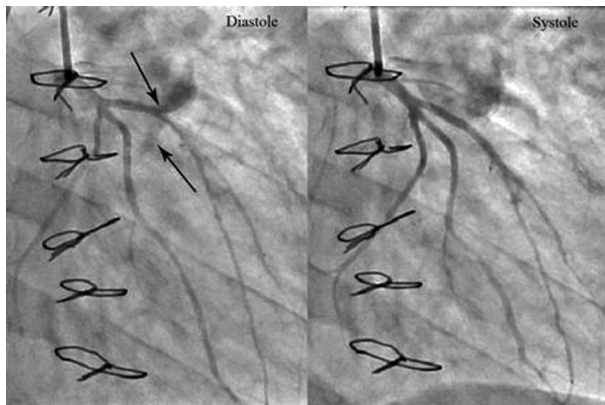


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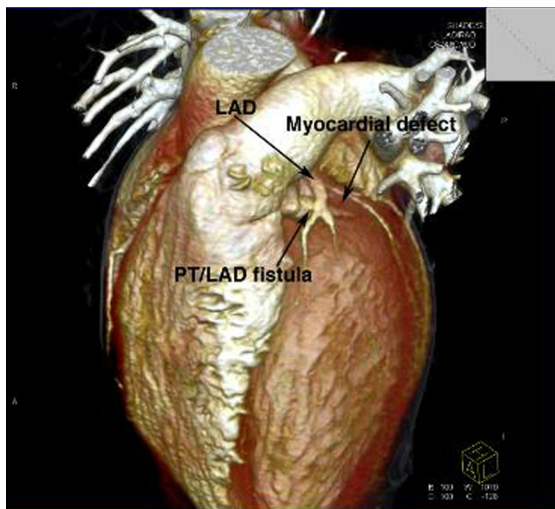
## Traumatic left anterior descending to pulmonary trunk fistula

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A young man in his late 20s, presented with new-onset exertional angina. Five months earlier, the patient had presented to the trauma unit with a penetrating injury to the left chest and cardiac arrest due to cardiac tamponade. The

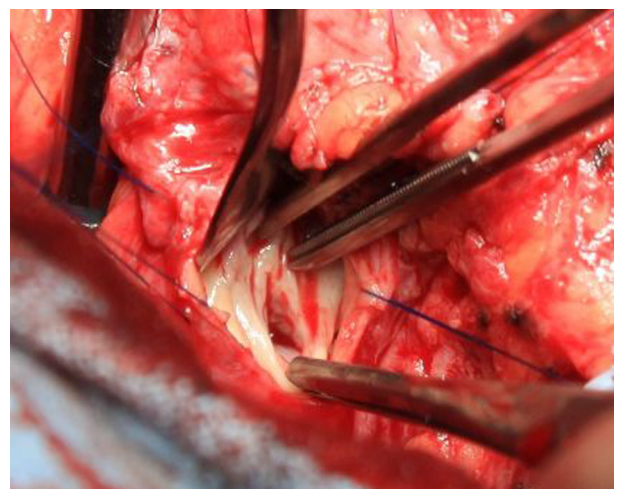


**Figure 1** Coronary angiogram of left coronary system demonstrating high flow shunting between proximal LAD and PT (left, upper arrow), and contrast filling within the myocardium (left, lower arrow). Both defects are dynamic and close during systole (right).



**Figure 2** 3D reconstruction of cardiac CT angiogram demonstrating 8 mm cross-section fistula between PT and LAD, and 4 mm myocardial defect.

patient had undergone emergency median sternotomy for repair of a 15 mm laceration to the right ventricular outflow tract. On examination, he had normal vital signs with no abnormal heart sounds or signs of heart failure. ECG was normal. Cardiac catheterisation demonstrated a communication between the proximal left anterior descending coronary artery (LAD) just before its first diagonal branch and the pulmonary trunk (PT) (figure 1, upper arrow). A small blind-ended myocardial defect was also visible transiently at the same site (figure 1, lower arrow). Both defects were dynamically occluded during systole (figure 1). The LAD-PT fistula measured 8 mm in diameter and the myocardial defect measured 4 mm on CT (figure 2). Laboratory investigations were normal. Surgery was performed on cardiopulmonary bypass. The PT was opened exposing an 8 mm fistulous connection with the LAD within the right ventricular outflow tract, distal to the septal leaflet of the pulmonary valve (figure 3). The fistula was closed with 4/0 prolene suture. Coronary artery fistulas may be congenital or acquired abnormalities. They are identified in only 0.2% of routine cardiac angiographic studies<sup>1</sup> and can vary widely in morphologic appearance and presentation. Acquired coronary artery fistulas are rare, but 80% are secondary to penetrating injuries. The rarity of acquired coronary fistulas can be attributed to the high death rate (65% to 85%) of penetrating wounds involving the coronary



**Figure 3** Intraoperative photo demonstrating the opened PT showing an 8 mm fistula opening. An inserted probe was able to reach the LV.

arteries.<sup>2</sup> Time between injury and presentation may be days to decades, averaging 3 years.<sup>3</sup> Early intervention is paramount to avoid progression of functional myocardial impairment and increasing operative risk. Late complications of high flow left to right shunting, including the development of pulmonary artery hypertension and congestive cardiac failure have also been documented. Repair may be either external closure of fistula, or internal closure from within the recipient chamber, with the latter having a lower recurrence rate.<sup>3</sup>

**Competing interests** None.

**Patient consent** Not obtained.

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