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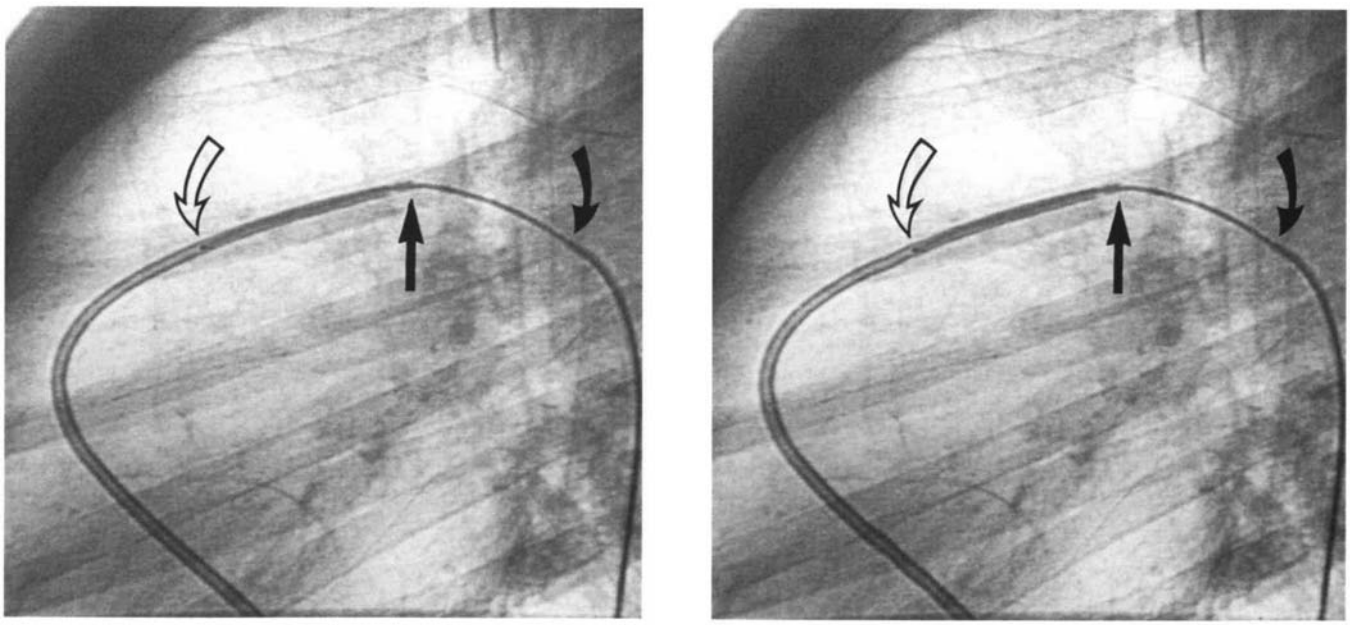
Letter to the Editor

Dear Sir,

In some cases, especially when carrying out interventional procedures, and when the arterial duct is patent, the investigator may wish to enter the descending aorta through the arterial duct even if another catheter is already inserted through the femoral artery. And despite the fact that it is now well recognised that closure of the duct can be achieved with insertion of coils from the arterial side, many centres still prefer the venous approach. The use of the new Amplatzer® ductal occluder also makes it necessary to enter the duct from the venous side. At times, though, the catheter inserted through the pulmonary trunk does not readily enter the descending aorta, even when the duct is not particularly small. We would like to draw your attention, therefore, to a novel, alternative, technique for traversing from the pulmonary trunk to the aorta in such cases. We have been informed that some few specialists in the field have already been acquainted with the technique to be described, but to the best of our knowledge, it has not previously been published. Because of this, we thought it worthwhile to bring to the attention of your readers.

One of the methods used earlier[1] was to push a guide wire through the aortic catheter into the pulmonary trunk, advance the guide wire and its shielding catheter through the right heart from the inferior caval vein, and subsequently manipulate it into the femoral vein, from where it can be retrieved. In this way a guide wire, controlled at both ends, is established on which the introducing catheter can be advanced through the duct. This approach was an alternative to the suggestion of Porstmann and his colleagues[2] that the wire could be caught with a snare in the superior caval vein, pulled out of the femoral vein, and used in the way just described.



(a) (b)

Figure 1.
The lateral fluoroscopic frame (a) shows the guide wire after it has been inserted into the end-hole catheter positioned in the pulmonary trunk. The end-hole catheter has been introduced via the femoral vein. The guide wire, in contrast, was entered into the pulmonary trunk through the pigtail catheter from the arterial side. The open, curved arrow indicates the end of the guide wire, the straight arrow the end of the venous catheter, and the curved solid arrow the end of the pigtail catheter. The subsequent frame, again in lateral projection (b), and with the same arrow indicators, shows how the assembly appears when situated on the aortic side of the open arterial duct. The venous catheter has been passed well beyond the narrowest point of the arterial duct, allowing venous access to the descending aorta, and subsequent interventional closure along the desired route

The method we suggest as an another alternative is to use a Schneider® straight guide wire with three-cm soft tip. The wire is advanced retrogradely through a 4.1 French Cook® pigtail catheter into the pulmonary arteries through the duct. This access is usually easy and straight-forward. We then place a multipurpose open-ended Cordis® catheter into the pulmonary trunk from the venous side, and aim for the guide wire. The guide wire mostly leans towards the left lateral and cranial wall of the pulmonary trunk. With the use of biplane fluoroscopy, the venous catheter is manipulated with the usual pushing, pulling and twisting, and in our experience coupling is readily achieved. In some cases, nonetheless, coupling is achieved only after synchronised movements with the right hand on the pulmonary arterial catheter and the left hand on the combination of guide wire and pigtail catheter. The position, and direction of pointing, of the guide wire is changed by adjusting the distance of the pigtail catheter relative to the tip of the guide wire. Relatively short manipulations are usually necessary to achieve coupling. The guide wire is advanced far enough into the pulmonary arterial catheter to have the soft tip covered along with some centimetres of the stiff part (Fig. 1a). The guide wire then provides easy access for the entire assembly to be advanced into the aorta (Fig. 1b). Thus far, we have encountered no complications using this method.

This approach does not unduly prolong either the procedural time or the time needed for fluoroscopy. In our experience in closing over 150 patent arterial ducts in our institution using various interventional techniques, the average time needed for fluoroscopy has been 15.5 ± 9.5 minutes. The time needed for fluoroscopy in the seven patients in whom we have used our novel technique has been 20.3 ± 6.8 minutes, with a range from 9.6 to 28.5 minutes.

Thus, sir, when there is an indication to cross the arterial duct with a catheter advanced from the pulmonary trunk, and this proves to be difficult, the approach described above should be kept in mind as a possibility.

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