Thromboembolism in lower extremity arteries as the initial symptom of acute leukemia: a case report and review of literature

Abstract

Objective Summarized clinical characteristics of aortic thrombosis in patients with leukemia. Method Analysis of a case with aortic thrombosis as the first clinical features, treatment and prognosis of leukemia. Results recommend active anticoagulant therapy in combination with induction chemotherapy in patients with leukemia complicated by thrombosis. This approach would prevent recurrence of thrombosis while treating the underlying leukemia, resulting in improved patient outcomes.

Keywords: leukemia, thrombosis, dorsalis pedis, d-dimer, nadroparin

Introduction

Disorders of the coagulation system are intensively traced in patients with acute leukemia, who usually are plagued by hemorrhagic complications or thrombosis of small vessels. It has been reported that, in leukemia patients, the incidence of bleeding ranges from 20% to 95% and that of thrombosis ranges from 10% to 40%. Acute leukemia may come in hand in hand with thrombosis; Thrombosis usually occurs at the early stage of leukemia and after chemotherapy or infection, especially in acute leukemia with extremely high leukocyte counts, chronic leukemia, or chronic leukemia with acute changes. Thrombosis in leukemia is often seen in veins but rarely in arteries. Leukemia with thrombosis in large arteries as the initial symptoms is especially rare. Here we report such a case.

Case report

A 66-year-old male was admitted to hospital for pain and numbness of the left foot. On the day of admission, physical examination revealed decreased skin temperature below the left knee and cyanosis of the left toes. The left femoral and dorsalis pedis artery pulses were impalpable. An emergency three-dimensional computed tomography (3-D CT) reconstruction of the lower extremity vessels showed thrombosis in the left common, internal and external iliac arteries (Figure 1). A blood routine test (BRT) revealed white blood cell (WBC) count 6900/µL, hemoglobin (Hb) 127g/L, and platelet (PLT) 18×10^9/L. Coagulation tests showed prothrombin time (PT) 14.7s, activated partial thromboplastin time (APTT) 33.9s, thrombin time (TT) 22.7s, and D-dimer concentration 3200μg/L.

On the afternoon of 29 September, Fogarty balloon catheter thrombectomy was made in the left iliac artery and Nadroparin Calcium was used for anticoagulant therapy. On the same day, blood routine test (BRT) showed WBC 16.6×10^9/L, Hb 115g/L, and PLT 15×10^9/L. Blood coagulation tests showed PT 16.1s, APTT 45.8s, indefinite TT, and D-dimer 3780μg/L. Postoperatively his left leg pain was relieved and skin temperature and arterial pulse restored.

Figure 1 3-D CT.

The next day, immature cells were found in the peripheral blood. A bone marrow smear (Figure 2) showed 58% myeloblasts and 35% promyelocytes, bone marrow blasts by the Flow cytometry(BD
Patients with acute leukemia may present with thrombosis of vessels, large arterial thrombosis is a rarely-seen complication. De Stefano et al. reported that there were 6.3% people caught by thrombosis, 80% by venous thrombosis, and 20% by arterial. As far as we know, only nine cases of acute leukemia that presents to lower extremity arterial thrombosis have been traced in English literatures. They include two cases in ALL, four cases in APL, and three cases in non-M3 AML patients. It is still unclear now about the mechanisms of leukemia complicated with thrombosis. This approach would prevent recurrence of thrombosis while treating the underlying leukemia, resulting in improved patient outcomes.

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Conflict of interest

The author declares no conflict of interest.
References


