

ijcrr

Vol 04 issue 17

Category: Research

Received on:05/06/12

Revised on:23/06/12

Accepted on:03/07/12

Non-Healing Skin Ulcer in HIV/Tuberculosis Co-Infection: A Case Report.

Monali N. Rajurkar, Silpi Basak

Department of Microbiology, Jawaharlal Nehru Medical College,
Sawangi(M), Wardha(M.S.) – 442004, India

E-mail of Corresponding Author: drsilpibasak@gmail.com

ABSTRACT

Introduction: Tuberculosis (TB) is very common in India, China and other developing countries. World Health Organisation (WHO) had estimated 9.2 million new cases of TB, worldwide in 2006 of which 7.7% were positive for Human Immunodeficiency Virus (HIV). In India, at the end of 2007, there were 2.5 million people living with HIV and AIDS (PLWHA) whereas incidence of TB was 1.8 million cases per year. Tuberculosis is the most common HIV related opportunistic infection in India and caring for patients with HIV/TB co-infection is a major public health challenge. The incidence of tuberculosis is more in people living with HIV infection. So, WHO has developed the strategy of treating HIV/TB co-infection irrespective of patient's CD4 count. If any HIV positive patient is diagnosed to be infected with tuberculosis, the Antitubercular treatment (ATT) is started along with Antiretroviral therapy (ART).

Here, we report a case of skin ulcer due to Mycobacterium tuberculosis on chest, secondary to pulmonary tuberculosis in HIV infected person with varied presentation.

Material and Methods: At first pyogenic infection due to Methicillin Resistant Staphylococcus aureus (MRSA) was diagnosed. As the patient did not improve even after the full course of Linezolid therapy for Methicillin Resistant Staphylococcus aureus (MRSA) which was superadded infection, the discharge and also tissue material were collected from the base of ulcer and cultured on Lowenstein – Jenesen media and Ziehl-Neelsen staining were done. The acid fast bacilli were present on staining and growth on Lowenstein - Jenesen media was identified as Mycobacterium tuberculosis.

Outcome of study: As the patient was also HIV positive both ATT and ART was started. A significant improvement of the cutaneous lesion was noted after one month of treatment and patient was discharged after another fifteen days.

Conclusion: Tuberculosis is very common in India and sophisticated automated system for detecting M.tuberculosis is not available in all centers. Any non-healing ulcer not responding to routine antibiotics must be screened for tuberculosis in developing countries. If tuberculosis is detected, promptly HIV testing must be done so that treatment strategy can be finalised.

Word count - 341

KEY WORDS: HIV/TB co-infection, People living with HIV and AIDS (PLWHA), Skin tuberculosis

INTRODUCTION

Tuberculosis is one of the oldest disease, known to mankind and its evidence is detected even in Egyptian mummies. It remains as a leading cause of death worldwide, especially in developing countries like India, China etc. In the initial period

of twentieth century, V.A.Moore has rightly said that as a destroyer of mankind, tuberculosis has no equal [1]. Almost one third of world population is infected with tuberculosis and in 1993 World Health Organisation (WHO) has declared tuberculosis an global emergency [2]. The risk of

developing tuberculosis is estimated to be between 20-37 times greater in people living with HIV than among those without HIV infection[3]. Similarly, tuberculosis accelerates the progression of HIV infection to Acquired Immuno Deficiency Syndrome (AIDS) and shorten the survival of such patients. Of 1.8 million HIV related deaths in 2009, 22% were due to tuberculosis[4]. Even risk of drug resistant tuberculosis is higher amongst persons with HIV infection compared to others (HIV negative).

Tuberculosis skin ulcers are extremely unusual. Cutaneous tuberculosis is caused by Mycobacterium tuberculosis and rarely by Mycobacterium bovis. Even in India and China where tuberculosis is quite common, cutaneous tuberculosis cases are rare i.e. 0.1 to 2.5%[5]. Moreover, Seeman et al in 2008 have reported that cutaneous tuberculosis is still a difficult disease to diagnose[6].

Here, we present a case with ulcerative lesion on right side of chest. The patient was diagnosed as a case of cutaneous tuberculosis with HIV and was treated with proper antiretroviral therapy and antitubercular drugs.

Word count - 246

CASE STUDY

OBSERVATIONS AND RESULTS:

A 38 years old man presented with multiple ulcers over right axilla extending to the right chest wall with purulent discharge, was admitted to our hospital. The patient gave the history of small swelling over right axilla, 6-8 months back which was gradually increasing in size and was painful. As the patient was an agricultural worker, the history of trauma or thorn prick was specifically asked to rule out any actinomycotic or fungal infection. The patient had history of persistent cough 3-4 months back. But there was no history of weight loss. Patient was treated by many doctors from time to time but patient did not respond. The swelling was around 4cm × 3cm and as it was on the lower part of right axilla, it was diagnosed as axillary abscess and incision and drainage was done two and half month back, in a private nursing home. The pus was not sent for any investigation and patient was treated with antibiotic. As patient was very anaemic, 2 bottles

of blood transfusion was given in the nursing home. Then other axillary swelling developed and ulcerated within one and half month. Hence, multiple ulcers with purulent discharge developed extending from right axilla to right chest wall (Photo 1).

The investigations done in our hospital was:

Fasting plasma glucose levels: 90 mg/dl, Haemoglobin: 6.1 gm/dl, ESR: 138 mm in first hour, Peripheral smear showed microcytic hypochromic anaemia, platelets were adequate and other parameters were in normal limits and X – ray chest: Lungs clear.

Fine needle aspiration cytology (FNAC) from ulcerative lesion showed acute inflammatory cells. Gram's staining of the pus showed plenty of Gram positive cocci arranged in clusters. On routine culture, Methicillin Resistant Staphylococcus aureus(MRSA) was isolated which was sensitive to Vancomycin and Linezolid and resistant to Penicillin, Erythromycin, Ciprofloxacin and Quinapristine, Dalfopristine. Methicillin resistance was detected using Cefoxitin (Cx 30µg) disk as per CLSI guideline[7]. The patient was treated with Linezolid but the ulcers were not healing.

Considering high ESR and as the ulcers were not healing, the discharge was collected from edge and base of the ulcer and Ziehl Neelsen staining with 20% H₂SO₄ was done. In the smear plenty of Acid fast bacilli (AFB) were present and some were beaded in appearance (Photo 2). On the same day, patient's sputum sample were examined and it was negative for Acid fast bacilli. On next day morning, the induced sputum was collected and smear showed plenty of Acid fast bacilli (3+) and some were beaded in appearance (Photo 3).

As the patient was AFB positive, patient's serum was tested for HIV antibody and the patient was found to be HIV positive as per NACO guidelines [8], though the patient did not give any relevant history.

The tissue collected from base of ulcer was homogenized and concentrated by Petroff's method and the deposit was inoculated into two bottles of Lowenstein-Jensen media (L-J). Patient's sputum was also inoculated into two

bottles of L-J media after Petroff's method. The rough, tough and buff coloured colonies of *M.tuberculosis* appear on L-J slant on fourth week from sputum and from the tissue growth appeared on sixth week on L-J media (Photo 4). The AFB staining from the growth revealed plenty of Acid fast bacilli and the growth was niacin positive.

As the patient was HIV positive and sputum and exudate from ulcer was positive for *Mycobacterium tuberculosis*, Antiretroviral therapy (ART) and antitubercular drug regimen was also started on the same day.

The patient responded to the treatment very well and after three and half months came for follow up when skin ulcers healed completely.

DISCUSSION :

Cutaneous tuberculosis is also an ancient disease and were described long before Robert Koch identified *Mycobacterium tuberculosis* in 1882. Laennec in 1826 first gave the description of cutaneous tuberculosis on his own prosector's wart which developed after an injury while performing autopsy on a patient with spinal tuberculosis[9]. In 1886, Reil and Paltauf established that the wart was a tubercular lesion[10]. The clinical varieties of cutaneous tuberculosis can be divided into three broad groups – a) patients who were not previously exposed to *M.tuberculosis*, b) patients who were previously sensitized and c) tuberculids that develops a hypersensitive response of a tuberculosis focus elsewhere in the body. As previously sensitized hosts are very common in developing countries like India, lupus vulgaris is the most common variety of cutaneous tuberculosis reported from India, followed by TB verrucosa cutis and scrofuloderma[5]. No systematic survey for prevalence of cutaneous tuberculosis has been carried out in India. In one of the study it was found that cutaneous tuberculosis was associated with tuberculosis in other organs in 22.1% patients and the other organ most commonly involved were lungs. Even in the present case, the patient was having tubercular ulcer along with involvement of lungs. Most studies also reported that male are most commonly affected. Cutaneous tuberculosis

sometimes has very diverse clinical presentation. The initial presentation may resemble a common bacterial infection or the ulcerative lesion may have superadded bacterial infection [11, 12]. In our case, initially patient had superadded infection with Methicillin Resistant *Staphylococcus aureus*(MRSA). After taking full course of Linezolid, the ulcer remained as it is and that made us to think for doing acid fast staining from the discharge. In culture, the growth was identified as *M.tuberculosis*. Currently the cause of skin ulcers may be vascular ulcers, squamous cell carcinoma, rodent ulcers, tubercular ulcers etc [13]. The differential diagnosis of cutaneous tuberculosis also includes infections with *Mycobacterium ulcerans* and *Mycobacterium marium*, Cutaneous anthrax, Cutaneous leishmaniasis, Sporotrichosis, Cat scratch disease due to *Bartonella henselae* etc [14].

In our case, as the patient was suffering from tuberculosis and HIV seropositive, the patient was treated with ART and ATT. In 2009, out of 1.7 million people died from tuberculosis. 4,00,000(24%) were among people living with HIV. Tuberculosis is also one of the leading cause of morbidity and mortality among PLWHA. Hence, WHO implemented collaborative HIV / Tuberculosis activities to decrease the burden of HIV / Tuberculosis coinfection.

In patients with latent Tuberculosis infection, the risk of developing active diseases is several hundred folds higher among persons who acquire HIV. In 2007 it was reported from Brazil, 80% reduction in tuberculosis cases in HAART treated compared to ART naïve HIV infected person [15].

CONCLUSION:

It has been observed that HIV epidemic continues to fuel TB epidemics and each increasing the morbidity and mortality of the other. WHO recommends the implementation of the Three I's for HIV / Tuberculosis co-infection to reduce the burden of Tuberculosis among people living with HIV[16]. The three I's are – i) Intensive tuberculosis case finding, ii) Isoniazid preventive therapy and iii) Infection control for tuberculosis. There is strong evidence that Antiretro-viral

Therapy (ART) can lower a person's viral load and restore the immune system and hence, significantly reduces HIV and Tuberculosis. WHO in 2011 recommends earlier ART at ≤ 350 CD4 count and immediate initiation of ART for all patients with HIV/TB co-infection irrespective of CD4 count[17]. Proper training and continuing medical education of health care workers is needed for early detection of cases with HIV/TB co-infection, so that WHO treatment strategies can be followed for a better outcome of the patient.

Hence to conclude, in India, China and other developing countries, any non-healing skin ulcer, not responding to routine antibiotics, must be screened for tuberculosis and if positive, the patient must be screened for HIV.

ACKNOWLEDGEMENT:

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

REFERENCES

1. Meyer JA Captain of All these Men of Death : Tuberculosis Historical Highlights. St. Louis. Warren H Green. 1977
2. Khatri GR, Frieden TR, Controlling tuberculosis in India. The New England Journal of Medicine 2002;347:1420-1425.
3. Guidelines for intensified tuberculosis case finding and isoniazid preventive therapy for people living with HIV in resource-constrained setting. World Health Organization, 2011.
4. UNAIDS 2010 Global Report fact Sheet in World Health Organization HIV/TB Facts 2011;1-8.
5. Raman M. Cutaneous tuberculosis. Chapter 25. In Tuberculosis. Sharma SK, Mohan A editors. Jaypee Brothers Medical Publishers New Delhi, 2nd ed. 2009;384-396.
6. Seeman R., Trabonlsi R and Kanj S. Primary Mycobacterium tuberculosis complex cutaneous infection, Report of two cases and literature review. International Journal of Infectious Diseases 2008;12: 472-477.
7. Clinical and laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Susceptibility testing 2006; 9th ed. CLSI document M2-M9 Wayne, PA: CLSI, 2006.
8. Detection of HIV infection Ch. 6, In: National AIDS Control Organisation, Guidelines on HIV testing, March 2007;38-53.
9. Laennec RTH, Traite de l'auscultation mediate et des maladies des pneumons et du Coeur Vol 1, Paris : Asselin and Cie ;1826 p 649-650. Quoted in Marmelzat WL Laennec and the prosector's wart". Arch Dermatol. 1962;86:122-124.
10. Riehl G, Paltauf R Tuberculosis verrucosa cutis. Eine bisher noch nicht beschriebene Form von Hauttuberculose. Vjschn Derm Syph 1886; 13:19 Quoted in Most com Lupus vulgaris Raman M
11. Tappeiner G, Wolff K. Tuberculosis and other Mycobacterial infections. In Freedberg IM, Eisen AZ, Wolff K et al. eds. Dermatology in general Medicine, Vol 2, 5th edn. New Yark: McGraw – Hill, 1999:2274-2292.
12. Beyt BE Jr., Orbals DW, Santa Cruz DJ, et al. Cutaneous mycobacteriosis: analysis of 34 cases with a new classification of the disease. Medicine 1981;60: 95-109.
13. A Morrone, F Dassoni, MC Pajno et al Ulcers of the face and neck in women with pulmonary tuberculosis: presentation of a clinical case, Clinical case report, Rural and Remote Health, The International Electronic and Journal of Rural and Remote Health Research, Education Practice and Policy, 2010;10:1485-1489(Online).

14. GL Dandagi. Primary tuberculosis of skin – a nodular variant rare case report, Journal of Clinical and Diagnostic Research, 2010;4:3561-65.
15. Miranda A, Morgan M, Jamal L, Laserson K, Barreira D Silva G, Santos J et al Impact of antiretroviral therapy on the incidence of tuberculosis: the Brazilian experience, 1995-2001, 2007;PLoS ONE 2 e826.
16. Guidelines on intensified tuberculosis case finding and isoniazid preventive therapy for people living with HIV in resource constrained setting, WHO 2011 http://whqlibdoc.who.int/publications/2011/9789241500708_eng.pdf
17. Guidelines on antiretroviral therapy for HIV infection in adults and adolescents. WHO 2010 http://whqlibdoc.who.int/publications/2010/9789241599764_eng.pdf

FIGURES:

Figure 1: Superadded skin ulcer infection

Figure 1: Skin ulcer with superadded infection

Dr. Silpi Basak

Non-healing skin ulcer in HIV/Tuberculosis co-infection: A case report.

TOP SIDE ↑



Figure 1: Skin ulcer with superadded infection

Figure 2: Ulcer after treatment with Linezolid

Figure 2: Tubercular ulcer after treatment with Linezolid.

Dr. Silpi Basak

Non-healing skin ulcer in HIV/Tuberculosis co-infection: A case report.

TOP SIDE ↑



Figure 2: Tubercular ulcer after treatment with Linezolid.

Figure 3: AFB from ulcer

Figure 3: Acid fast bacilli from base of the ulcer.

Dr. Silpi Basak

Non-healing skin ulcer in HIV/Tuberculosis co-infection: A case report.

TOP SIDE ↑

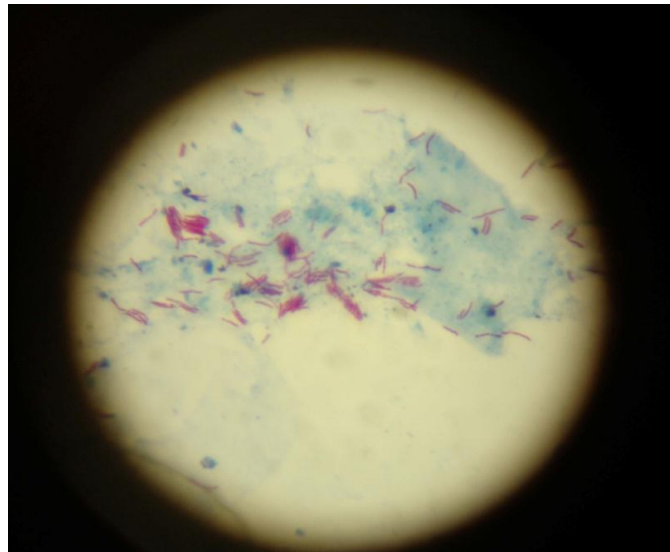


Figure 3: Acid fast bacilli from base of the ulcer

Figure 4: AFB from sputum

Figure 4: Acid fast bacilli from sputum
Dr. Silpi Basak
Non-healing skin ulcer in HIV/Tuberculosis co-infection: A case report.
TOP SIDE ↑

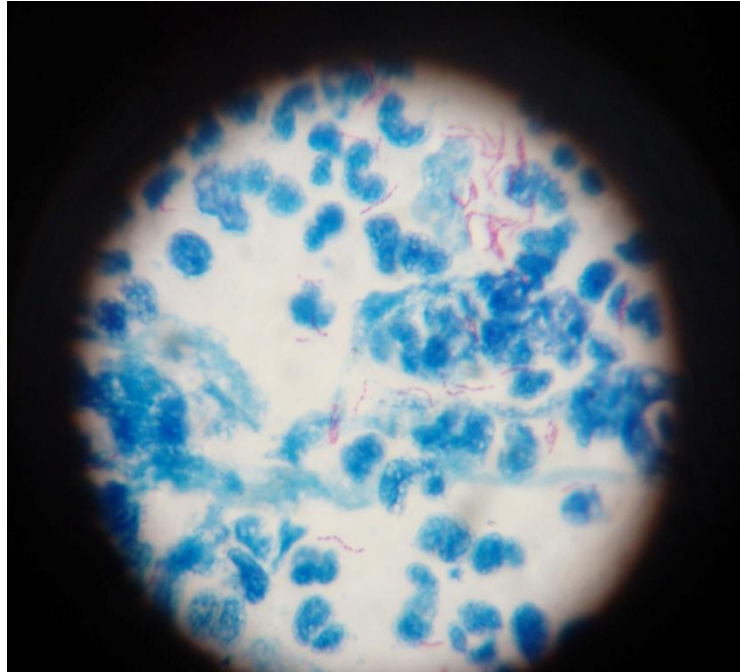


Figure 4: Acid fast bacilli from sputum

Figure 5: M.tuberculosis on L-J media
Figure 5: Growth of M.tuberculosis on L-J media from tissue exudate
Dr. Silpi Basak
Non-healing skin ulcer in HIV/Tuberculosis co-infection: A case report.
TOP SIDE ↑



Figure 5: Growth of M.tuberculosis on L-J media from tissue exudate