**DOXORUBICIN-INDUCED CARDIOMYOPATHY IN CHRONIC LYMPHOCYTIC LEUKEMIA AND RICHTER'S TRANSFORMATION: DEVELOPMENT OF HEART FAILURE WITH SYSTOLIC AND DIASTOLIC DYSFUNCTION**

**S.H. Wan**, R.L. Frye

Mayo Clinic, Rochester, MN, USA

*Background*: Commonly used chemotherapeutic agents for leukemia and lymphoma may result in chemotherapy-induced cardiomyopathy with features of both systolic and diastolic dysfunction.

*Description*: An 85-year-old man with history of chronic lymphocytic leukemia presented with worsening shortness of breath. The patient’s chronic lymphocytic leukemia one year prior had Richter’s large cell transformation with left pleural wall disease, and required two cycles of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) and one cycle of R-CEOP (etoposide substituted for doxorubicin). He presented with six months of weight gain and dyspnea on exertion. Physical examination demonstrated bilateral pitting edema. Prior to his chemotherapy, his echocardiogram demonstrated ejection fraction of 53%. A new transthoracic echocardiogram demonstrated left ventricular enlargement with ejection fraction 30-35%, and grade 1a/4 left ventricular diastolic dysfunction with mildly elevated left ventricular filling pressures. The patient was continued on guideline directed medical therapy, including aspirin, beta blocker, and angiotensin receptor blocker. He was also initiated on furosemide for his heart failure symptoms.

*Discussion*: The patient’s initial manifestation of weight gain and dyspnea on exertion raised suspicion for heart failure. While he has known coronary artery disease, his history of chronic lymphocytic anemia with Richter’s transformation also raised the possibility of cardiomyopathy induced by chemotherapy. The patient has had a history of ischemic cardiomyopathy and coronary artery bypass graft, but his ejection fraction showed a marked decline from before to after chemotherapy administration. While many therapeutic agents may cause cardiomyopathy, an anthracycline agent such as doxorubicin is a particularly toxic agent that in a dose-dependent fashion may result in systolic and diastolic dysfunction.

*Conclusion*: Patients that develop heart failure may have cardiomyopathy secondary to chemotherapy. Anthracycline agents such as doxorubicin may lead initially to asymptomatic systolic and diastolic dysfunction, but can eventually lead to symptomatic heart failure.