LETTERS TO THE EDITOR

The British Heart Journal welcomes letters commenting on papers that it has published within the past six months.

All letters must be typed with double spacing and signed by all authors.

No letter should be more than 600 words.

In general, no letter should contain more than six references (also typed with double spacing).

Balloon dilatation of supravalvar pulmonary stenosis after arterial switch procedure for complete transposition

Sir,—I read with interest the article by Saxena et al on balloon dilatation of supravalvar pulmonary stenosis that developed after previous anatomical correction of transposition of the great arteries. They described the results of eight balloon dilatations in five children. In none of the dilatations was there any improvement in the pressure gradient across the area of obstruction nor was there any significant angiographic change. Yet they went on to apply balloon angioplasty in five patients and in addition repeated the procedure in three children. As they state, the residual obstruction seems to be related to shrinkage and retraction of the pericardial patch used in the enlargement of neopulmonary artery at the time of initial surgery. There is no theoretical basis why such lesions would respond to balloon dilatation. Zeevi et al’s observations were also similar when there was diffuse narrowing of the pulmonary artery. I have also used balloon dilatation of supravalvar pulmonary stenosis that developed after a previous arterial switch procedure. There was excellent haemodynamic (fig 1) and angiographic (fig 2) improvement; however, the obstruction in my case was discrete (fig 1A) and there is theoretical reason for balloon dilatation to be effective discrete obstructions such as this.

I urge Saxena et al and others not to use balloon angioplasty if obstructive lesions of the pulmonary artery in children are diffuse, those described by Saxena and Zeevi. Discrete lesions, however, can be dilated.

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1 Saxena A, Fong LV, Ogilvie BC, Keeton BR. Use of balloon dilatation to treat supravalvar pulmonary stenosis developing after anatomical correction for complete transposition. Br Heart J 1990;64:151-415.

Figure 1 Pressure pullback tracings across the supravalvar stenosis showing a significant pressure gradient (A) that diminished considerably after balloon dilatation (B). Aortic pressure is also shown in B. Ao, aorta; DPA, distal pulmonary artery; PPA, proximal pulmonary artery.

This letter was shown to the authors, who reply as follows:

Sir,—Dr Rao has misinterpreted the nature of the stenotic lesions of the supravalvar pulmonary area that we attempted to dilate after the arterial switch procedure. The angiographic appearances of the cases, showed a stenotic segment that seemed to be localised to a short segment in the proximal pulmonary artery which was considerably narrower than the distal pulmonary arterial segment. The distal pulmonary artery may have looked smaller than expected, but it was comparable to the more distal pulmonary arterial tree, except where a further localised stenosis occurred. It was this short segment of proximal supravalvar pulmonary stenosis or discrete bifurcation stenosis that responded poorly to balloon dilatation. The segments appeared amenable to balloon dilatation, as judged by angiography, and did not assume the appearance of diffuse narrowing that Dr Rao has described. It was concluded that these short localised segments that responded poorly to balloon dilatation should not be described as a discrete stenosis, as their appearance suggested, because they responded like short segments with hypoplasia with both an intrinsic and post-surgical aetiology. We agree with Dr Rao that diffuse hypoplasia would not be amenable to balloon dilatation. Progress in developing effective treatment for such stenotic lesions comes not only from knowledge of successful trials, but also from unsuccessful attempts, as anticipated by the use of endovascular stents for congenital heart disease.

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1 Saxena A, Fong LV, Ogilvie BC, Keeton BR. Use of balloon dilatation to treat supravalvar pulmonary stenosis developing after anatomical correction for complete transposition. Br Heart J 1990;64:151-5.

Balloon atrial septostomy via the umbilical vein

Sir,—We wish to point out that the "practicability of cannulation via the umbilical vein" was first reported by us as an alternative to the femoral route for balloon atrial septostomy over two decades ago. Several centres have adopted the method and have confirmed the usefulness and advantages of this approach. One report was published in the British Heart Journal in 1974 with similar conclusions to ours. The incorporation of echocardiographic imaging makes the umbilical route even more attractive. We highlighted the fact that transumbilical sep-
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On the basis of the size of the atrial septal defect they created (as seen on echocardiographic image or by colour flow mapping) Ashfaq et al claim that the procedure was successful. However, though they believe that such a defect can be “accurately measured” on echocardiography, they do not give the values (mean SD) of the defect size or flow jet width. In another study adequately palliated neonates had a post-septostomy interatrial defect of at least 12 mm in diameter as measured angiographically1 or later at surgery or necropsy.2 In most of the previous series, satisfactory early improvement after atrial septostomy has been defined as either an increase in oxygen saturation of greater than 10% with reduction in interventricular mean pressure gradient to less than 2 mm or arterial saturations of greater than 50-75%.3 Satisfactory late improvement has been defined as survival to six months with oxygen saturation at 60% or higher.4 It is surprising that none of these indices are mentioned in the results though Ashfaq et al call their procedure “100 per cent successful”. It is possible that these indices were not measured when the procedure was performed as an emergency measure. But Ashfaq et al do not give a break down of the number of procedures performed in an equipped catheterisation laboratory compared with those performed elsewhere or in the ward side room. The size of the post-septostomy inter-atrial defect can be measured only approximately by echocardiography.5 We were able to image a flapping torn septum primum as an indication of an adequate septostomy. Because there are so few data on the features and limitations of echocardiography and colour flow mapping in evaluating the adequacy of post-septostomy interatrial defects, we expected that Ashfaq et al would have clarified these before drawing conclusions and inferences. At least the echocardiographic size of the defect could have been compared with the actual measurement at necropsy in the two patients who died.

Ashfaq et al seem to exaggerate the complications related to fluoroscopically guided septostomy by quoting a single reference dating back to 1970 that describes 26 cases,6 In a more recent series of 43 infants with d-transposition of the great arteries studied over five years, fluoroscopy guided balloon atrial septostomy was not associated with any deaths or mechanical complications.7 Moreover, though they do not state the average procedure time, Ashfaq et al presume that the echoguided procedure is less time-consuming. Thus balloon atrial septostomy under echocardiographic guidance could be recommended during emergencies or in the catheterisation laboratory for facilitating the balloon positioning, especially in cases with cardiac malposition, but until our questions are answered it should not be advocated as a better alternative to fluoroscopy.

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Figure 2 Cineangiographic frames from lateral views of pulmonary arteriograms showing supravalvar pulmonary stenosis (arrow) after an arterial switch operation (A) that improved considerably after angioplasty (B). Reproduced with permission from the author and publisher: Rao FS. Curr Probl Cardiol 1989;4:417-500.

tostomy was not only less time-consuming but spared the femoral vein for possible future studies. At the time dissection of the inguinal fossa for balloon septostomies was much more common than transcutaneous catheterisations in the neonate.

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Sim.—The report of balloon atrial septostomy under echocardiographic control by Ashfaq et al makes interesting reading but certain points need to be clarified before recommending it as a procedure of choice.
Umbilical vein catheterisation is a technique used to establish the diagnosis of congenital heart disease. It is performed using a technique similar to that used for the umbilical vein, and the umbilical vein is often used as an alternative route for catheterisation. The use of ultrasound imaging to guide the catheterisation has been shown to be effective, and the results of this technique are compared with those obtained using conventional catheterisation. The use of ultrasound imaging is becoming more widespread, and the technique is becoming more popular among cardiologists.

Cardiac catheterisation with 5 French catheters

In his letter commenting on the use of 5F catheters for coronary angiography, Dr. Raphael calls for further randomised studies to compare the latest 5F catheters with conventional 7F catheters. He also suggests that the results of these studies should be published in the International Journal of Cardiac Imaging, and that the full results of the trial conducted by Mr. Hamilton should be published in the British Heart Journal.

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Balloon atrial septostomy via the umbilical vein

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