

Horizontal transmission of HIV infection in an HIV-exposed child—An avoidable tragedy

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Received 22 June 2013; revised 23 July 2013; accepted 11 August 2013

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ABSTRACT

Exposure to infected blood/blood products through blood transfusion and use of contaminated sharp objects remain an important source of HIV infection. This report describes the case of a 52-month-old male child of an HIV-infected mother in whom perinatal infection was successfully prevented by maternal and infant antiretroviral therapy, elective cesarean section, and avoidance of breast-feeding. A DNA PCR test at 6 weeks was negative and a rapid antibody test at 18 months was seronegative. He presented to the Paediatric infectious disease unit with chronic fever, cough, diarrhea and weight loss 7 months after receiving a commercially donated blood (in a rural private hospital) and scarification marks (by a traditional healer) for a febrile illness with convulsion. He was found to be seropositive with severe immunosuppression. He however died a month after being initiated on antiretroviral drug.

Keywords: HIV-Exposed; Blood Transfusion; Scarification

1. INTRODUCTION

HIV infection is a preventable disease. The majority of infections in the paediatric age group are through vertical transmission from an infected mother to the infant [1]. With interventions, using a comprehensive package of services, including maternal and infant antiretroviral therapy, elective cesarean section, and avoidance of breast-feeding, the risk of mother-to-child transmission (MTCT) can be drastically reduced to less than 5% [2,3]. Occasionally also, children may become infected by exposure to infected blood through blood transfusion and use of unsterilized sharp objects. This is a report of a

child in whom perinatal infection was successfully prevented by prevention of mother-to-child strategies but who later acquired infection by exposure to infected blood products.

2. CASE REPORT

A 52-month-old male was brought to Paediatric infectious disease unit with a 3-month history of recurrent fever, cough, diarrhea, weight loss and boils. The mother was diagnosed HIV-positive 4 years before his conception and has been adherent to her antiretroviral drugs (zidovudine, lamivudine and nevirapine fixed dose combination). Her CD4 count during pregnancy ranged between 830 and 1050 cells/ μ l. He was delivered at term by elective cesarean section and weighed 3.8 Kg. He received a single dose nevirapine and zidovudine for 6 weeks and was fed exclusively on breast milk substitute. A DNA PCR test done at 6 weeks was negative. HIV rapid diagnostic test (Determine[®]) at 6 and 18 months were both seronegative. He remained healthy until at 42 months when he developed a febrile illness with convulsion. He was first taken to a traditional healer who made scarification marks on the abdomen and applied some herbs. As his condition did not improve, he was taken to a rural private hospital where he was transfused (with commercially donated blood) for severe anemia secondary to severe malaria. Seven months later, he developed the presenting complaints. Physical examination revealed marked muscle wasting, prominent rib cage, marked loss of gluteal bulk and a weight of 7.8 Kg (49% of expected). He had grade 3 finger clubbing and significant generalized lymphadenopathy. He had healed scarification marks over the right and left hypochondria (**Figures 1 and 2**). Chest examination revealed bilateral coarse crepitations. HIV rapid diagnostic tests (Determine[®] and Unigold[®]) were both reactive. His CD4 count was 75 cells/ μ l and chest radiograph showed bilateral hilar and perihilar opacities. The mantoux test was negative. He



Figure 1. Anterior view of the patient showing prominent ribs and scarification marks on the abdomen.



Figure 2. Posterior view of the patient showing marked loss of gluteal muscle, overhanging skin and prominent pelvic bones.

tested seronegative to Hepatitis B surface antigen and Hepatitis C virus antibody. He was managed for WHO clinical stage 4 disease with severe wasting, pulmonary tuberculosis and severe immunosuppression. He received antituberculous drugs, cotrimoxazole and ready-to-use therapeutic feed (Plumpy nut®). After 2 weeks on antituberculous drugs, he was initiated on antiretroviral drugs (zidovudine, lamivudine and nevirapine) but died after one month on antiretroviral drugs.

3. DISCUSSION

In the Paediatric age group, mother-to-child (vertical) transmission accounts for as much as 90% of HIV infection [1,2]. Children however may become horizontally infected through exposure to infected blood. This can occur either through transfusion with infected blood or by use of contaminated sharp objects. Blood/blood products remain an important source of HIV infection. Most blood transfusion-transmitted HIV infection result from

transfusion with unscreened/improperly screened blood [4]. Although tremendous progress has been made in reducing the risk of HIV transmission from blood transfusion through careful donor selection criteria and better laboratory testing of each donated unit of blood [5], blood screening facilities are still grossly lacking in most areas in developing countries. Most blood donations are done commercially for economic gains, so that transfusion with an improperly screened blood remains a possibility. Despite these better blood screening procedures, HIV transmission may still occur if the blood donation occurred during the window period (when the blood of a newly infected person does not show up as positive on screening tests) [6-8], if the potential blood donor is infected with variant strains of HIV that may escape detection by current screening assays or following testing or documentation errors [7]. Almost all recipients of HIV-positive unit of blood/blood product will develop HIV-infection [8,9], and will manifest with symptoms of AIDS within a shorter incubation time especially in young children [10].

Cultural practices like circumcision and scarification are commonly performed in children and involve the use of shared and non-sterile instruments with traditional healers and since these practices result in exposure to blood, they present potential avenues for transmission of HIV to children [11]. In many African countries with limited access to formal/western health care services, traditional healers are usually the first port-of-call and the main source of primary health care needs [12,13]. Circumcised and scarified children are more likely to be infected with HIV than children who had not been circumcised or scarified [14]. Body scarification as practiced in many ethnic groups not only involves the use of shared unsterilized and contaminated instruments but also the application of substances (which may be contaminated by blood from a previous HIV-positive client) into the freshly made wounds. The traditional healers themselves may also be HIV infected from the various scarification marks they have made for clients most often with ungloved hands. All these increase the risk of HIV cross-infection.

It is however difficult to conclude in this case the actual source of the infection as both risky exposures occurred at the same time and neither the blood donor nor the traditional healer could be tracked.

4. CONCLUSION

While efforts are made towards reducing MTCT of HIV, it is equally important to warn parents about all risks of blood-borne HIV transmission. Transfusion with questionably screened blood and cultural practices that expose children to objects possibly contaminated with

infected blood should be vigorously discouraged.

5. ACKNOWLEDGEMENTS

The author is grateful to the mother for granting permission for the case to be published.

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