were superior to Portex drains (Portex, Inc, Keene, NH), the power calculation of the study would have been entirely different and the patient number much higher. This would have effectively made the study impossible to perform because of the logistic difficulty of arranging postoperative echocardiography in a defined time period after drain removal.

Second, we agree that Akowuah and colleagues² clearly demonstrated less pain associated with Blake drains when compared with Portex drains. In fact, the differences between the groups were dramatic; thus, their conclusions about the benefit of Blake drains on postoperative pain were valid even with the small patient numbers. Before initiating our study we performed an assessment of pain scores between the 2 drain systems in patients with patient-controlled analgesia postoperatively to avoid the bias of unequal analgesic regimens. By using a 0 to 100 visual analogue pain score, we documented a similar baseline in 20 patients (21 ± 25 Blake vs 34 ± 26 Portex, $P = .28$) but a lower drain removal score (40 ± 21 Blake vs 69 ± 21 Portex, $P = .006$) in favor of Blake drains. We believed the benefit of Blake drains in terms of pain reduction to be undoubted and performed our study because it could be argued that Akowuah and colleagues' conclusions of equivalence of drainage efficacy were based on an underpowered sample.

Finally, we apologize if we misquoted Mair and colleagues' correspondence by summarizing "the only way to reduce patient discomfort is to use smaller and softer drains." The exact quote in relation to Barnard and colleagues' article³ was "the authors focus on analgesia for chest drain removal. But in our opinion it is more important to use modern drainage techniques for pain reduction while removing drains after thoracic and cardiac surgery." In this aspect we agree with Mair and colleagues that modern drainage techniques are most important for pain reduction after cardiothoracic surgery. We are pleased that our randomized control trial data confirm their clinical observations that Blake drains

are as effective as conventional drains, and we also advocate their use.

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References

1. Roberts N, Boehm M, Bates M, Braidley PC, Cooper GJ, Spyt TJ. Two-center prospective randomized controlled trial of Blake versus Portex drains after cardiac surgery. *J Thorac Cardiovasc Surg.* 2006;132:1042-6.
2. Akowuah E, Ho E, George R, Brennan K, Tennant S, Braidley P, et al. Less pain with flexible fluted silicone chest drains than with conventional rigid chest tubes after cardiac surgery. *J Thorac Cardiovasc Surg.* 2002;124:1027-8.
3. Barnard J, Thompson J, Dunning J. Can any intervention effectively reduce the pain associated with chest drain removal? *Interact CardioVasc Thorac Surg.* 2004;3:229-32.
doi:10.1016/j.jtcvs.2006.12.015

Endovascular repair of postoperative aortobronchopulmonary fistulas To the Editor:

We read with great interest the brief communication by Quintana and colleagues,¹ and we congratulate their successful endovascular treatment of an aortobronchial fistula. Management of such fistulas is not easy. Diagnosis is difficult due to the rarity of this entity and because even modern preoperative investigations sometimes fail to directly visualize the fistula. Surgical treatment represents a real challenge due to coexistence of emergency conditions and difficulties of redo operations. In a collective review of the literature (to our knowledge the unique reporting specifically of postoperative aortic fistulas into the airways), which included all published cases from 1947 to October 2002, one of us (M.P.) found this complication in 76 patients, for a total of 79 fistulas (3 patients were affected by 2 fistulas).² The review disclosed

that 50 fistulas involving the descending thoracic aorta were treated by heterogeneous surgical procedures (primary, patch, or subclavian flap repair, graft replacement, homograft implant, extra-anatomic bypass graft), with a mortality rate of 16% and with most patients dying intraoperatively. Instead, there were no deaths related to procedure type, respectively, in 15 patients treated by stent grafts, in 1 patient managed by transcatheter embolization, and in 5 surgically treated cases involving the ascending aorta. Although in selected patients endovascular repair has been used as an emergency or palliative alternative to treat even primary fistulas due to atherosclerotic aneurysms³ or pulmonary infectious disease,⁴ we believe that its best indication lies in the late postoperative setting. Despite the potential infectious complications of stent grafts, we believe that the endovascular option to treat postoperative aortobronchial and aortopulmonary fistulas represents the appropriate solution because it avoids high morbidity and mortality rates of urgent redo operations.

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References

1. Quintana AL, Aguilar EM, Heredero AF, Riambau V, Paul L, Acin F, et al. Aortobronchial fistula after aortic coarctation. *J Thorac Cardiovasc Surg.* 2006;131:240-3.
2. Picichè M, De Paulis R, Fabbri A, Chiariello L. Postoperative aortic fistulas into the airways: etiology, pathogenesis, presentation, diagnosis and management. *Ann Thorac Surg.* 2003;75:1998-2006.
3. Léobon B, Roux D, Mugniot A, Rousseau H, Cérene A, Glock Y, et al. Endovascular treatment of thoracic aortic fistulas. *Ann Thorac Surg.* 2002;74:247-9.
4. Yoo JH, Lee CT, Shim YS, Chung JW, Ahn H, Kim KW. Aortobronchial fistula presenting as recurrent hemoptysis and successfully treated with an endovascular stent graft. *Respiration.* 2001;68:537-9.

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