

Images in cardiovascular medicine

The missing intra-aortic balloon pump catheter

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The intra-aortic balloon pump (IABP) is a mechanical assistance device most frequently used in cardiac surgery. In order to obtain a good augmentation pressure and, therefore, a proper effect of the IABP, the optimal position of the catheter is crucial. In case of urgent postoperative indication the IABP is usually inserted in the intensive coronary care unit without fluoroscopic control and the position of the catheter is checked with post-insertion plain chest X-ray. However, due to the presence of several “confounding” factors at postoperative chest X-ray (ECG monitor leads, Swan-Ganz catheter, sternal wires, etc.) as well as the suboptimal quality of a portable chest X-ray, the identification of the IABP catheter may be sometime difficult. Here we report a case in which the tip of the IABP catheter was “missed” at the post-insertion chest X-ray. An 84-year-old female underwent urgent aortic valve replacement (pericardial tissue valve) plus double coronary artery bypass grafting (left anterior descending and right coronary arteries). Despite a good early post-cardiopulmonary bypass recovery, on postoperative day 1 the hemodynamic conditions started to deteriorate and urgent IABP insertion was decided. A Fidelity 8F catheter (Datascope Corp., Fairfield, NJ, USA) was easily inserted using a percutaneous sheathless technique. Fidelity is a recently introduced catheter with a longer tip made in tungsten that should allow for an easy identification of the right position. However, in contrast to the Profile 8F catheter (Datascope Corp., Fairfield, NJ, USA), the central lumen is no longer identified at chest X-ray. The IABP was inserted in the intensive coronary care unit without fluoroscopic control and therefore the length of the catheter was estimated before



Figure 1. Plain chest X-ray after intra-aortic balloon pump insertion. Despite the radio-opacity, the catheter tip cannot be displayed.

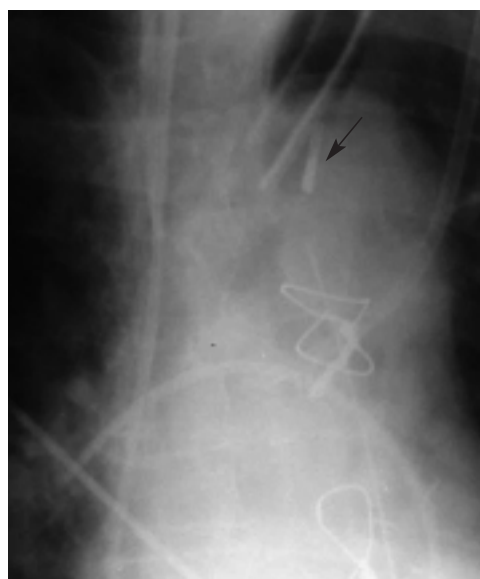


Figure 2. Plain chest X-ray repeated after minimal displacement of the intra-aortic balloon pump catheter. The catheter tip (black arrow) can now be easily recognized.

the introduction. However when chest X-ray was performed there was no evidence of the catheter tip (Fig. 1). Therefore, we decided to repeat the chest X-ray examination after minimal displacement of the catheter. At the repeated chest X-ray the tip of the catheter was easily identified to be in the right position (Fig. 2). In conclusion, this case shows that, despite the effective more radio-opacity of the tungsten tip of the Fidelity

catheter, the catheter tip may be easily missed at plain chest X-ray, due to the lack of identification of the central lumen of the catheter. In case of missing IABP catheter, especially when its length has properly been evaluated before insertion, we therefore suggest a minimal displacement of the catheter and a repeated chest X-ray examination, which should allow for a correct identification of the tip.