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The burden of post-actinic heart disease: a case of severe valvular and coronary artery disease in a cancer survivor

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Background: A 47-year old female complaining of exertional dyspnoea (NYHA class III) was admitted at our Cardiology department. She had a history of nodular sclerosis Hodgkin lymphoma (HL), treated with chemo- and radiotherapy, and complicated by post-actinic pneumopathy and cardiopathy. At the age of 39, she had undergone coronary artery bypass grafting with left internal mammal artery (LIMA) to left anterior descendent artery and saphenous vein to obtuse marginal branch, and aortic valve replacement with a mechanical prosthesis due to severe aortic stenosis. Some years later, she had undergone percutaneous stenting of the left main (LM) due to occlusion of the LIMA bypass graft.

At admission, the patient was hemodynamically stable, with signs of right-sided congestive heart failure. Both 2D and 3D transthoracic echocardiogram (TTE) showed preserved biventricular function, normal function of the aortic prosthesis, and diffuse calcification of the whole mitral valve apparatus, involving the leaflets, the annulus, the tendinous chords and the anterolateral papillary muscle (Figure Panels A-B), causing severe mitral stenosis (mean gradient 10 mmHg, 3D planimetric area 0.9 cm², Wilkins score 12) and moderate organic insufficiency (Panel C). The tricuspid valve was also affected, with thickened, hypomobile leaflets, causing mild stenosis (mean gradient 4 mmHg, 3D planimetric area 3.8 cm²) and severe insufficiency (Panel D). Transesophageal echocardiogram (TOE) couldn't be performed because of actinic oesophagitis. Percutaneous valvuloplasty was contraindicated due to moderate mitral insufficiency, high Wilkins score and a huge amount of calcium affecting the whole valve apparatus but sparing the commissures.

The patient was scheduled to PCI on the LM due to intrastent restenosis, but died during the procedure as a consequence of an intrastent massive thrombosis leading to cardiac arrest.

Learning points: Hodgkin lymphoma survivors are at increased cardiovascular and intraoperative risk. Old radiotherapy protocols for HL may cause severe post-actinic valvular and coronary disease. Post-actinic valvular heart disease often affects aortic and mitral valve more than a decade after irradiation, and may manifest as stenosis, insufficiency or both. Organic regurgitation and stenosis of tricuspid valve are uncommon, but may also occur and lead to worse patient outcome. Despite TOE may bring additional valuable informations in challenging cases, the coexistence of oesophageal sequelae from post-actinic oesophagitis may limit its applicability. TTE is the first line and often the only diagnostic tool available for identifying the characteristic valvular lesions in cancer survivors exposed to radiotherapy. 3D TTE may be particularly useful to identify subtle signs of primary involvement of tricuspid apparatus and quantify the anatomical area of a stenotic tricuspid valve, when severe regurgitation coexists and transvalvular gradients may be unreliable.

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