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Triple Threat: A Case Report of HIV, HBV, and Malaria Co-infection in a Blood Donor; Quetta, Balochistan

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ABSTRACT

This case report describes an infrequent occurrence of a 40-year-old asymptomatic male donor who came to give blood for his patient, who was admitted to an ICU. Pre-donation screening via Roche c 404 immunoassays revealed co-infection with three transfusion-transmissible infections: Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), and *plasmodium falciparum*. This unexpected combination poses significant health risks, reinforcing the importance of robust TTI screening protocols. The case highlights the need for further research on the prevalence and implications of such co-infections, particularly in regions already burdened by endemic viral illnesses.

Keywords: Human Immunodeficiency Virus, Hepatitis B, Malaria, Co-infection, Blood Donation, Public Health

INTRODUCTION

Blood and its derivatives are essential and widely consumed in multiple therapeutic cases, including surgery, ICU, day care, and patients having hematological disorders, to support patients who require blood frequently, first documented blood transfusion was done by French physician Jean-Baptiste Denys in 1667, when he transfused blood from a lamb into a young boy suffering from a fever. Initially the patient was fine, but after a few transfusions, developed complications which led to banning this practice.[1] Pre-donation donor selection, which results in a particular deferral pattern for a significant percentage of donors, is an essential tool for guaranteeing transfusion safety. The term "deferral" describes the temporary or permanent exclusion from donating blood or its components because of a suspected or confirmed infectious disease. One of the main reasons why blood and component donation is temporarily suspended is low hemoglobin levels relative to normal. Less common causes include being underweight, being older than 50 or younger than 18, having a history of vaccinations, having allergies, having diabetes, having tuberculosis, having abnormal blood counts, having coagulation disorders, and donating before the three-month mark. Kidney failure, epilepsy, and reactivity to any of the transfusion-transmissible infections are the main causes of permanent deferrals. The high prevalence of hepatitis B and C in Pakistan increases the risk of blood transfusion-related illnesses.[2] Multiple pathogen co-infections can make diagnosis and treatment more difficult and raise the possibility of negative outcomes for both donors and recipients.[3] Co-infections among blood donors are frequently underreported, despite improvements in screening technologies. As a result, the true burden of these infections within the donor population is not fully understood. This case study highlights a rare case of a blood donor who tested reactive for HIV, Hepatitis B virus, and malaria, emphasizing the necessity of thorough screening

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procedures and raising awareness among medical professionals.

CASE REPORT

A 40-year-old with no previous symptoms of any diseases presented at Aria Institute of Medical Sciences for blood donation required for his relatives. During the donor interviews, all standard questions were asked, and he was booked as a blood donor, with samples collected for pre-donation screening. After samples were collected for screening of all Transfusion transmissible infections,tests were performed on Roche c 404 fully automated immunoassay analyzer.These tests include HIV, B, C hepatitis virus, and syphilis by E-CLIA principle, & malaria by Immunochromatography techniques. Human immunodeficiency virus and Hepatitis B virus were reactive, and malaria was positive for *plasmodium falciparum*. Tests were again repeated as per the standard protocol of laboratory reporting and re-confirmed that both HBsAg and HIV were reactive. The patient was informed and counseled by a Blood transfusion officer for further testing of him and his family members.

Table 1: Donor Screening Report for Transfusion-Transmitted Infections

Transfusion TransmissibleInfections	Results
Hepatitis B virus	*Reactive*
Human immunodeficiency virus	*Reactive*
Hepatitis C virus	Non-Reactive
Syphilis	Non-Reactive
Malaria	*plasmodium falciparum detected*

DISCUSSION

Co-infection with multiple pathogens can complicate diagnosis and treatment and, increase the risk of adverse outcomes for both donors and recipients. Many co-infection cases are not reported significantly during the screening of blood donors for all transfusion-transmissible infections and are not considered important. In this case report we are highlighting a case of a blood donor who came for a blood donor with no symptoms and while screening we have found that he was co-infected with HBV, HIV, and malaria's-infection. Such co-infections may be difficult for clinicians to manage a patient who has such a diverse array of diseases.[4] This case also indicates that a state-of-the-art facility for blood donation screening is essential to stop the transmission and timely diagnosis of all transfusion-transmissible diseases. HIV and HBV are blood-borne viruses that can lead to serious chronic health conditions that are not easy to treat and have a poor prognosis. As a case of co-infection with such a variety of diseases, it's very hard for clinicians to treat patients, and after treatment, outcomes are not very positive, especially in HIV. Co-infection of HBV and HIV can also lead to hepatocellular carcinoma or rapid destruction of the liver. In our case, the donors was asymptomatic at the time of donation, making it very challenging to identify those who had these diseases without symptoms.

Malaria is also considered an endemic parasitic infection that can be transmitted through blood transfusion, and its existence in donors increases the concern of transmission through blood.[5] This case is a prime example that raises concerns about screening and its importance in the blood banking sector. Pakistan is among the highly prevalent countries facing endemic for all transfusion-transmissible diseases.Future research is also recommended for the proper interpretation of co-infection in blood donors and the effectiveness of current screening technologies.[6]

CONCLUSION

We identified a rare case of co-infection with HBV, HIV, and *plasmodium falciparum* in a single blood donor, underscoring the urgent need to strengthen screening protocols and donor safety measures. This case highlights the critical importance of robust transfusion-transmissible infection (TTI) detection in blood banks, particularly in countries like Pakistan, where such infections remain highly prevalent. We recommend targeted research into advanced screening technologies, co-infection prevalence, and strategic improvements in donor follow-up and counseling to enhance blood safety and public health outcomes.

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Conflict of interest

Nil

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References

1. Kvržić Z. History of Blood Donation and Transfusion Medicine. Springer; 2024.
2. Hassni MA, Mir R, Tanveer ZH, Zahra F, Hasni K, Iftikhar H, Zaidi SM, Hussain A. Prevalence and causes of blood deferral in a tertiary care teaching hospital, Islamabad. Nat J Life Health Sci. 2024;3(1):14-9.
3. Bhatti AK, Waheed Q, Azhar M, Butt TM, Rafiq H, Abid MM. Prevalence of blood transfusion diseases among blood donors. Med Forum Monthly. 2021;32(6).
4. Zaheer HA, Waheed U. Blood safety system reforms in Pakistan. Blood Transfusion 2014;12(4):452.
5. Mumtaz Z, Bowen S, Mumtaz R. Meanings of blood, bleeding and blood donations in Pakistan: implications for national vs global safe blood supply policies. Health Policy Plan. 2012;27(2):147-55.
6. Mustafa MZ, Hassni MA. Voluntary Blood Donation and Restructuring of Blood Bank in Pakistan. Pak-Euro Journal of Medical and Life Sciences. 2024 Sep 30;7(3):i-i.