ciates' procedure results in a functional interdependency between the right and left coronary systems, whereas its concrete functional consequences are unknown.

Nottin and coworkers³ later introduced the use of an arterial conduit mainly in a right-right CCB fashion. Although Nottin and coworkers had never argued about the physiologic aspects of CCB (just in view of arterial conduit sparing), their approach seems to be more physiologic, avoiding the creation of functional imbrications between the right and left coronary systems. The common point of the two aforementioned techniques is nevertheless that the proximal anastomosis takes off from a purely coronary physiology, which is partly caused by the coronary prompting effect of the sinus of Valsalva.^{4,5}

On the contrary, the inflow of the CCB that is proposed by the authors takes off from the midportion of the LAD. Because the mid-LAD is subserved itself by the in situ left internal thoracic artery, the authors' CCB is governed by an aorta-coronary physiology rather than by the coronary physiology.

Consequently and in a physiologic point of view, the CCB proposed by the authors is just an indirect prolongation of in situ left internal thoracic artery aorta-coronary bypass, which I suggest to call an *anatomic CCB*. This latter procedure should not carry the expected flow advantages of an authentic physiologic CCB, such as the procedure of Nottin and coworkers.³

In conclusion, I would congratulate Dr Nežić's team for their innovation and especially their interest in CCB grafting and its physiologic features.

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References

1. Nežić DG, Knežević AM, Ćirković MV, Nešković VČ, Vuković PM, Nešković AN. The dilemma of skeletonized internal thoracic artery sequential bypass versus proximal pedicled in situ internal thoracic artery plus coronary-coronary free internal thoracic artery bypass for multiple lesions of the left anterior descending coronary artery. *J Thorac Cardiovasc Surg.* 2004;127:1810-2.
2. Biglioli P, Alamanni F, Antona C, Sala A, Susini G. Coronary-coronary bypass: theoretical basis and techniques. *J Cardiovasc Surg (Torino).* 1987;28:333-5.
3. Nottin R, Grinda JM, Anidjar S, Folliquet T, Detroux M. Coronary-coronary bypass graft: an arterial conduit-sparing procedure. *J Thorac Cardiovasc Surg.* 1996;112:1223-30.
4. Nishida H, Grooters RK, Endo M, Koyanagi H, Merkley DF, Thieman KC, et al. Flow study of coronary-coronary bypass grafting. *Cardiovasc Surg.* 1993;1:296-9.
5. Yacoub MH, Cohn LH. Novel approaches to cardiac valve repair: from structure to function: part I. *Circulation.* 2004;109:942-50. doi:10.1016/j.jtcvs.2004.06.019

Reply to the Editor:

I read with great interest the comments of Dr Aazami about the article my colleagues and I recently published in *The Journal of Thoracic and Cardiovascular Surgery*.¹

We absolutely agree that the physiologic benefit (ie, diastolic blood flow closer to physiologic norms) of coronary-coronary bypass (CCB) grafting can be achieved only when the origin and initial segment of the targeted coronary artery are free of atherosclerotic lesions. In such a case we can use this region as a site of proximal anastomosis in a CCB graft procedure, thus using the advantages of the coronary prompting effect of sinuses of Valsalva.^{2,3}

We were able to use these advantages in 2 patients with multivessel coronary artery disease, including single distal stenosis on a large left anterior descending artery (LAD) running well over the cardiac apex. These distal LAD lesions were bypassed with the CCB grafting technique by using a short segment of the left internal thoracic artery⁴ and a short segment of the radial artery, respectively.⁵

There are very few articles in the literature discussing the CCB graft technique. In our article,¹ Biglioli and colleagues² were cited to assure the readers that such an approach had been tested and that normal or natural (physiologic rather than anatomic) flow could be expected in the distal third of the bypassed LAD (supported, of course, in this case with mid-LAD flow from the in situ left internal thoracic artery). From our point of view, this CCB is rather an imitation of the normal LAD vascular bed (especially if anastomoses were created in a terminoterminal fashion) than prolongation of an in situ left internal thoracic artery graft.

In our opinion, neither the procedure of Biglioli and colleagues² nor that of Nottin and coworkers⁶ is able to imitate pure physiologic coronary flow. With the proximal anastomosis of CCB grafting (in both procedures) at the origin of the right coronary artery (RCA; Figure 1 in Nottin and

coworkers⁶), there is at least an artificially created new double orifice, causing blood flow turbulence and thus affecting the physiology of natural blood flow and distribution.

I would go even beyond the guidelines, suggesting that CCB grafting is a possible solution for low-grade stenosis (50%-60%) of the RCA, of course in the presence of significant multivessel coronary artery disease. It is very widely known that such an RCA stenosis represents a real challenge for the cardiac surgeon. All the grafts (arterial and venous) that have been used have had the worst patency rate in such conditions.^{7,8} Perhaps CCB grafting (with the RCA region free of lesions below the orifice as a site of proximal anastomosis, even in a terminoterminal fashion) would be a good choice.

Finally, we have just refreshed the idea of Dr Barbosa and Dr Rusticali (they were cited in our article), and therefore they deserved Dr Aazami's congratulations for the innovation.

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References

1. Nežić DG, Knežević AM, Ćirković MV, Nešković VČ, Vuković PM, Nešković AN. The dilemma of skeletonized internal thoracic artery sequential bypass versus proximal pedicled in situ internal thoracic artery plus coronary-coronary free internal thoracic artery bypass for multiple lesions of the left anterior descending coronary artery. *J Thorac Cardiovasc Surg.* 2004;127:1810-2.
2. Biglioli P, Alamanni F, Antona SC, Sala A, Susini G. Coronary-coronary bypass: theoretical basis and techniques. *J Cardiovasc Surg.* 1987;28:333-5.
3. Nishida H, Grooters RK, Endo M, Koyanagi H, Merkley DF, Thieman KC, et al. Flow study of coronary-coronary bypass grafting. *Cardiovasc Surg.* 1993;1:296-9.
4. Nežić D, Knežević A, Borović S, Ćirković M, Milojević P. Coronary-coronary free internal thoracic artery graft on a single, distal, left anterior descending artery lesion. *J Thorac Cardiovasc Surg.* 2004;127:1517-8.
5. Nežić D, Ćirković M, Knežević A, Mangovski LJ. Coronary-coronary radial artery graft for single, distal LAD lesion. *Ann Thorac Surg.* 2004;78:1078-80.
6. Nottin R, Grinda JM, Anidjar S, Folliquet T, Detroux M. Coronary-coronary bypass graft: an arterial conduit-sparing procedure. *J Thorac Cardiovasc Surg.* 1996;112:1223-30.
7. Tatoulis J, Buxton B, Fuller J. Patencies of 2127 arterial to coronary conduits over 15 years. *Ann Thorac Surg.* 2004;77:93-101.

8. Shah P, Gordon I, Fuller J, Seevanayagam S, Rosalion A, Tatoulis J. et al. Factors affecting saphenous vein graft patency: clinical and angiographic study in 1402 symptomatic patients operated on between 1977 and 1999. *J Thorac Cardiovasc Surg.* 2003;126:1972-7. doi:10.1016/j.jtcvs.2004.06.020

Thymic neuroendocrine carcinoma (carcinoid): What if octreotide scanning is negative?

To the Editor:

I was interested to read Filosso and colleagues' recent description¹ of a case of thymic neuroendocrine carcinoma (carcinoid) successfully treated with neoadjuvant radiotherapy and chemotherapy and the somatostatin (sst₂) analog octreotide. Filosso and colleagues¹ stated, "Neuroendocrine tumors, including thymic tumors, express sst₂ at immunohistochemistry." Other than octreotide scanning and computed tomography or magnetic resonance imaging (which were clearly useful in their case), they did not discuss other methods of localizing these tumors. This gives the impression that all thymic neuroendocrine carcinomas may be detected with octreotide scanning. However, although others have also reported octreotide scanning to be of use in detecting thymic neuroendocrine tumors,^{2,3} this is not always the case. A recent case series found none of 12 cases to have positive results for sst₂ receptors.⁴ Thus if results of octreotide scanning are negative, other methods may be needed for accurately localization of both the primary tumor and any metastases to treat cases of thymic neuroendocrine carcinoma as successfully as did Filosso and colleagues.¹ Other such methods that may be useful are positron emission tomographic scanning with fluorodeoxyglucose labeled with fluorine 18 and

scanning with metaiodobenzylguanidine labeled with iodine 123.^{4,5} In 2 cases briefly reported from Guy's Hospital,⁵ 1 patient underwent octreotide scanning, with negative results. However, positron emission tomographic scanning localized metastases, and radiolabeled metaiodobenzylguanidine was used to treat these metastases.

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References

1. Filosso PL, Actis Dato GM, Ruffini E, Bretti S, Ozzello F, Mancuso M. Multidisciplinary treatment of advanced thymic neuroendocrine carcinoma (carcinoid): report of a successful case and review of the literature. *J Thorac Cardiovasc Surg.* 2004;127:1215-9.
2. Nilsson O, Kolby L, Wangberg B, Wigander A, Billig H, William-Olsson L, et al. Comparative studies on the expression of somatostatin receptor subtypes, outcome of octreotide scintigraphy and response to octreotide treatment in patients with carcinoid tumours. *Br J Cancer* 1998;77:632-7.
3. Silva F, Vazquez-Selles J, Aguilo F, Vazquez G, Flores C. Recurrent ectopic adrenocorticotrophic hormone producing thymic carcinoid detected with octreotide imaging. *Clin Nucl Med.* 1999;24:109-10.
4. Tiffet O, Nicholson AG, Ladas G, Sheppard MN, Goldstraw P. A clinicopathologic study of 12 neuroendocrine tumors arising in the thymus. *Chest.* 2003;124:141-6.
5. Whitaker D, Dussek J. The use of PET scanning in neuroendocrine tumors of the thymus [letter]. *Chest.* 2004;125:2368-9. doi:10.1016/j.jtcvs.2004.07.003

Reply to the Editor:

I thank Whitaker for his interest in our recently published article.¹ The message of this article was the feasibility and the efficacy of a multidisciplinary (chemoradiotherapy, surgery, and biologic therapy)

treatment for a giant and biologically aggressive thymic neuroendocrine tumor.

The patient underwent preoperative octreotide scintigraphy with positive results, the in vivo demonstration of the somatostatin receptors presence in the neoplastic tissue. It is widely known that neuroendocrine tumors can have negative results of octreotide scintigraphy; in my own experience, I have observed several bronchial carcinoids (both typical and atypical) with negative results of octreotide scintigraphy and without somatostatin receptors in surgical specimens. In some of these cases, positron emission tomographic (PET) scan results were positive. Probably these cases represent a more aggressive variant of neuroendocrine neoplasm, but further reports are needed to confirm this hypothesis.

I agree with Whitaker's suggestion to use PET scan when results of octreotide scintigraphy are negative in the preoperative patient assessment. One must consider, however, that PET scan is not widely available in my country, and the cost of this procedure is still high. Had the patient I described had negative results of octreotide scintigraphy, I definitely would have considered PET or metaiodobenzylguanidine scanning.

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Reference

1. Filosso PL, Actis Dato GM, Ruffini E, Bretti S, Ozzello F, Mancuso M. Multidisciplinary treatment of advanced thymic neuroendocrine carcinoma (carcinoid): report of a successful case and review of the literature. *J Thorac Cardiovasc Surg.* 2004;127:1215-9. doi:10.1016/j.jtcvs.2004.07.004