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Case Report

Fatal hemorrhagic chickenpox in a case of acute promyelocytic leukaemia

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Abstract Chickenpox is a viral infection caused by varicella-zoster virus. The infection is rather benign in nature, but in patients with impaired immunity it may result in fatal complications like haemorrhagic chickenpox. The case below is an association of the above complication of chickenpox in a patient suffering from acute promyelocytic leukaemia.

Key words
Haemorrhagic chickenpox, acute promyelocytic leukaemia.

Introduction

Varicella (chickenpox) is caused by *Herpesvirus varicellae*. It is a droplet infection and once the infection occurs it confers lasting immunity. Antibodies like IgG, IgM and IgA appear 2-5 days after the rash, but they have incomplete protective effect[1]. Cell-mediated immunity (CMI) is more important and when impaired e.g. lymphomas or leukaemias, and cytotoxic or immunosuppressive therapy there are more chances of complications such as hemorrhagic chickenpox, encephalitis, pneumonitis, hepatitis and thrombocytopenia. In such cases the mortality rate is from 7-10%.[1]

Case report

A 35-year-old male was seen in our department, with 2-week history of fever, malaise and tiredness; and one week history of generalized discrete vesiculopustular rash over the entire body and oral ulcers. Since the last 3 days, the rash became haemorrhagic with frank bleeding from several areas especially from the lesions on the face and legs. Since then, the patient became very toxic, anorexic and weak. There was no personal or family history of any significant disease in the past. The patient was a smoker and belonged to a poor social background.

On examination, the patient was a toxic looking young male who was conscious and oriented. He was febrile (temperature: 38.5°C) and anaemic. There were several hemorrhagic ulcers in his mouth and over the lips, multiple large haemorrhagic bullae over the face (**Figure 1**), with frank bleeding from a few lesions and multiple discrete haemorrhagic pustules over the entire body (**Figure 2** and **3**). There was cervical and axillary lymphadenopathy and hepatosplenomegaly. On investigations, haemoglobin level was 6.7 g/dl, total leucocyte count was $1x10^9$/l and platelets were $19x10^9$/l and ESR was 65 mm fall. Prothrombin and thromboplastin time were prolonged. Serum fibrinogen level was 150 mg/dl and D-diamers were 5000 µg/ml. Tzanck smear revealed multinucleated giant cells. Anti-varicella IgM antibodies were positive. Bone marrow biopsy

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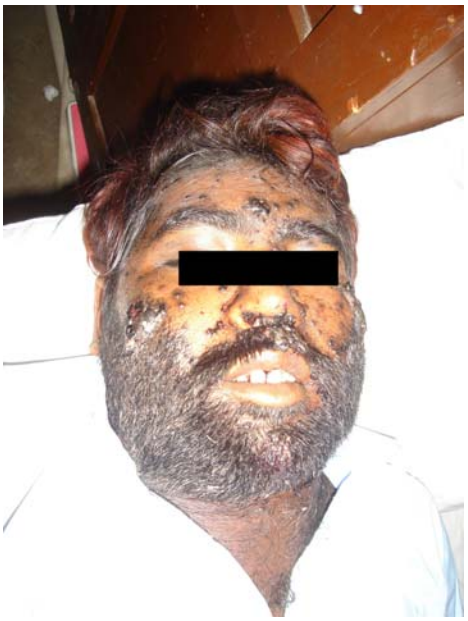

Figure 1 Haemorrhagic blisters over the face

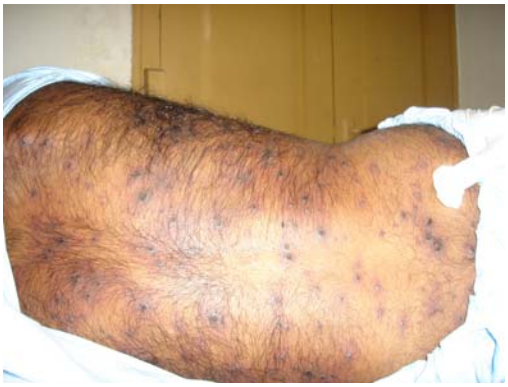

Figure 2 Hemorrhagic vesicles over the trunk

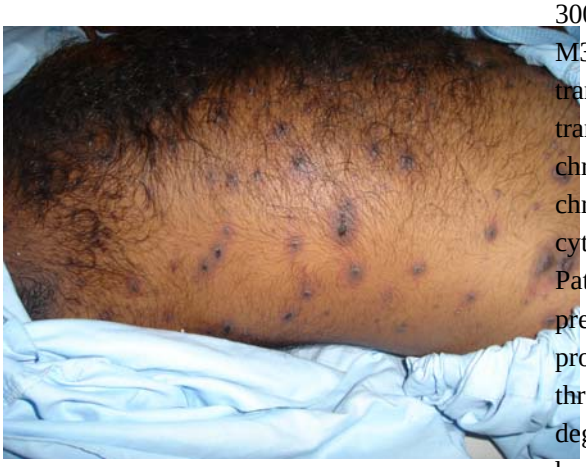

Figure 3 Hemorrhagic vesicles over the chest and abdomen

revealed depressed erythro- and myelopoiesis, absent megakaryocytes and abundant promyelocytes with 90% blast cells.

On the basis of clinical condition and laboratory parameters the diagnosis of haemorrhagic chickenpox and disseminated intravascular coagulation, occurring as a complication of acute promyelocytic leukaemia (M3) was made. The patient was prescribed intravenous acyclovir 10 mg/kg body weight thrice daily, antibiotics and was transfused platelet concentrate and plasma. The patient developed a tonic-clonic seizure on 2nd day of admission and died. The postmortem was denied by the family. The probable cause of death was intracranial bleeding.

Discussion

Acute promyelocytic leukaemia (APL-M3) is characterized by presence of atypical promyelocytes in bone marrow and peripheral blood. The M3 subtype accounts for 5-10% of all cases of AML.[2] Patients are typically younger, with mean age of 31 years and present with a lower white blood count usually in range of 3000-15000/mm^3. Cytogenetic studies of M3 demonstrate the characteristic 15:17 translocation, which is a balanced translocation from long arm of chromosome 17 to the longer arm of chromosome 15 [t (15q+;17q-)].[3] This cytogenetic finding is diagnostic of APL. Patients with this type of leukemia often present with thrombocytopenia, prolongation of thromboplastin and thrombin time, increased level of fibrin degradation products and hypofibrinogenemia. The coagulation disorder in APL results from at least three distinct mechanisms: disseminated

intravascular coagulation, fibrinolysis and proteolysis.[4]

Haemorrhagic chickenpox is a serious complication of a relatively benign disorder occurring in immunocompromised and those on immunosuppressive therapy. This is due to severe viral infection and is associated with other fatal complications. There have been case reports in which fatal haemorrhagic chickenpox occurred in steroid dependent asthmatic patients[5] and nephritic syndrome.[6] It is found in association with thrombocytopenia[7], Henoch-Schonlein purpura[8], pneumonitis and encephalitis.[9] There have been several reports of deaths in such patients[10,11] mainly due to the fact that the patients who suffer from haemorrhagic chickenpox are already very sick and usually have other contributing factors. This case report is first of its kind in which a case of acute promyeloctic leukaemia (M3) was found suffering from haemorrhagic chickenpox and DIC leading to death.

References

1. Sterling JC. Viral infections. In: *Rook's Textbook of Dermatology*, 7th *edn*. Oxford: Blackwell; 2004. p. 25.1-25.83.
2. Kenneth B, MillerRD, Philip RD. Clinical Manifestations of Acute Myeloid Lekaemia. In: *Haematology, Basic Principles and Practice*. USA: Churchill Livingstone; 1995. p. 999-1024.
3. Larson RA, Kondo K, Vardiman JW: Evidence for a 15;17 translocation in every patient with promyelocytic leukaemia. *Am J Med* 1984; **76**: 827.
4. Tallman MS, Anderson JW, Schiffer CA. All trans-retinoic acid in acute promyelocytic leukaemia. *N Eng J Med* 1997; **337**: 1021.
5. Lai WK. Morice AH, Fatal varicella-zoster infection in a severe steroid dependent asthmatic patient receiving methotrexate. *Thorax* 1995; **50**: 1222-3.
6. Gangaram HB, Cheong IK. Fatal haemorrhagic chickenpox complicating nephrotic syndrome. *Med J Malaysia* 1993; **48**: 446-8.
7. Varga E, Nagy R, Marian E, Kocsis A. Idiopathic thrombocytopenia caused by varicella. *Orv Hetil* 1992; **133**: 2567-8.
8. Leonardi S, Fischer A, Arcidiacono G, Barone P. Chickenpox and Schonlein-Henoch purpura: a report of a case with nephropathy. *Pediatr Med Chir* 1992; **14**: 535-7.
9. Weigel B, Du Chesne A, Leopold D. Lethal varicella in infants. *Z Gesamte Inn Med* 1976; **31**: 1043-8.
10. Cooray MP. Ten cases of fatal haemorrhagic chickenpox in ceylon. *J Trop Med Hyg* 1965; **68**: 174-6.
11. Johnson RW, Nelson AM. Haemorrhagic chicken-pox. Two fatal cases. *Br Med J* 1960; **1**: 1183-4.