Human bite and human immune deficiency virus (HIV) transmission

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Abstract

Background: The concentration of human immune deficiency virus (HIV) in the saliva of a carrier is low. As a result, human bite is not considered the traditional route of HIV infection transmission.

Aim: To report a case of HIV sero-positivity following a human bite.

Setting: University of Port Harcourt Teaching Hospital, Port Harcourt.

Case report: A 30-year-old HIV sero-negative woman who became sero-positive following a bite by a known HIV infected commercial sex worker is presented. Both were engaged in a physical fight over a disagreement.

Conclusion: This case highlights the possibility of HIV infection through human bite.

Key words: Human bite, Saliva, Transmission, Human immune deficiency virus

Introduction

The possibility of HIV transmission by human bite appears remote due to the negligible number of HIV infected cells and the presence of HIV inhibitor in the saliva. Since the saliva is a body fluid, HIV transmission is biologically possible but there has been no well-documented HIV transmission through human bite. The few reported cases of HIV sero-conversion following human bite suggest that there must be blood in the mouth of the biter and a discontinuity in the body part of the bitten for transmission to occur.

This 30-year-old lady who became sero-positive following a bite is presented to show the possibility of HIV infection following human bite.

Case report

A 30-year-old married para, all alive was referred to the University of Port Harcourt Teaching Hospital at 38 weeks of gestation from a private clinic on account of HIV sero-positivity following screening at 18 weeks gestation. About a year before her index pregnancy, she had tested negative when she donated blood for her sick relative. She had a bite on her upper lip by her sister-in-law who was a known HIV positive commercial sex worker during a physical fight. The injury bled and necessitated suturing but it healed primarily.

Her antenatal period was complicated by gastroenteritis and upper respiratory tract infection for which she was treated. Her previous deliveries were all in the referring clinic where routine HIV testing consistently showed sero-negative results. Her husband was also sero-negative. She had no history of blood transfusion, surgical intervention or drug (heroine) injection. She denied having any other sexual partner(s).

She was essentially normal on physical examination. She continued her antenatal care and delivered a live baby vaginally at 40 weeks gestation having refused elective caesarean section. She was placed on highly active anti-retroviral therapy (HAART). The baby had syrup nevirapine within 24 hours of birth. She was lost to follow up.
Discussion

Human bites are serious injuries that may lead to infection and are associated with interpersonal violence. A number of bacteria and viral diseases can be transmitted through human bite, for example, herpes simplex virus (HSV), hepatitis B virus (HBV) and hepatitis C virus (HCV) but HIV is rarely present in the saliva. One study suggested less than one infectious HIV particle in 1ml of saliva. In addition HIV-inhibiting factors have been detected in the saliva which prevent infection of lymphocytes in 85% of those studied.

While blood and body fluids containing visible blood, semen and vaginal secretions are considered potentially infectious, faeces, nasal secretions, saliva, sputum, sweat, tears, urine and vomitus are not considered infectious unless they contain blood. The risks of HIV transmission through them is extremely low.

The first documented sero-conversion of HIV following a human bite by Vidmar and colleagues in 1996 has raised concern of the possibility of HIV transmission through human bite. HIV transmission involving human bite as reported and other isolated cases in the literature suggest a blood-to-blood transmission by a bite. All the authors agree on the presence of blood in the saliva and the disruption of the integrity of the tissue bitten before such transmission can occur.

This patient was bitten by a known HIV sero-positive commercial sex worker on provocation. She was until then sero-negative as evidenced by the previous screening test conducted by the referring clinic. The injury produced by the bite involved bleeding. The evidence that was lacking was the presence of blood in her sister-in-law’s mouth. However, the suspicion is that she would have had advanced disease with an oral thrush which made it possible for her mouth to contain blood and thereby facilitating transmission after the bite.

The limitation of this report is the absence of HIV sero-typing on both the biter and the bitten. Similarly, her history notwithstanding, infection through other routes especially coitus can not be absolutely ruled out.

However, there was no risk factor elicited in this patient that could be attributed to her seroconversion. We therefore associate her HIV sero-positivity to the bite from the known sero-positive commercial sex worker.

References