardiac catheterization laboratory procedures, including less angiography, angioplasty and stenting after bypass surgery are also self-evident. Regarding the loss of radial artery access for percutaneous transradial coronary arteriography and angioplasty, we recognize Cheng's contributions in this area and do concur that the use of bilateral radial arteries eliminates this useful route of access. Newer techniques that visualize the coronary artery tree and bypass grafts noninvasively may obviate many invasive diagnostic catheterization laboratory procedures.

Because the radial arteries are harvested using curvilinear forearm surgical incisions, the harvest incisions are visible by inspection whether unilateral or bilateral. Additionally, not infrequently, patients have a palpable radial pulse in the distal stump. Brachial, femoral, carotid or superficial temporal pulses are options available for palpating a pulse during cardiopulmonary resuscitation. Use of the radial artery from only the nondominant forearm as suggested by Manasse et al. (1) is prudent in an initial clinical experience with the radial artery. Safe radial artery harvest requires appropriate assessment of the adequacy of forearm collateral flow and palmar arch continuity. The high level of safety with routine harvesting of the radial artery in our experience is due to our use of an assessment protocol that is simple to perform and objective.

Unlike Cheng, we have found the cardiologists at our institution enthusiastic about radial artery use, much more so than they were for use of the inferior epigastric or gastroepiploic arteries. Patients with radial artery bypass grafts are our best advertisement. In the words of one of our patients, "As an 84-year old, I appreciate your interest in looking out for my long-term welfare. I saw how my brother looked after his surgery when he was 10 years younger than I am now. I think I look 10 times as good in a shorter period of time."

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