Images in cardio-thoracic surgery

Pitfall in coronary artery bypass surgery: poor flow of left internal mammary artery to left anterior descending artery graft due to compression by a chest drain

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Received 19 March 2002; received in revised form 29 May 2002; accepted 4 June 2002

A 65-year-old patient underwent elective multiple coronary artery revascularization and synthetic aortic valve replacement. Postoperative ECG, written immediately after admission to the intensive care unit, showed mild ST segment changes in I, aVL, V2–V6 (maximal horizontal ST segment depression was 0.2 mV in V4) with circulation being stable under mild adrenergic support. On postoperative day 1 he was found to have a marked increase in serological markers for myocardial ischemia (troponin I 86 ng/ml). Therefore a decision for cardiac catheterization was made. Coronary angiogram revealed that all bypass grafts were patent, but approximately 5 cm above left internal mammary artery-to-left anterior descending artery (LAD) graft anastomosis, a partial obstruction of the graft by a retrosternal drain could be detected (Fig. 1). After the drain had been pulled back, graft flow was fully restituted (Fig. 2). In the further postoperative course laboratory ischemic markers gradually began to drop. On postoperative day 1 the ECG was again normal, and ST segment changes could no longer be detected. Hemodynamics were not jeopardized at any time during the entire postoperative course, and transitory mild cardiocirculatory support was able to be ceased early postoperatively. To our knowledge, this is the first report showing that a retrosternal chest drain compromised flow in an internal mammary artery bypass graft.

Fig. 1. Partial obstruction of the left internal mammary artery-to-LAD bypass graft (big arrow) by a retrosternal drain. Position of the drain is marked by small arrows. The St. Jude aortic valve prosthesis can be seen on the right (open arrow).

Fig. 2. Normal angiographic appearance of the left internal mammary artery-to-LAD graft after slight retraction of the drain.

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