

was a large patent foramen ovale and this was readily and easily closed with a direct stitch. Attention was now turned to the pulmonary artery which was opened with an incision extending along the main pulmonary artery and the right pulmonary artery. First it was confirmed that there was pulmonary atresia and no communication with any ventricular chamber. Second, the snare on the shunt was released which produced a blood flow and snared again which stopped it confirming that the shunt was where we thought it was. It was then ligated. The incisions in the pulmonary artery and the right atrial appendage were now made as large as practical and matched for each other. An end-to-side anastomosis was constructed between the right atrium and the pulmonary artery using continuous runs of 4(0) Prolene.

** Cardiac action resumed spontaneously

Part way through the anastomosis the aortic cross clamp was removed, air was excluded from the aortic root and the left side of the heart, and in due course stabilised in sinus rhythm. When full rewarming had been achieved bypass was withdrawn. This was done initially without difficulty but subsequently the right atrial pressure rose steadily and rather rapidly, initially to a level between 35 and 40. At the same time the left atrium was virtually empty. The liver enlarged rapidly and palpably. Simultaneous pressure measurement in the pulmonary artery, just beyond the anastomosis, revealed that the PA pressure was the same as the right atrial pressure. As elevated pulmonary vascular resistance seemed excessively unlikely we tended to conclude at this stage that the pulmonary arteries were simply too small.

In an effort to salvage something from the operation it was decided to place an extra cardiac conduit between the right atrium and the left atrial appendage. It was hoped that this might decompress the right atrium without creating too much systemic hypoxia. A 6 mm conduit of Dacron tubing was inserted using runs of 4(0) Prolene for each anastomosis. This, however, resulted in minimal decompression of the right atrium. During the construction of this conduit the patient's condition tended to deteriorate and was becoming somewhat unstable. Bypass was, therefore, reinstated and in these more stable circumstances a 10 mm conduit was inserted in place of the 6 mm. Bypass was again withdrawn but it was disappointingly found that the conduit only permitted the right atrial pressure to fall to 25 and at this level arterial desaturation was quite excessive. This also demonstrated that simply re-opening the ASD would permit diversion of blood to the left side with an unacceptable reduction in arterial oxygen levels. It was, therefore, decided at this stage that the only course of action now open to us, in an effort to save the child's life, was to undo the Fontan, open the ASD and to insert a new shunt

Bypass was reinstated for the second time and the 10 mm conduit removed first. The openings in both atria were closed with continuous runs of 4(0) Prolene. Next the right atrial pulmonary artery anastomosis was opened, before closing the incision in the right atrial appendage the ASD was opened. The incision in the right atrial appendage was