An unusual right coronary artery obstruction after mitral surgery

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A 79-year-old woman with severe mitral regurgitation due to endocarditis was admitted to our department in February 2011 for elective mitral valve surgery. Preoperative coronary angiography showed irregularities and a right-dominant coronary network (Fig. 1). As it was impossible to perform plasty during surgery because of significant calcification on P2, the mitral valve was replaced with a Mosaic bioprosthesis (No. 31). After removal to the intensive care unit, the ECG showed ST-segment elevation in inferior leads (Fig. 2A). Emergency cardiac catheterization was performed. There was obstruction of the right coronary artery by a pericardial drain tube approximately in the middle of the PDA (Fig. 3A). PDA flow was fully restored after the drain was pulled back (Fig. 3B); the ECG immediately normalized (Fig. 2B).

In this case, iatrogenic occlusion of the right coronary artery was induced by mechanical compression by a pericardial drain tube. Although it appears that a chest drain can induce left internal mammary artery compression after bypass surgery, coronary obstruction induced by a pericardial drain is rare, and no case has been reported in the medical literature to the best of our knowledge. One case of right coronary spasm has been reported, triggered by mechanical compression during off-pump coronary artery bypass surgery. The classical complication known after mitral surgery is iatrogenic lesion of the circumflex artery, due to a fixation suture completely encircling and occluding the artery, a suture that passes through and completely obliterates the artery or vascular distortion. Cases of localized haemorrhaging or subintimal haematoma and coronary spasm have

Abbreviations: ECG, electrocardiogram; PDA, posterior descending artery.
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Figure 1. (A) Preoperative coronary angiogram showing the left coronary network. (B) Preoperative coronary angiogram showing the right coronary artery.

Figure 2. (A) ECG after surgery showing ST elevation in inferior leads (DII, DIII, AVF). (B) ECG shows regression of ST elevation after mobilization of the drain.

Figure 3. (A) Postoperative coronary angiogram showing occlusion of the PDA (white arrow) induced by the pericardial drain (yellow arrow). (B) Normal PDA flow after pericardial drain had been pulled back.
been reported. It seems that the risk of coronary artery damage—and more precisely of injury to the circumflex coronary artery—is highest in dominant left coronary networks and in balanced networks because of the proximity of the annulus to the circumflex coronary artery.

**Disclosure of interest**

The authors declare that they have no conflicts of interest concerning this article.