left and right ventricles) on the patch is carried by the suture itself instead of its pledget. This creates a gliding effect on the myocardium. We think that this is the reason for the high incidence of residual VSD. Did the authors consider any standardization of the patch size?

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Reference

1. Brancaccio G, Michielon G, Filippelli S, Perri G, Di Carlo D, Iorio FS, et al. Transannular patching is a valid alternative for tetralogy of Fallot and complete atrioventricular septal defect repair. *J Thorac Cardiovasc Surg.* 2009;137:919-23.

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Reply to the Editor:

We thank Kestelli and associates for their comments. Two mechanisms are involved in the etiology of the associ-

ation of tetralogy of Fallot and complete atrioventricular septal defect: the anterior deviation of conal septum and the lack of conal septum contribution to the development of the atrioventricular valves.¹ These mechanisms are responsible for the right ventricular outflow tract obstruction and the creation of a wide ventricular septal defect (VSD) with subaortic extension, respectively. The embryologic basis explains that the closure of the VSD is not responsible for pulmonary stenosis and that resection of the septomarginalis trabecula could not be sufficient to relieve the right ventricular outflow tract.

The incidence of residual VSD reported in our study (9%) is consistent with previous reports^{2,3} and mostly related to technical issues across 15 years of experience, in which VSD closure was performed with a single continuous suture. During the past 9 years we have modified our technique, adopting multiple interrupted sutures reinforced with pledgets. As suggested by He and Mee,² the size and shape of the patch for VSD closure is important.

The patch is shaped like a comma and inserted on the right side of the inter-ventricular septum to avoid atrioventricular block. The sizing is chosen to avoid left ventricular outflow tract obstruction, if too large, and residual VSD, if too small.

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References

1. Thiene G, Frescura C, Di Donato R, Gallucci V. Complete atrioventricular canal associated with conotruncal malformations: anatomical observations in 13 specimens. *Eur J Cardiol.* 1979;3:199-213.
2. He GW, Mee RB. Complete atrioventricular canal associated with tetralogy of Fallot or double-outlet right ventricle and right ventricular outflow tract obstruction: a report of successful surgical treatment. *Ann Thorac Surg.* 1986;41:612-5.
3. Delius RE, Kumar RV, Elliott MJ, Stark J, de Leval MR. Atrioventricular septal defect and tetralogy of Fallot: a 15-year experience. *Eur J Cardiothorac Surg.* 1997;12:171-6.

doi:10.1016/j.jtcvs.2010.01.037