Coronary Artery Involvement by Chronic Graft-Versus-Host Disease Presenting as Sudden Cardiac Arrest

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Introduction
The coronary artery disease is only rarely occurring cardiac event in infants and children and cardiac complications in association with graft-versus-host disease (GVHD) are uncommon. We present a case with chronic GVHD who experienced sudden cardiac arrest, resulted from myocardial ischemia caused by coronary obstruction after allogeneic peripheral blood stem cell transplantation (Allo-PBSCT).

Case
A 44 month old boy was admitted to the intensive care unit due to sudden collapse with ventricular fibrillation at the emergency department, visiting with fever.

Underlying disease: chronic granulomatous disease by CYBB gene mutation, diagnosed at 6 months of age.

Allo-PBSCT: at 13 months of age, using HLA matched unrelated donor after conditioning with Anti-thymocyte globulin, Fludarabine, Busulfan, and Cytoxan. Cyclosporine and Mycophenolate for GVHD prophylaxis.

Post-transplantation course:
Acute phase: CMV infection and gut and cutaneous GVHD
Chronic GVHD: elevated hepatic enzymes and sclerosis of skin and multiple joint contractures.

Diagnostic evaluation:
Echocardiography: no gross abnormality on structure and function

ECG
Abnormal q-wave in the inferior leads and ST changes in the lateral chest leads, suggesting ischemia

Cardiac Magnetic Resonance Imaging
Wall thinning and hypokinesia of left ventricle with a weak contrast uptake consistent with subendocardial infarct

Multidetector Computed Tomography
Obliterative luminal narrowing of left anterior descending artery (LAD)

Coronary Angiography
Complete occlusion of proximal LAD and subtotal obstruction of mid portion of left circumflex artery (LCX). Distal LAD was filled by small collateral arteries from right coronary artery and LCX

Follow-up: His poor general condition didn’t permit further intervention. After 8 months of follow-up, he had suddenly collapsed and died at home.

Discussion
Cardiac complications after hematopoietic stem cell transplantation are not unusual. Pericardial effusion and arrhythmias have been reported but coronary artery disease has been rarely mentioned. Reported coronary artery disease has been probably attributed to previous total irradiation and anthracycline, not to GVHD.

This reported case had none of risk factors and the possible explanation for cardiac event is only GVHD. A previous study reported similar case with this case and the postmortem histological findings were identical to chronic graft rejection of a transplanted heart.

Conclusion
Cardiac complications in association with GVHD are uncommon and coronary artery involvement, albeit rare, could be recognized as one of the important cardiac manifestation of chronic GVHD in children.

Reference: