

## Letter to the Editor

### Editöre Mektup

#### Surgical single-stage repair of aortic arch obstructions associated with transposition of the great arteries and ventricular septal defect through a single incision

*Büyük damarların transpozisyonu ve ventriküler septal defekt ile birlikte bulunan aortik arkus obstrüksiyonlarının tek insizyon ve tek aşamalı cerrahi tedavisi*

**Can Çağlar Erdem, Andrew Savage**

Department of Cardiothoracic Surgery, Medical University of South Carolina, USA

Dear Editor,

We read with greatest interest Ozkara and colleagues<sup>[1]</sup> article describing their technique for the surgical repair of transposition of great arteries with ventricular septal defect (VSD) and interrupted aortic arch (IAA). We would like to congratulate the authors for their work on this rare and challenging presentation of the newborn.

As the authors have commented, since two-stage approach has been associated with a high mortality in these patients, single-stage repair of the aortic arch at the same time as the arterial switch operation (ASO) is now advocated to be the procedure of choice by certain group of surgeons.<sup>[2]</sup> In addition to that, the institution of moderate-deep hypothermia with low-flow antegrade perfusion of the innominate artery during arch reconstruction has eliminated the need for total circulatory arrest (TCA), which is well known to be associated with poor neurological outcomes.<sup>[3]</sup>

Within the last few couple of years, we have had three cases in our institute, in which the patients had a very similar presentation with the only difference being an aortic coarctation instead of an IAA. Similar to the description by Kostelka and coworkers,<sup>[3]</sup> we performed single-stage repair through a single median sternotomy (MS) incision without utilizing TCA and all the patients did well postoperatively without any adverse neurological outcome.

In contrast to what the authors herein have described in their paper, we have found some minor differences

in our technique, as well. Since a right atriotomy had already been made in these patients for VSD closure, following an initial dose of antegrade cardioplegia, our preference was the use of intermittent retrograde cardioplegia to prevent any possible inadvertent coronary injuries. Given the fact that coronary translocation is an important part of this operation and the coronaries are one of the main determinants of both early and late term survival, we feel more comfortable this way as opposed to the risks associated with retrograde cardioplegia itself. Other than that, the use of a homograft pericardium has been our preference for the reconstruction of the main pulmonary artery as well as the VSD closure.

We would also like to comment on the authors' preference of making two incisions for the repair of this rather complex pathology. It has already been well documented that both thoracotomy and MS are involved in the development of thoracic scoliosis and gait abnormalities in children with or without congenital heart disease.<sup>[4]</sup> Having stated that, we believe that a total repair through a single MS incision would result in a lesser likelihood of such an adverse outcome as well as a more than likely decrease in postoperative morbidity and length of stay.

In conclusion, we agree with the authors that a single-stage approach for the repair of aortic arch at the same time as the ASO is a better alternative to the two-stage approach and we congratulate them one more time for their work.

### REFERENCES

1. Ozkara A, Cetin G, Koner O, Saltik L, Kansiz E. Transposition of the great arteries with ventricular septal defect and interrupted aortic arch: a successful surgical correction with one stage and two separate incisions. *Türk Göğüs Kalp Damar Cer Derg* 2006;14:230-2.
2. Tchervenkov CI, Tahta SA, Cecere R, Beland MJ. Single-stage arterial switch with aortic arch enlargement for transposition complexes with aortic arch obstruction. *Ann Thorac Surg* 1997;64:1776-81.
3. Kostelka M, Walther T, Geerds I, Rastan A, Jacobs S, Dähnert I, et al. Primary repair for aortic arch obstruction associated with ventricular septal defect. *Ann Thorac Surg* 2004;78:1989-93.
4. Ruiz-Iban MA, Burgos J, Aguado HJ, Diaz-Heredia J, Roger I, Muriel A, et al. Scoliosis after median sternotomy in children with congenital heart disease. *Spine* 2005;30:E214-8.

*Correspondence:* Dr. Can Çağlar Erdem, Medical University of South Carolina, Department of Cardiothoracic Surgery, Charleston, SC, 29425 USA.

Tel: 001-507-250-3222 e-mail: drcanerdem@hotmail.com

**Author's reply**

Dear Editor,

We appreciate the authors for their letter in reference to our article entitled "Transposition of the great arteries with ventricular septal defect and interrupted aortic arch: a successful surgical correction with one stage and two separate incisions" that was recently published in Turkish Journal of Thoracic and Cardiovascular Surgery.<sup>[1]</sup>

We agree with the authors about one-stage repair in patients with transposition of great arteries with aortic arch anomalies. This case was operated on at the beginning of our experience. With development of our practice we preferred one-stage repair for such cases. For neonates with intracardiac defects associated with aortic arch anomalies we performed one-stage operation with innominate cannulation as the authors described. Alternatively, neonate coarctations associated with intracardiac defects can be repaired by off-pump

surgery.<sup>[2]</sup> Aortic arch repair can be made successfully before intracardiac repair. Moreover, we think that type A interruption may also be suitable for such operations.

Apart from these, two-stage repair is still a safe choice for some cases with aortic arch anomalies associated with transposition of great arteries.

Yours sincerely,

**REFERENCES**

1. Ozkara A, Cetin G, Koner O, Saltik L, Kansiz E. Transposition of the great arteries with ventricular septal defect and interrupted aortic arch: a successful surgical correction with one stage and two separate incisions. Turkish J Thorac Cardiovascular Surg 2006;14(3):230-2.
2. Ozkara A, Cetin G, Tireli E, Akçevin A, Koner O, Soyler I, et al. Off pump repair of aortic arch anomalies with concomitant intracardiac defects via anterior approach. J Card Surg 2006;21:550-2.

*Correspondence:* Gürkan Çetin, M.D. İstanbul Üniversitesi Kardiyoloji Enstitüsü, Kalp ve Damar Cerrahisi Kliniği, 34034 Haseki, İstanbul.  
Tel: 0216 - 325 29 79 e-mail: gurkan@istanbul.edu.tr