



Leukostasis from CML leading to sudden cardiac death

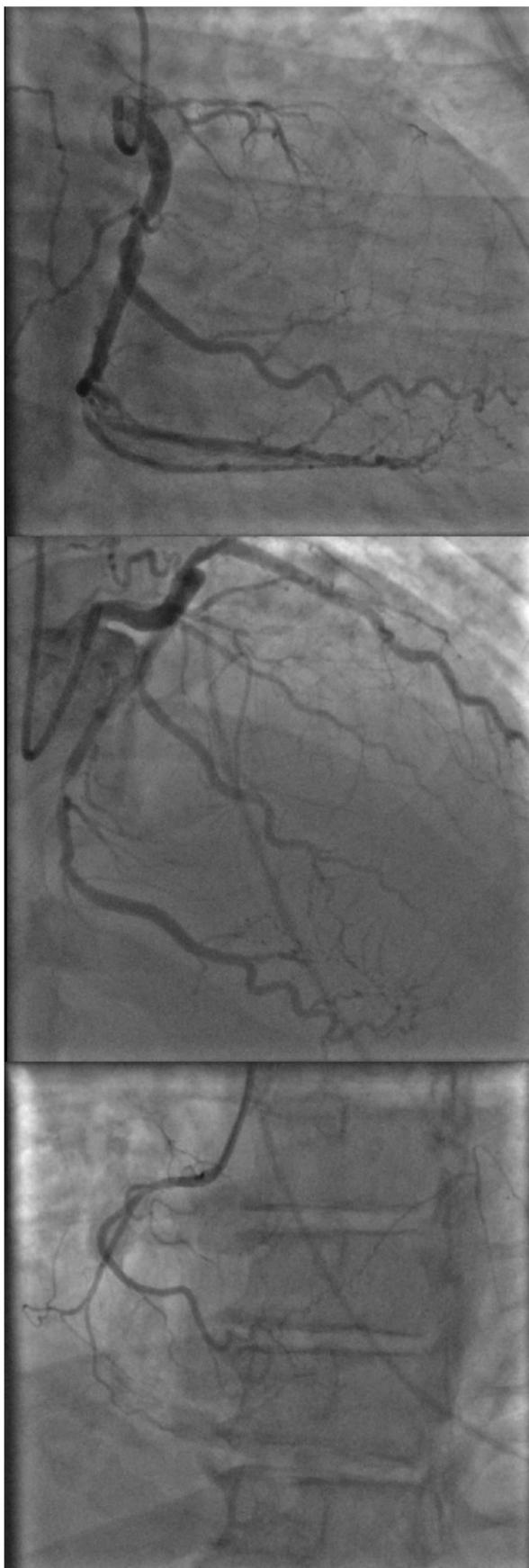
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BACKGROUND

- Chronic myeloid leukemia (CML) is a BCR-ABL1-positive myeloproliferative neoplasm (MPN), which is usually diagnosed in the chronic phase and is curable with the advent of tyrosine kinase inhibitors (TKIs).
- Hyperleukocytosis, a laboratory abnormality defined by a total leukemia blood cell count greater than 50,000/ μ L or 100,000/ μ L, can lead to leukostasis which is an urgent complication more often of acute and less often of chronic leukemias.
- Regarding CML, leukostatic symptoms are uncommon in the chronic phase and in newly diagnosed patients but are more common in advanced disease stages (accelerated or blastic phase).
- Leukostasis in CML often presents with neurologic or respiratory symptoms but has been reported to be a rare cause of sudden cardiac death.

CASE PRESENTATION

- A 57-year-old male with past medical history significant for hypertension and previous C5-6 cervical fusion presented after experiencing an unwitnessed syncopal event while driving his work truck resulting in a motor vehicle collision.
- He was found to be pulseless for which he received 25 minutes of advanced cardiac life support with delivery of 2 shocks before return of spontaneous circulation.
- He was brought to the emergency department by ambulance where he was evaluated by the trauma team and found to have a negative FAST (Focused Assessment with Sonography in Trauma) exam, C-spine was cleared, and ECG was negative for STEMI.
- CT chest/abdomen/pelvis revealed bilateral rib fractures, air in left common femoral and external iliac veins, splenomegaly to 17.7 cm, mild cardiomegaly, 3 mm right upper lobe nodule, and diverticulosis. 4



CASE PRESENTATION CONT.

- Laboratory evaluation was remarkable for WBC of 197,000/ μ L.
- Peripheral blood smear was leukoerythroblastic with features of chronic myelogenous leukemia with approximately 6% blasts by morphology, and flow cytometry confirmed 89.5% positive for t(9;22) BCR/ABL1 mutation.
- Coronary angiography revealed chronically occluded proximal LAD with left-to-left collaterals, 2 large obtuse marginal branches with 70-90% stenoses each, and a small non-dominant RCA not amenable to percutaneous coronary intervention.
- Patient was discharged with a LifeVest with plans for CML treatment prior to coronary artery bypass surgery.
- He was initially started on Hydroxyurea and transitioned to Imatinib (TKI) with very good results
- He was able to have significant cytoreduction with pre-surgery WBC of 6.09/ μ L.
- 7 weeks after index presentation he underwent coronary artery bypass grafting with left internal mammary artery to diagonal branch of LAD, saphenous vein graft to first obtuse marginal, and saphenous vein graft to left posterior descending artery.

CONCLUSION

- This is the first reported case of leukostasis from CML leading to sudden cardiac death in which the patient survived the inciting event to undergo treatment for both CML and multivessel coronary artery disease.
- This illustrates the serious and little-known cardiovascular complications of a common hematologic malignancies.

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