Air embolism of right coronary artery after ERCP

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DESCRIPTION
A 50-year-old patient was scheduled for endoscopic retrograde cholangiopancreatography (ERCP) to treat a hepaticejejunostomy’s stricture causing recurrent acute cholangitis. The patient underwent duodenopancreatectomy 6 years before because of adenocarcinoma of pancreatic head (pT3N1). Medical history comprehended arterial hypertension and type II diabetes. A previous ERCP (performed 24 hours earlier) resulted in an incomplete biliary drainage. The procedure was conducted in prone position and required anesthesiologic assistance using propofol through a target controlled infusion pump. Cardiovascular profile remained stable. Total procedure time was 85 min. A pediatric colonoscope was necessary to achieve a plastic multiple stenting of the hepaticejejunostomy. Immediately after the procedure, after having been turned over in supine position, the patient showed oxygen desaturation (79%) and could not regain consciousness. A severe arterial hypotension (systolic arterial pressure: 70 mm Hg) associated with tachycardia (heart rate: 160 bpm) suddenly appeared. The patient was immediately assisted with non-invasive ventilation and, subsequently, orotracheal intubation. Vital parameters were monitored following resuscitation protocol. Epinephrine up to 0.15 gamma/kg was administered in order to sustain cardiac performance. An emergency total body CT scan was scheduled demonstrating a diffuse pneumobilia associated with the presence of air embolism in the portal vein system, right coronary artery (figures 1 and 2) and in both ventricles. Moderate features of acute respiratory distress syndrome also coexisted. Cerebral CT scan showed no pathological features. The patient was admitted to intensive care unit and a coronaryography was performed 12 hours after ERCP reporting no pathological finding. An earlier trans-thoracic cardiac ultrasound demonstrated akinesia of the apex and of the middle portion of the interventricular septum associated to a severe decrease of ventricular contractility (ejection fraction: 20%-25%). In addition to this, marked dilation of the right ventricle was observed. TroponinI was 3667 mg/dL. A possible physiopathologic explanation could be the acute increase in right ventricular pressure and decreased perfusion pressure due to massive air presence in the ventricular cavity as well as in the right coronary artery, ultimately responsible for heart failure. Air could have reached the right coronary artery when the patient was turned into supine position, thanks to the fact that, in the supine, the vessel points upwards and shift of air bubbles from the right to the left atrium, probably

Learning points

► Air embolism is a rare but life-threatening adverse event of endoscopic retrograde cholangiopancreatography.
► Pneumobilia can lead to air embolism of coronary arteries.
► Air embolism of coronary arteries can be a rare cause of myocardial infarction.
through the foramen ovale which became patent following abnormal right ventricle dilation.

Since circulatory profile remained critical in spite of generous administration of vasoactive drugs, an intraaortic balloon pump (IABP) was placed to stabilise the systemic blood circulation.

Following respiratory weaning, the patient could be extubated without circulatory support with regained consciousness. On 10th postprocedural day, IABP was removed and epinephrine was lowered to 0.04 gamma/kg. TroponinT decreased at 1680 mg/dL.

Air embolism after ERCP is a rare but well-known adverse event; its reported frequency ranged from 2.4% to 10%. However, at our best knowledge, coronary air embolism following ERCP has not been previously described in the international literature.1

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