LETTERS TO THE EDITOR

Total cavopulmonary direct anastomosis

To the Editor:

In the June 1996 issue of this Journal, van Son, Reddy, and Hanley¹ described a technique of total cavopulmonary connection by means of direct anastomosis between the superior vena cava (bilateral, in this case) and the pulmonary artery and between the transected inferior vena cava (IVC) and the transected, mobilized pulmonary trunk (PT). No patches or conduits were used.

We are pleased to see that this technique, described by our group in 1993,² has been used with success by other groups. We pointed out that this procedure combines the advantage of a tubular connection and of full growth potential. Van Son, Reddy, and Hanley fully agree with this assumption.

These authors rightly remark that this technique is easier to use when the ascending aorta is in the L-malposition spatial arrangement; the PT is then located posteriorly and to the right, at the shortest distance from the IVC-right atrial junction. In the case we described, left atrial appendage juxtaposition facilitated the direct anastomosis even more, by reducing the superoinferior axis of the right atrium (i.e., the intercaval distance).

We wish to comment briefly on the article by van Son and colleagues.

1. In their description, the distal anastomosis (IVC-PT) was performed first. We now believe that this is better than performing the bilateral cavopulmonary anastomosis as the initial step, as we had suggested; the superior vena cava is always long enough to allow for the anastomosis with the right pulmonary artery, even if inferiorly displaced by the IVC-PT anastomosis.

2. From their Fig. 2, one would assume that the IVC-PT anastomosis lies anterior to the right atrium. The surgeon should also be aware that a posterior course of this tubular connection is also acceptable, probably with lesser tension. Concern for compression by the atrial mass is unwarranted, because of the mean pressure gradient between these structures.

3. We agree that an atrial cuff, perhaps a beveled one, may allow a tension-free IVC-PT anastomosis. Occasionally, we have adopted a lateral atrial cuff to bridge a longer IVC-PT distance and completed the anastomosis medially with autologous pericardium (unpublished data).

4. This technique implies extensive dissection of the main pulmonary branches, in a way not dissimilar from the Lecompte maneuver for the arterial switch operation. Accordingly, a prior bilateral cavopulmonary anastomosis may be a complicating factor or even a contraindication. When this kind of repair is being planned, consideration should be given to an early total cavopulmonary connection, rather than to performing intermediate orthoterminal steps. Concern for early development of arrhythmias³ and pulmonary arteriovenous fistulas⁴ seem to validate this approach for many patients with single ventricle physiology.

We wish to congratulate van Son, Reddy, and Hanley for emphasizing again the advantages of this technique, which may well represent, in selected cases, the best solution for a total cavopulmonary connection.

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REFERENCES

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Reply to the Editor:

We have read with interest the letter from Di Carlo, Carotti, and Amodeo, which discusses our case report on the use of total cavopulmonary connection without the use of prosthetic material. At the time of our procedure and the subsequent case report, we were unaware of the contributions in this regard by Dr. Carotti and his colleagues. Our failure to cite their experience in our bibliography is clearly an oversight.

We agree wholeheartedly with most of the comments made by Di Carlo, Carotti, and Amodeo in their letter, with one exception. Point 3 suggests that an atrial cuff can be taken around the inferior vena cava, which may allow a more tension-free anastomosis between the inferior vena cava and the pulmonary trunk. This recommendation is somewhat controversial in that the result would involve atrial incisions and atrial suture lines, which might lead to rhythm disturbances. Avoidance of atrial incisions is one of the major attractions, in our opinion, of the extracardiac total cavopulmonary connection. It is not clear to us that the benefit of complete avoidance of prosthetic material would outweigh the potential risks of the atrial incision necessary in such situations.

Since submitting our report, we have performed this procedure again, this time in a patient with situs solitus hypoplastic left ventricle with straddling mitral valve, D-transposition of the great arteries, pulmonary stenosis, and a well-developed main pulmonary artery. Of interest, the left-sided posterior position of the main pulmonary