

Acute Leukemia the Imitator!

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Abstract: *Acute leukaemia can infiltrate various organs with atypical manifestation posing a diagnostic dilemma. We describe one such case of acute myeloid leukaemia presenting with predominant skin and renal manifestations. A 55 years old female presented with intermittent fever, painful purpuric rash over the limbs and abdomen resembling vasculitis. Further, her renal biopsy showed features of IgA nephropathy. However, when her symptoms recurred despite treatment, the repeat blood smear showed Leucocytosis with predominant monocytes along with immature monocytes and severe thrombocytopenia. Subsequent bone marrow study was diagnostic of Acute myeloid leukaemia. She was initiated on chemotherapy and has been doing well. IgA Nephropathy associated with leukaemia and lymphoma is a very rare entity making this case noteworthy. Another highlight of this case is the Cutaneous manifestation of acute myeloid leukaemia - leukaemia cutis which was the presenting complaint in our patient. The presence of Leukaemia cutis generally suggests that there are other sites of extramedullary involvement, thereby indicating a poorer prognosis.*

Keywords: Acute leukemia, paraneoplastic syndromes, leukemia cutis, IgA nephropathy

1. Introduction

Acute myeloid leukaemia (AML) is a heterogeneous clonal disorder characterized by immature myeloid cell proliferation and bone marrow failure. AML patient often present with signs and symptoms resulting from bone marrow failure, organ infiltration by leukemic cells, or both. Due to ineffective erythropoiesis and bone marrow failure, patients experience a variety of symptoms including recurrent infections, anaemia, easy bruising, excessive bleeding, headaches, and bone pains. The physical examination can reveal bruises, pallor, hepatomegaly, and splenomegaly. Signs of organ infiltration are not uncommon; which may include hepatosplenomegaly and lymphadenopathy. Sometimes a skin rash due to infiltration of leukemic cells can occur. ¹Cutaneous leukocytoclastic vasculitis presents as palpable purpura or red win coloured papules, that progress to violaceous colour and hyperpigmentation. They are predominant in the lower limbs and often associated

with pain and pruritus.

2. Case Report

A 55-year-old female with past history of reactive airway disease presented with intermittent fever of one-month duration. She had also developed painful red rash over the legs, arms and abdomen (Figure 1) followed by swelling around the ankle joint.

Her preliminary blood counts, kidney and liver function tests were within normal limits. The initial blood smear showed normocytic normochromic anaemia, and leukocytes mild shift to left with few reactive monocytes. She was suspected to have vasculitis, was started on steroids, hydroxychloroquine and colchicine. However, the autoimmune workup such as ANA-IF, ANA profile, ANCA profile were found to be negative.





Figure 1: Purpuric rash over the limbs

The skin biopsy showed features of granulomatous vasculitis, with perivascular lymphocytic infiltrate in upper dermis. The mid and deep dermal vessels showed fibrin material with neutrophils. The vessels were surrounded by epithelioid histiocytic granulomas. Further her urine routine showed haematuria and proteinuria. Urine protein creatinine ratio of 0.615mg/mg. The renal biopsy done showed features of IgA nephropathy. The steroids were continued. During the same hospitalisation she developed breathing difficulty and hypoxic respiratory failure. The computerised tomography (CT) imaging of chest revealed - bilateral mild pleural effusion with ill-defined peri bronchial, interstitial thickening and consolidations in bilateral lung fields suggestive of infective aetiology (Figure 2). The NT Pro-BNP level was elevated. 2 D Echocardiography showed grade I left diastolic dysfunction and normal left ventricular ejection fraction. She was started on diuretics, antibiotics and steroids were continued. She was later discharged home with tapering dose of steroids, hydroxychloroquine and diuretics.

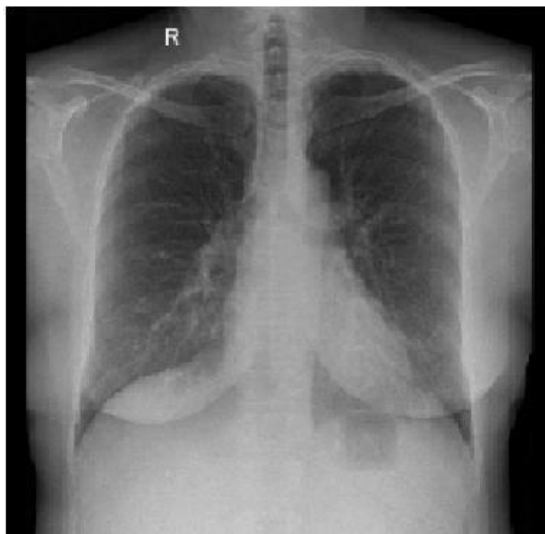


Figure 2: CT thorax - mild pleural effusion with peribronchial interstitial thickening and consolidations

A month later she again presented with fatigue and worsening purpura on legs and arms with mild pedal oedema. The repeat blood counts and smear study showed elevated leucocyte count with predominantly monocytes, reactive along with immature monocytes, few large atypical monocytoid cells (5%) with high N:C ratio and folded nucleus, cytoplasmic vacuolations with severe thrombocytopenia, possibility of acute myeloid leukaemia.

CT imaging showed loculated left perinephric fluid with adjacent fat stranding. Sub-centimetre sized Left supraclavicular & mediastinal adenopathy. Bone marrow study- showed features of acute leukaemia with 70 to 80% blast cells, promonocytes, monocytes. Immunophenotyping showed acute myeloid leukaemia with monocytic differentiation (Acute myelomonocytic leukaemia) with CD56 aberrant expression. Cytogenetics: reported mutation of NPM1 gene and FLT3 not mutated. Her previous medications such as Hydroxychloroquine and colchicine were discontinued. Initially due to poor performance status she received palliative chemotherapy with Decitabine 50mg for 5 days every cycle and Venetoclax tablets 100mg once daily; the hyperleukocytic state was controlled with hydroxyurea and her condition stabilised. The bone marrow study after three months showed remission, she then underwent induction chemotherapy with cytarabine and daunorubicin (3+7 protocol) followed by high dose cytarabine. She responded well, the renal parameters as well as the skin lesions improved, and she is in remission.

3. Discussion

In this case report, we described a patient who initially presented with fever, papular rash, purpura, anaemia, proteinuria and haematuria who was first diagnosed with IgA nephropathy but on subsequent presentation was found to have acute myelomonocytic leukaemia. Her renal and skin manifestations improved only after starting chemotherapy which goes on to prove that they were not incidental findings. This case report presents a rare instance where acute myeloid leukaemia caused IgA nephropathy

and leukaemia cutis. Renal and skin involvement are peculiar and atypical presentations of acute myeloid leukaemia. Typical manifestations of acute leukaemia are due to bone infiltration and organ infiltration. Hepatosplenomegaly and lymphadenopathy are the most expected presentations.

IgA nephropathy has been reported in children with acute leukaemia and lymphoma but it was thought to be incidental.²The disease course did not change after starting immunosuppressant medications. There have also been case reports of IgA nephropathy and focal segmental glomerulosclerosis in a patient with low grade B-cell lymphoma.³Eroglu et al reported a patient with acute lymphocytic leukaemia and IgA nephropathy. Treatment of the malignancy resulted in remission of the nephropathy as well.⁴IgA nephropathy cases have been reported to be associated with neoplasms such as non-Hodgkin's lymphoma, monoclonal IgA gammopathy, and carcinomas of the lung and colon. However, the close association between malignancies and IgA- nephropathy is not completely understood, and has been widely thought that paraneoplastic immune changes might be responsible.

Leukemia cutis is the infiltration of neoplastic leukocytes or their precursors into the epidermis, the dermis, or the subcutis, resulting in clinically identifiable cutaneous lesions. Leukemia cutis may follow, precede or occur concomitantly with the diagnosis of systemic leukemia. Angoori G Rao et al presented a similar case of a female whose initial presentation was leukemia cutis. On evaluation was found to have WBC count of 70000/cumm and auer rods.⁵Leukemia cutis has been found to have a poor prognosis. These patients require more aggressive treatment and monitoring of their leukemic disease.⁶Other atypical presentations of acute myeloid leukemia include acute myopericarditis⁷, cardiac myeloid sarcoma⁸, central diabetes insipidus⁹ to quote a few. Thus acute leukemia can be a great masquader posing a diagnostic challenge in clinical practice.

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