



## Spread of human immunodeficiency virus 1 among men who have sex with men is emerging as a genuine social concern and affecting the general populace - case reports from Eastern India

Aroni Chatterjee, Agniswar Sarkar, Sabbir Ansari, Sattik Siddhanta, Siwalik Banerjee, Rathindranath Sarkar, Nilanjan Chakraborty

Aroni Chatterjee, Agniswar Sarkar, Sabbir Ansari, Nilanjan Chakraborty, ICMR Virus Unit, ID and BG Hospital Campus, GB4, Kolkata 700010, West Bengal, India

Sattik Siddhanta, Siwalik Banerjee, Rathindranath Sarkar, Department of General Medicine, Calcutta Medical College and Hospital, Kolkata 700073, India

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**Correspondence to:** Dr. Nilanjan Chakraborty, Scientist E, ICMR Virus Unit, ID and BG Hospital Campus, GB4, 57 Dr. S.C Bannerjee Road, Kolkata 700010, West Bengal, India. [nilanjanchakraborty@gmail.com](mailto:nilanjanchakraborty@gmail.com)  
**Telephone:** +91-91-63785518  
**Fax:** +91-33-23537424

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### Abstract

Human immunodeficiency virus (HIV) infection among men who have sex with men (MSM) has increased to a drastic proportion throughout India in the last couple of years due to a lack of productive identification and management framework. In apprehension of social disgrace these men attempt to live a normal hetero conjugal life and, in the process, act as a bridge in spreading the virus to their women partners. In this case report we have highlighted two cases which clearly distinguished the adequacy of HIV treatment among MSM when they are diagnosed during early or late phases of infection. An intensive and ample counseling to comprehend the psychology and sexual behavior of these men was found to be critically important in both the cases. Our study, which is actually the first of its kind, recorded and documented evidence of HIV infected MSM from Eastern India and renders a ray of hope among this marginally isolated group to comprehend the challenges and health risks faced by the MSM population. It also provides a format for the medical practitioners here in managing and treating related cases.

**Key words:** Human immunodeficiency virus; Men who have sex with men; Tuberculosis; Human cytomegalovirus

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**Core tip:** The role of men having sex with men (MSMs) in the transmission and spread of the human immunodeficiency virus infection among the general population has been an active area of debate for the last few years. This case report highlights the grave weight of this issue from an Indian standpoint and describes the health risks and related treatment procedures concerning these men. Another major point touched by this article concerns those MSMs who in fear of social stigma and try to live a normal hetero conjugal life and in the process act as a bridge in spreading the virus to their women partners.

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## INTRODUCTION

Human immunodeficiency virus (HIV) infection among men who have sex with men (MSM) has been expanding drastically around the globe, especially in Asia. This worldwide pattern is being found in India, with the current evaluated HIV predominance among MSM extending somewhere around 7% and 16.5%<sup>[1]</sup>. This is an major cause of concern in light of recent HIV counteractive endeavours that have been drastically extended across the country, bringing up second thoughts about whether extra measures are required to capture the spread of HIV in this populace. In Mumbai, 12% of MSM looking for deliberate testing and medical advice were found to be HIV seropositive, while 18% of the MSM screened in Andhra Pradesh were observed to be infected<sup>[2]</sup>. In another study, it was discovered that close to 8% of the reported MSM's were seropositive<sup>[3]</sup>.

Despite the fact that discoveries from the Independent Impact Assessment Study demonstrate that the National AIDS Control Program (NACP) has been consistently trying to end the HIV scourge in India over the period 2007-2012, current intervention measures for HIV transmission among MSM include single estimation modalities and thus fail to resolve the delicate problems associated with this socially marginalized group in India<sup>[4]</sup>. To deal with this issue, there is a requirement for far-reaching, multi-layered approaches that effectively counter the HIV aversion among these men. The idea concerning the sexual character of MSM in India can be fluctuating and fluid. Since people may change their self-perception with time and behaviours might be situational, crediting particular behaviours ascribed to

these men is difficult and constraining. In the majority of these people, same-sex behaviour does not block having sex with women or taking part in conventional marriages. Thus the expression "MSM" is not used to depict someone's sexual identity but to identify his characteristic behavior.

An essential inconvenience in getting the related MSM information is that homosexuality is concealed in silence to a vast degree in India both on account of social standards and on the grounds that it is unlawful. Homosexuality in India was formally classified by lawful code Section 377 which, until recently, made sexual relations between two men a criminal offence. Endeavours are progressing to attempt legalization of homosexuality in India; however these have not been successful yet. In light of the fact that numerous MSM in India don't transparently share information on their sexual behaviour, this has brought about meager information about their sex conduct and its setting. Without this clear knowledge, it is hard to arrange successful MSM-related HIV counteractive action. With regards to this disproportionately abnormal state of HIV risk, it is critical to comprehend the socio-behavioural components that may worsen sexual danger among this population. MSM in India encounter different types of social and legal discrimination. It is this pervasive narrow-mindedness of society alongside the social pressure for men to take part in heterosexual marital relations that have driven numerous MSM to marry and have children. Numerous MSM participate in unprotected anal and vaginal sex with multiple male and female sexual partners. MSM in India may play a "connecting" role in the spread of HIV among the general population. Other studies have additionally discussed that disgrace and stigma contribute to the development of one's negative self-images and low self-regard, depression, expanded sexual risk behavior and/or diminished utilization of HIV prevention services. The silent riddle connected with institutional disgrace and separation may generate ideal conditions for the drastic acceleration of the AIDS epidemic. The social stigma among these people may arise from healthcare providers, employers and other administrative workers. These difficulties create genuine obstacles against successful HIV services procurement; segregation can hinder access to HIV and sexual healthcare administrations and relative prevention programs. A comprehensive understanding of the issues around disgrace and discrimination would help MSM cross the obstructions connected with disgrace concerning sexual risk, disclosure issues and access to human health services.

## CASE REPORT

### Case 1

A 40-year-old man suffering from severe diarrhoea, fever, drastic weight loss and nausea was admitted to the Department of General Medicine, Calcutta Medical College and Hospital, Eastern India. His HIV serostatus was ascertained by an ELISA (HIV ELISA, Rapid test)

and Western blot as recommended by the National Aids Control Organization (NACO), Ministry of Health and Family Welfare, Government of India. The fourth generation HIV detection test performed with the patient's blood confirmed severe HIV infection. HIV blood viral load was found to be  $> 1 \times 10^5$  copies/mL. CD4<sup>+</sup> T-cell count was 32 and CD8<sup>+</sup> T cell count was 516 (Ratio-0.06). The man was confirmed with a diagnosis of AIDS, the final stage of HIV infection. Upon rigorous interrogation the man confirmed that he was primarily diagnosed as HIV seropositive at another government hospital "a few years back" (no documentation) but he did not think of complying with the physician's advice or to follow up and lived a "normal" life. A thorough risk review and rigorous counselling revealed that the patient was homosexual and had sexual contacts (unprotected anal intercourse) with multiple men (probably the cause of HIV infection). But due to the fear of social stigma he never revealed his sexual preference or HIV status to anyone and continued to live a "straight" life with his wife as a heterosexual man. His wife was also diagnosed with HIV seropositivity.

Upon admission, the patient showed high fever with a significant evening rise, severe headache, rapid seizures, and drastic weight loss. The patient admitted to suffering from nausea, difficulty breathing, seizures and vomiting for quite a considerable time span. He also had a dry cough with mild expectoration and mild chest pain. The patient was mildly febrile with the presence of mild pallor, slightly anaemic, and had low blood pressure (106/58 mmHg) with a pulse rate of 110 beats/min. Clinical examination revealed acute lymphadenopathy.

On detailed examination, the man was found to have severe syphilis with chronic genital ulceration, acute pulmonary tuberculosis and human cytomegalovirus (HCMV) retinitis. HCMV IgM was detected in the patient's blood, followed by confirmation of HCMV DNA by PCR detection. Real-time PCR estimated the viral load of HCMV to be  $5.9 \times 10^6$  DNA copies/mL of serum. Indirect ophthalmoscopic examination revealed the presence of retinal haemorrhage with a hardened peripheral lesion, characteristic of HCMV retinitis. Cerebrospinal fluid culture, Mantoux test and sputum culture confirmed the presence of *Mycobacterium tuberculosis*. Test for cryptococcal capsular antigen turned out to be negative. Head CT scan of the patient revealed abnormal enhancement of the basal cisternae. Chest X-ray and bronchoscopy showed bilateral lung infiltration with non-specific diffused interstitial pneumonitis.

No clear evidence of cerebral palsy was observed at neurological presentation but slight neck rigidity was ascertained. A complete blood profile analysis of the patient was recorded and is provided in Table 1. The patient showed severe cachexia and very poor nutritional index with a BMI of only 15.8.

After confirmation, the patient was immediately put under highly active anti retroviral therapy (HAART) therapy (zidovudine, lamivudine and nevirapine) for 2 mo. After 4 wk of treatment and a limited CD4<sup>+</sup> count

**Table 1 A detailed clinical blood profile analysis of the two patients before start of treatment**

Factors	Patient 1	Patient 2
CD4 count	32	232
CD4:CD8 ratio	0.06	0.25
HIV viral load	$> 1 \times 10^5$ copies/mL	50000 copies/mL
Haemoglobin	9.1 g%	9.5 g%
TC	7100 cells/mm <sup>3</sup>	7000 cells/mm <sup>3</sup>
Neutrophils	48%	52%
Lymphocyte	34%	24%
Eosinophil	12%	2%
Monocyte	12%	2%
Basophil	2%	1%
Platelets	270000/mL	200000/mL
Blood sugar (fasting)	117 mg/dL	109 mg/dL
Urea	48 mg/dL	38 mg/dL
Creatinine	1.1 mg/dL	2.1 mg/dL
Bilirubin	0.6 mg/dL	1.2 mg/dL
SGOT	129 IU/L	119 IU/L
SGPT	54 IU/L	47 IU/L
Alkaline phosphatase	225 IU/L	185 IU/L
Albumin	3.9 g/dL	2.9 g/dL
Globulin	3.7 g/dL	3.5 g/dL

SGOT: Serum glutamic-oxaloacetic transaminase; SGPT: Serum glutamic-pyruvate transaminase.

increase (CD4-54), the patient was immediately started on a combination based antitubercular drug (ATD) therapy as Directly Observed Therapy Short-course (DOTS - Cat 1 regimen) along with dexamethasone as corticosteroid therapy (0.4 mg/kg per day) and pyridoxine 40 mg/d on a planned 4 wk regime. Along with the ATD, the patient was also administered valganciclovir tablet 450 mg once daily as maintenance therapy against HCMV infection. For treating genital syphilis the patient was given an intramuscular injection of benzathine penicillin G (2.4 million units) once daily for 2 wk. But even after another 2 wk treatment, the patient failed to show any significant improvements with regard to his health conditions. He suddenly developed severe respiratory distress, spasms and his fever relapsed. He also complained of a gradual dimness of vision and total visual blurring. He was put under ventilation and immediate respiratory support. After few days he succumbed to the veracity of the infections and died due to multi-organ failure.

## Case 2

A 21-year-old man suffering from fever and flu-like symptoms along with severe diarrhoea and abdominal cramping was admitted to the Department of General Medicine, Calcutta Medical College and Hospital, Eastern India. His HIV serostatus was found to be positive by performing HIV ELISA, Rapid test and Western Blot as recommended by the NACO, Ministry of Health and Family Welfare, Government of India. The fourth generation HIV detection test performed with the patient's blood confirmed HIV seropositivity. HIV blood viral load was found to be 50000 copies/mL. CD4<sup>+</sup> T-cell count was 232 and CD8<sup>+</sup> T cell count was

920 (ratio-0.25). The man was diagnosed with acute or latent HIV infection. Upon rigorous counselling the patient admitted to being a homosexual and involved in unprotected anal sex with multiple male partners for quite a few years. He had never been sexually involved with any women. Due to the fear of social isolation, he never revealed his sexual preference to anyone. On detailed examination, he was found to be infected with genital syphilis and oral ulceration. Upon admission, the patient showed high fever, severe headache, seizures, vomiting and severe diarrhoea. He also had a dry cough with no expectoration at all but complained of a mild pain on the right side of the chest. The patient was slightly anaemic, and had low blood pressure (115/68 mmHg) with a pulse rate of 92 beats/min.

No evidence of cerebral palsy or any other neurological involvement was ascertained. There was no sign of lymphadenopathy. A complete blood profile analysis of the patient was recorded and provided in Table 1. The patient showed poor nutritional index. Liver function was found to be highly deranged with elevated levels of both SGOT and SGPT. Hepatic cholestasis was adequately observed by USG of the abdomen.

After confirmed HIV diagnosis the patient was started on HAART (zidovudine, lamivudine and nevirapine). Nevir (200 mg) and lamistar were administered daily for 8 wk. Septran DS and feronia were given orally daily for 2 wk. After 2 mo the patient showed significant signs of improvement with much-relaxed breathing and no abdominal cramping. Cholestasis was found to be resolving gradually. CD4<sup>+</sup> cell count increased to almost double (CD 4-454) and HIV load in the patient's blood decreased uniformly (< 10000 copies/mL). As he responded actively without any genotoxic side effects towards the treatment, the anti-retroviral therapy was carried on and he was kept under observation. The doctors clearly made him understand the implications of latent HIV infection and transmission and also discussed the importance of regular medication to keep the disease under control.

## DISCUSSION

In the latest United Nations General Millennium development agenda on HIV/AIDS-Goal 6, it has been reported that the percentage of individuals living with HIV/AIDS globally has diminished by 40% up till the end of 2013. However, in a study corresponding to the MSM population in India who had undergone HIV testing in the past 12 mo at different survey locations across the nation, variable results ranging from 3%-67% were observed<sup>[5]</sup>. In 2009, 46.3% of MSM in Tamil Nadu had tested positive for HIV while the HIV pervasiveness in a study from Mumbai was 12.5% with 14% of these men reporting STD side effects<sup>[6]</sup>. Only 68% of the positively tested MSM returned to gather their test reports. The above information demonstrates the inability and failure of the health councils of India to legitimately comprehend the requirements and

problems of this socially marginalized group as well as the dereliction in garnering their trust<sup>[7]</sup>. HIV infection among MSM has been increasing in an exponential manner throughout India in the last few years due to the absence of efficient identification and productive management systems<sup>[8]</sup>. Because of the United Nations sustainable developmental goals (Goal 3), a much higher percentage of HIV-infected people are receiving antiretroviral therapy now.

In trepidation of social stigma, these MSMs attempt to render a normal hetero marital life and in the process act as a bridge in spreading the virus to their women partners. In this case report, we have highlighted two cases which obviously distinguishes the adequacy of HIV treatment among MSM when they are diagnosed during early or late phases of infection. A thorough and ample counseling to understand the psychology and sexual behaviour of these men were found to be vital in both cases. With the advent of highly active antiretroviral therapy (HAART), which is a customized combination of different classes of retroviral medications that a physician prescribes based on patient's viral load, the particular strain of the virus, the CD4<sup>+</sup> cell count, and disease symptoms etc treating HIV has become much easier. There is a partial recuperation of the host immune framework portrayed by a significant rise in the number of CD4<sup>+</sup> T lymphocytes and this leads to a decrease in AIDS-related mortality.

Early identification and appropriate treatment are of most extreme significance to battle HIV infection. Be that as it may, in a developing nation like India, subjects having a place with a lower financial strata with no or poor educational foundation and no knowledge of HIV/AIDS, are mostly diagnosed late over the span of the disease, just like the instance of the first patient whose HIV status was recognized surprisingly when his CD4<sup>+</sup> T-cell count had gone down too low. The vast majority of the patients (like in our case) intentionally ignore the doctor's advice and do not follow up routinely. Thus due to the absence of updated information, awareness and the fear of transcendent social disgrace, a large fraction of subjects are diagnosed very late. Many of them remain reluctant to approach a doctor about their condition and look for medical guidance and consideration<sup>[9]</sup>. The most imperative reason for mortality in the case of patients who have low CD4<sup>+</sup> T-cell number (or have developed AIDS) is the advancement of a few end organ diseases (EODs). These EODs are caused by different opportunist infections (OIs) which have been left untreated as an after effect of late HIV diagnosis inciting a progressive failure of the immune framework<sup>[10]</sup>.

This case report ideally documents the medical conditions and disease transmission history of two HIV-1 infected homosexual men from Eastern India. The first patient was diagnosed very late with his CD4 T cell count plunging to as low as 32. Due to his own negligence and in fear of social stigma he never disclosed his sexual preference or HIV status with anyone. Despite having



multiple male sexual partners he continued to live with his wife and had sexual relations with her. As a matter of fact, he transmitted the virus to his wife. When he was admitted to the hospital he was suffering from multiple infections (both bacterial and viral), lying almost at the verge of death. HAART would have helped him if he had sought restorative medical help earlier.

Whether the cause be the narrow mindset of society with respect to homosexuals, misconstruing the gravity of the issue by the patient or insufficient knowledge among the people about HIV, ultimately the truth is that the clinical improvement of the subject could have been accomplished only if he had been treated earlier. The second patient, a young homosexual man, somehow comprehended the gravity of the circumstances and got himself diagnosed in a timely manner with complete support from his family. He was lucky enough that the HAART responded actively for him. He survived and hopefully will be cautious enough not to transmit the virus to anyone else. To address this serious issue the government should immediately develop a nationwide programme to screen all MSM for HIV and enroll the positive HIV cases for intense treatment.

Our study, which is actually a documented evidence of HIV-infected MSM from Eastern India, provides a ray of hope among this marginally isolated group in India to understand the difficulties and health risks faced by the MSM population and provides a format for medical practitioners in dealing with and treating related cases.

## COMMENTS

### Case characteristics

Case 1: A 40-year-old male suffering from severe diarrhoea, fever, drastic weight loss and nausea was admitted for treatment; Case 2: A 21-year-old man suffering from fever and flu-like symptoms along with severe diarrhoea and abdominal cramping was admitted for treatment.

### Clinical diagnosis

Case 1: The patient showed high fever with a significant evening rise, severe headache, rapid seizures, drastic weight loss, nausea, difficulty breathing and vomiting. He also had a dry cough with mild expectoration and mild chest pain. The patient was mildly febrile with presence of mild pallor, slightly anaemic, and had low blood pressure (106/58 mmHg) with a pulse rate of 110 beats/min. Clinical examination revealed acute lymphadenopathy; Case 2: The patient showed high fever, severe headache, seizures, vomiting and severe diarrhea. He also had a dry cough with no expectoration at all but complained of a mild pain on the right side of the chest. The patient was slightly anaemic, and had low blood pressure (115/68 mmHg) with a pulse rate of 92 beats/min.

### Differential diagnosis

Both patients were diagnosed with severe human immunodeficiency virus (HIV) infection. The first patient was in the final stage characterized by acquired immune deficiency syndrome, infected by other opportunist pathogens like syphilis, tuberculosis and human cytomegalovirus (HCMV). The second patient was in an early stage of HIV seropositivity and mainly suffering from bacterial lung infection.

### Laboratory diagnosis

All labs were within normal limits.

### Pathological diagnosis

HIV1 infection was diagnosed in both the patients using standard protocol

by PCR, ELISA, 4<sup>TH</sup> generation test suggested by National Aids Control Organization. HCMV and *M. tuberculosis* were identified by ELISA, culture and PCR.

### Treatment

Highly active anti retroviral therapy was given to both the patients. Valganciclovir was given to treat HCMV infection. DOTS was administered to treat tuberculosis.

### Related reports

The role of men having sex with men (MSMs) in the transmission and spread of the HIV infection among the general population has been an active area of debate for the last few years. The main aim of this study is to share the actual scenario in an economically poor resource setting concerning homosexual men who, in fear of social stigma, try to live a normal hetero conjugal life and in the process act as a bridge in spreading the virus to their women partners.

### Term explanation

MSM are highly prone to develop HIV infection due to unprotected sex, but in fear of social boycott suppress their identity thereby act as vectors to spread the disease among other individuals.

### Experiences and lessons

In this article, authors have discussed two cases which clearly distinguished the adequacy of HIV treatment among MSM when they are diagnosed during early or late phases of infection. Thorough counseling to understand the psychology and sexual behavior of these men was found to be very important in both the cases. In fear of social stigma these men try to render a normal hetero conjugal life and in the process act as a bridge in spreading the virus to their women partners.

### Peer-review

The manuscript is well written and well presented. In this article the authors presented 2 cases, one MSM who did not take HIV infection seriously and died. The second case was a young MSM, starting treatment led to an improvement in the patient's condition. The paper is suited well for publication in the journal.

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