

Cangrelor bridging strategy for liver damage after mechanical chest compression

A 48-year-old woman admitted herself with chest pain to the emergency department where she subsequently collapsed. She was in refractory ventricular fibrillation (Fig. 1-a1), and after 15 min of conventional CPR, a mechanical compression de-

vice (Fig. 1-a2) was applied, with return of spontaneous circulation after 25 min. EKG highlighted an anterior ST-elevation, with severe post-resuscitation myocardial dysfunction observed on Echo (Fig. 1-a3).

After administering Aspirin and crushed Ticagrelor, an emergent coronary angiography was performed with the evidence of an occluded LAD/diagonal bifurcation treated with a reverse-crush technique stenting (Fig. 1b, 1c, 1d).

The patient did very well in the following hours until unexpected hypotension occurred. Ultrasound revealed a grade III right liver injury with a ruptured sub-capsular hematoma (Fig.

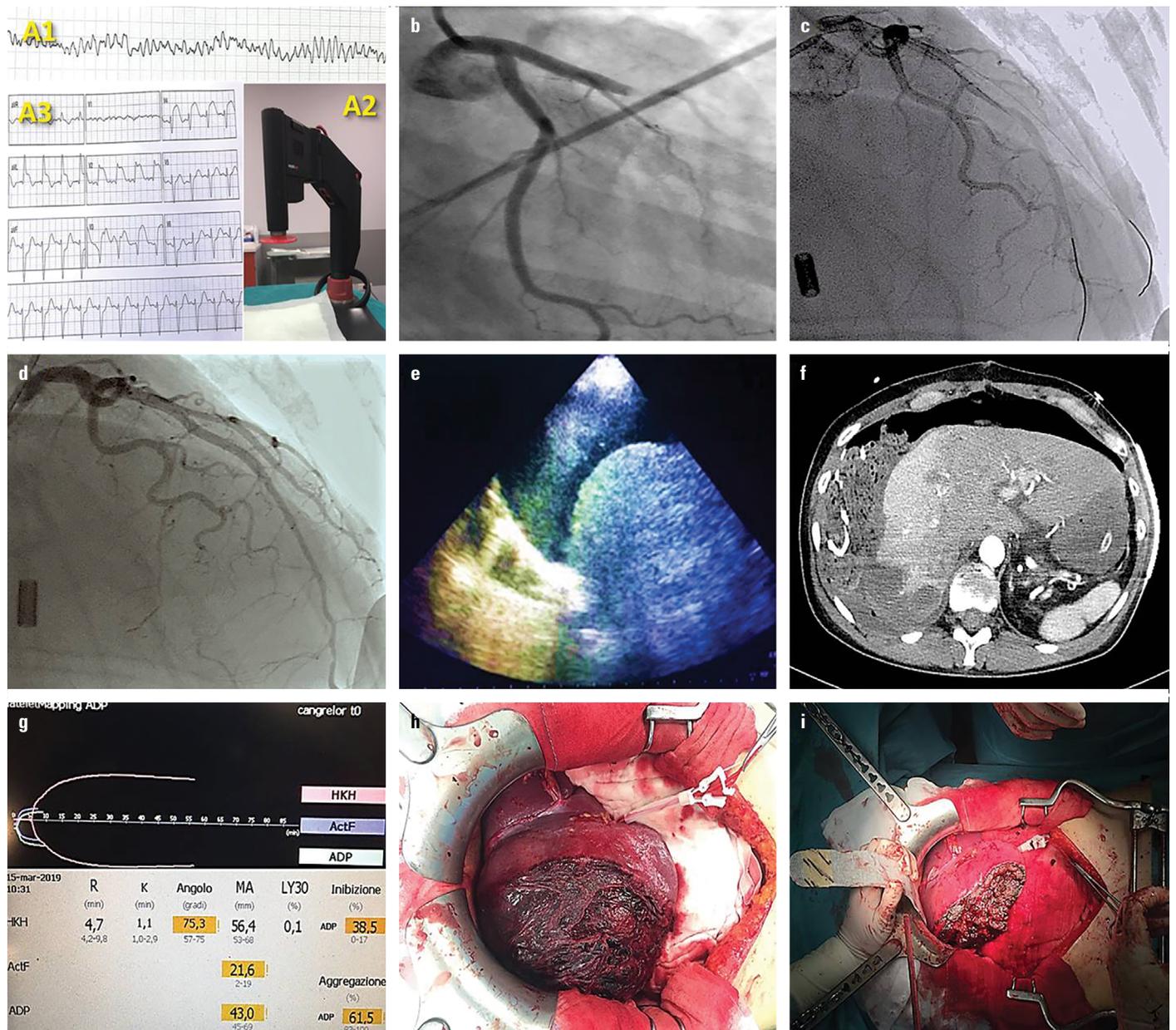


Figure 1. (a1, a2, a3) EKGs and chest compression device; (b, c, d) Interventional coronary angiographies; (e) trans-hepatic ultrasound view of pleural and perihepatic fluid collection; (f) Abdominal CT after perihepatic packing; (g) Thromboelastography/platelet function assay (TEG 6s Haemonetics®); (h) Right-sided view of the enlarged right liver lobe hematoma; (i) The remaining liver parenchyma after emergency liver resection

1e). An emergency laparotomy for damage control surgery with perihepatic packing was decided (Fig. 1f). Bleeding persisted after selective hepatic embolization, and a right hepatic lobectomy was performed. Bridging therapy with cangrelor was applied using thromboelastography with platelets mapping for drug titration (TEG 6s Haemonetics®) (Fig. 1g).

The lobectomy was successful (Fig. 1h, 1i), and the patient had a complete full recovery with normalization of the left ventricular function. She returned to work 1 month later in good health.

Antiplatelets and anticoagulants may exacerbate an existing liver injury into a large intrahepatic hematoma, a very rare flip side of successful resuscitation. The otherwise fatal complication, in a precarious ischemic–hemorrhagic balance, was successfully managed thanks to a perioperative bridge therapy with cangrelor titrated according to thromboelastography/platelet function assay and a coordinated multidisciplinary team approach.

Alberto Francesco Cereda, **Giuseppe Seresini**,
Nuccia Morici^{1,2}, **Paolo Aseni**^{*}, **Oswaldo Chiara**^{**}
 Department of Cardiovascular, ASST della Valtellina e dell'Alto Lario; Sondrio-Italy
¹Intensive Cardiac Care Unit and De Gasperis Cardio Center, ASST Grande Ospedale Metropolitano Niguarda; Milan-Italy
²Department of Clinical Sciences and Community Health, Università degli Studi di Milano; Milan-Italy
 Departments of ^{*}Emergency, and ^{**}General Surgery and Trauma Team, ASST Grande Ospedale Metropolitano Niguarda; Milan-Italy

Address for Correspondence: Alberto Francesco Cereda, MD, ASST della Valtellina e dell'Alto Lario, Via Stelvio, n. 25–23100 Sondrio-Italy
 Phone: +39 3200 883 375
 E-mail: alberto.cereda@email.it / tskcer@hotmail.it
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 DOI:10.14744/AnatolJCardiol.2019.78546

Bilateral coronary artery–pulmonary artery fistulas with a giant coronary aneurysm

A 61-year-old female patient visited the local hospital 1 month before due to lumbar disc herniation and sciatic nerve compression. After treatment with “mannitol and dexamethasone” by intravenous infusion, she had dizziness, palpitations, flushing, and sweating, among other symptoms. Her blood pressure was 150/87 mm Hg, and the abovementioned symptoms lasted for about half an hour. After 3 days of infusion, the patient still experienced dizziness, palpitations, and sweating;

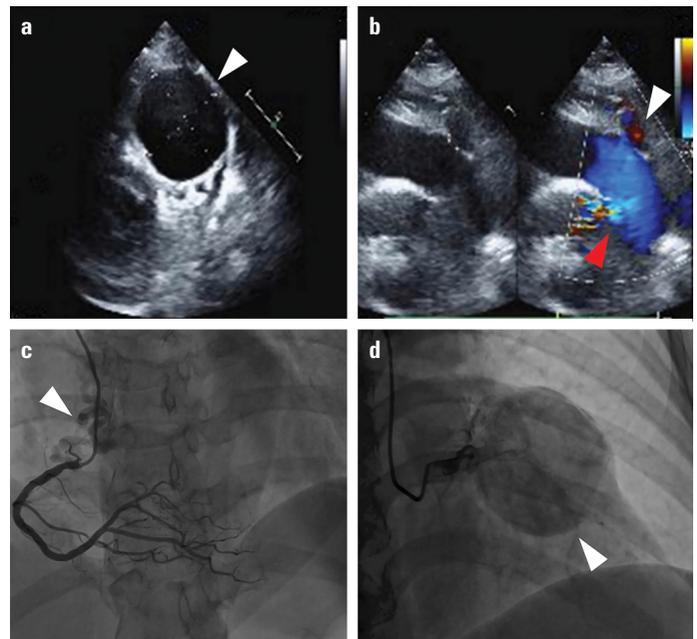


Figure 1. Transthoracic color Doppler echocardiography shows widening of the left coronary artery and a tumor-like dilation outside the pulmonary artery measuring approximately 51×43 mm (white arrow) (a) and (b). The distal end is connected with the inside of the pulmonary artery. The fistula was approximately 10 mm in diameter and approximately 14 mm from the pulmonary valve annulus. The red arrow indicates a fistula and the white one indicates the left coronary artery (b). Coronary angiography: White arrows show right coronary artery fistula (c) and anterior descending giant coronary artery (d)

her symptoms relieved about half an hour after administering nitroglycerin. These symptoms often occurred between 7 and 9 a.m. and had nothing to do with the patient’s daily activities or eating habits. The patient was referred to our hospital for further treatment. The electrocardiogram was normal, and transthoracic color Doppler echocardiography (TTDE) showed left coronary artery–pulmonary artery fistula and left coronary artery aneurysm dilation (Fig. 1a and 1b). Coronary angiography showed bilateral coronary artery fistula and anterior descending giant coronary aneurysm (Fig. 1c and 1d, Video 1). Coronary computed tomography angiography (CCTA) showed bilateral coronary artery–pulmonary artery fistulas with anterior descending coronary artery aneurysm (Fig. 2a–2d, Video 2); thus, the patient underwent surgery. During the surgery, the inlet and outlet of the left and right coronary artery–pulmonary artery fistulas were fully dissociated and ligated using the lateral wall forceps to clamp the aneurysm; then, we cut open the coronary aneurysm and found the thrombosis. Finally, we closed the aneurysm stump by suture. Pathological examination was performed after aneurysm surgery (Fig. 2e). We noted that the coronary artery was not clipped during the surgery. CCTA was performed again 1 week after surgery, which revealed that the coronary artery–pulmonary artery fistula and coronary artery aneurysm had disappeared (Fig. 2f, 2g, 2h; Video 3). Thus, the patient was discharged quickly, and no further complications occurred.