Res Cardiovasc Med. 2016 May; 5(2): e32683. doi: 10.5812/cardiovascmed.32683

Published online 2016 March 5. **Letter**

Letter to the editor on "Early and Mid-Term Outcome of Pediatric Congenital Mitral Valve Surgery"

Cristina Barbero[1,*] and Mauro Rinaldi[1]

[1]Department of Cardiovascular and Thoracic Surgery, City of Science and Health, Molinette Hospital, University of Turin, Turin, Italy

*Corresponding author: Cristina Barbero, Department of Cardiovascular and Thoracic Surgery, City of Science and Health, Molinette Hospital, University of Turin, Turin, Italy. Tel: +39-0116335511, Fax: +39-0116336130, E-mail: cristinafrancesca82@gmail.com

Received 2015 August 31; **Accepted** 2015 September 1.

Keywords: Minimal Access Surgical Procedures, Mitral Valve, Thoracotomy

Dear Editor,

We read with great interest the study by Baghaei et al., and we congratulate the researchers for the noteworthy objective and results (1). The author reviewed 100 consecutive pediatric patients with congenital mitral valve disease that underwent mitral valve surgery through median sternotomy. Although in this study, most of the population was very young (mean age of 42.4 months, age range of 1 - 156 months, with 26 patients under one year old), we would like to highlight that today, minimally invasive surgery (MIS) can also be a feasible and safe tool in cases of congenital mitral valve disease in children.

Previously published reports have already shown excellent results of MIS in mitral valve disease in adults (2, 3). However nowdays, there is a growing interest also in MIS for pediatric patients. Most of the reports in the pediatric literature concern atrial septal defect (ASD) closures or procedures with robotic surgical systems on extracardiac lesions; few reports show MIS applied to ventricular septal defect closures or to more complex defects (4-7). Very little has been reported on MIS used in the treatment of congenital mitral valve disease in pediatric patients (8). In 2013, we described the case of a 13-year-old child that underwent mitral prosthesis replacement through a right minithoracotomy using a port-access platform with peripheral cannulation and an endo-aortic balloon catheter for aortic clamping. The patient had undergone three previous cardiac surgeries (9). Venous drainage was obtained with double jugular and femoral vein cannulation. The jugular venous cannula (14 F DLP cannula; Medtronic, Minneapolis, Minnesota, USA) was placed percutaneously, whereas the femoral cannula (19 F Bio Medicus, Medtronic) was inserted through the groin incision. The right femoral artery was cannulated with a 21 F arterial Y-cannula (EndoReturn; Edwards Lifesciences, Irvine, California, USA). Correct positioning of the cannulae and of the endoclamping balloon were confirmed under transesophageal echocardiogram guidance.

Concerns regarding MIS in pediatric patients are mainly related to the risk of inadequate flow caused by peripheral cannulae in small vessels. Our case report demonstrated the feasibility of a mitral valve procedure with peripheral cannulation and endo-aortic balloon clamping even in children; moreover, it allowed to avoid a reentry sternotomy with the associated risk of cardiac injury.

The use of MIS in pediatric patients with congenital mitral valve disease is certainly limited by surface area and by the diameter of the femoral vessels; however, we believe that this tool must be taken into consideration during the in the surgical planning processes and surgical planning processes for younger patients.

Footnote

Authors' Contribution: Cristina Barbero drafted the article; Mauro Rinaldi revised the article and approved the final version for publication.

References

1. Baghaei R, Tabib A, Jalili F, Totonchi Z, Mahdavi M, Ghadrdoost B. Early and Mid-Term Outcome of Pediatric Congenital Mitral Valve Surgery. *Res Cardiovasc Med.* 2015;**4**(3):e28724. doi: 10.5812/cardiovascmed.28724v2. [PubMed: 26446282]
2. Modi P, Hassan A, Chitwood WR. Minimally invasive mitral valve surgery: a systematic review and meta-analysis. *Eur J Cardiothorac Surg.* 2008;**34**(5):943–52. doi: 10.1016/j.ejcts.2008.07.057. [PubMed: 18829343]
3. Algarni KD, Suri RM, Schaff H. Minimally invasive mitral valve surgery: Does it make a difference? *Trends Cardiovasc Med.* 2015;**25**(5):456–65. doi: 10.1016/j.tcm.2014.12.007. [PubMed: 25640311]
4. Liu YL, Zhang HJ, Sun HS, Li SJ, Yan J, Su JW, et al. Repair of cardiac defects through a shorter right lateral thoracotomy in children. *Ann Thorac Surg.* 2000;**70**(3):738–41. [PubMed: 11016303]
5. Bauer M, Alexi-Meskishvilli V, Nakic Z, Redzepagic S, Bauer U,

Weng Y, et al. The correction of congenital heart defects with less invasive approaches. *Thorac Cardiovasc Surg.* 2000;**48**(2):67–71. doi: 10.1055/s-2000-9867. [PubMed: 11028706]
6. Suematsu Y, del Nido PJ. Robotic pediatric cardiac surgery: present and future perspectives. *Am J Surg.* 2004;**188**(4A Suppl):98S–103S. doi: 10.1016/j.amjsurg.2004.08.003. [PubMed: 15476659]
7. Le Bret E, Papadatos S, Folliguet T, Carbognani D, Petrie J, Aggoun Y, et al. Interruption of patent ductus arteriosus in children: robotically assisted versus videothoracoscopic surgery. *J Thorac Cardiovasc Surg.* 2002;**123**(5):973–6. [PubMed: 12019384]
8. Mishaly D, Ghosh P, Preisman S. Minimally invasive congenital cardiac surgery through right anterior minithoracotomy approach. *Ann Thorac Surg.* 2008;**85**(3):831–5. doi: 10.1016/j.athoracsur.2007.11.068. [PubMed: 18291151]
9. Ricci D, Barbero C, Boffini M, El Qarra S, Ivaldi F, Deorsola L, et al. Port-access redo mitral valve surgery in a 13-year-old child. *J Thorac Cardiovasc Surg.* 2013;**146**(4):e33–5. doi: 10.1016/j.jtcvs.2013.06.024. [PubMed: 23879930]