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Case Report

HIV, HCV & Leprosy co-infection

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In the era where Hansen's disease has achieved elimination status in India, co-infection with HIV can possibly cause a resurgence of this disease. A young intravenous drug abuser was found to have triple affliction, where HIV and HCV infection were discovered on testing after the patient was clinically diagnosed to have Hansen's disease. To our knowledge, there has been no case reported where leprosy was seen with HIV and HCV infection. We are reporting a patient with lepromatous Hansen's disease in type 2 reaction in whom HIV and HCV was incidentally diagnosed.

Keywords: Leprosy, HIV, HCV, Co-infection

Introduction

The human immunodeficiency virus (HIV) is a lentivirus (a subgroup of retrovirus) that causes the acquired immunodeficiency syndrome (AIDS) (Weiss 1993, Douek et al 2009), a condition in humans in which progressive failure of the immune system allows life-threatening opportunistic infections. Likewise Hepatitis C is an infectious disease affecting primarily the liver, caused by the hepatitis C virus (HCV). The infection is often asymptomatic, but chronic infection can lead to scarring of the liver and ultimately to cirrhosis, which is generally apparent after many years (Ryan and Ray 2004). The prevalence of hepatitis C in immunosuppressed hosts is higher than the normal population particularly in those with human immunodeficiency virus infection (Einav S and Koziel MJ 2002). Leprosy is a chronic infection caused by *M. leprae* that is classified as a spectral disorder. India has achieved elimination status in the year 2005, with the current prevalence rate of 0.68 case per 10,000 population. As Hansen's disease is accompanied by defects in cellular immunity, the susceptibility to develop co-infections may be increased. As HIV infections are on the rise worldwide, co-infections with leprosy may alter the national epidemiological scenario. The annual incidence of new HIV infections in India has reduced by 57% in the past decade, however, over the last year a rising trend has been noted in some low prevalence states, including Punjab. HCV infection is prevalent in 1% of the population in India . In the present study we present a case report of 31 year male patient having HIV, HCV and leprosy co-infection.

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Case Report

A 31 year old male from Punjab, presented with the chief complaints of fever with nodules on and off for 2 months. His history dated back to 3 years ago, when he noticed swelling of his hands and feet, along with slippage of footwear. A year ago, he started having pain and swelling over the small joints of his hands. For the last 2 months, he had been having recurrent fever with tender nodules, which then became bullous, and ulcerated before healing, on the hands and feet. There was no history of swelling of testes or painful red eyes. He was an intravenous drug user for the last 18 months. General physical examination revealed a young, thin built man, who was conscious and oriented. He was afebrile, with a pulse rate of 86/min and blood pressure was 130/90 mmHg. Bilateral non-tender, enlarged and firm lymph nodes were palpable in the axillary and inguinal regions. He had no pallor, icterus, cyanosis or clubbing. On systemic examination, he was found to have an enlarged liver, palpable 3 cm below the right costal margin in the mid-clavicular line. Examination of the respiratory, cardiovascular and nervous systems were unremarkable.

Cutaneous examination revealed bilateral ear lobe and facial infiltration. He had bilateral madarosis and a depressed nasal bridge. Multiple superficial ulcers were noted on the hands and feet, which were edematous and also revealed dactylitis. Nerve examination showed that the greater auricular, clavicular, common peroneal and posterior tibial nerves were mildly enlarged symmetrically, uniform and non-tender; both ulnar nerves were moderately enlarged, rope-like and tender. The right radial and ulnar cutaneous nerves were more enlarged than the left. Corneal sensations were absent bilaterally. Sensations over the ulnar border of the right palm were lost. Soles were anaesthetic. Motor power of abductor digiti minimi muscles on both sides was grade 0. The power of the medial interossei bilaterally was grade 2. He had a partial ulnar clawing of his right hand and patchy stocking anaesthesia. There were no trophic ulcers. He was admitted with the provisional diagnoses of lepromatous lepromatous Hansen's disease in type 2 reaction

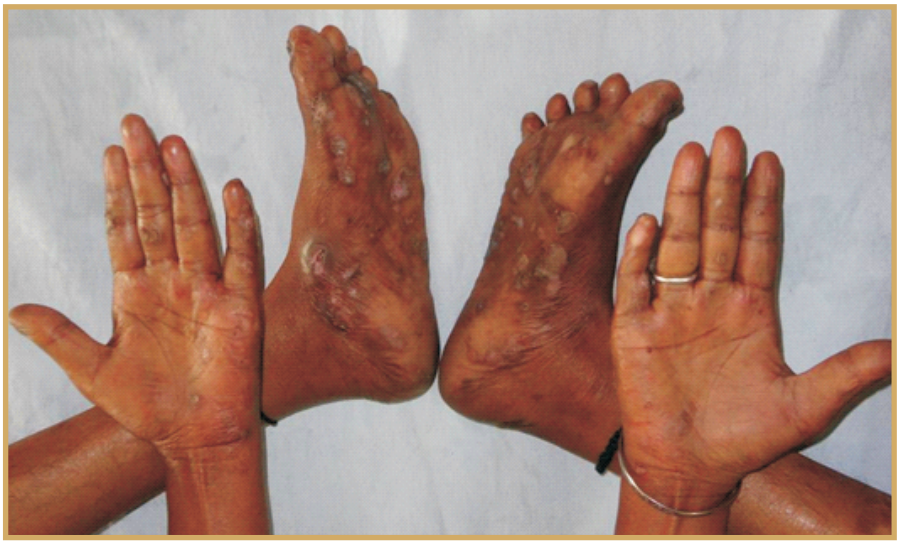

Fig 1 : Ulcerative ENL on hands and feet

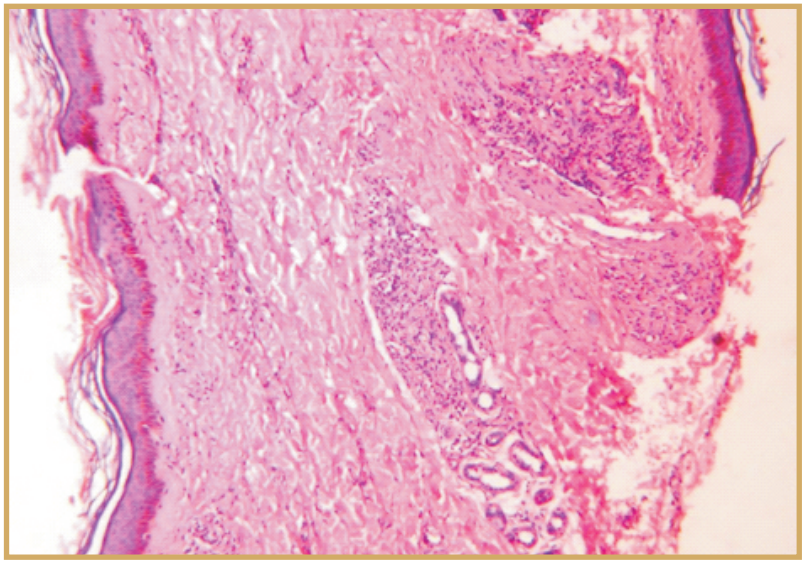

Fig 2 : Clusters of foamy histiocytes and lymphocytes around neuro-vascular bundles (hematoxylin and eosin X100)

with bullous and ulcerative erythema nodosum leprosum (ENL), a right partial ulnar claw hand and stocking anaesthesia (Figure 1). As he was an intravenous drug user, a blood borne virus screen was done, which revealed that he was HIV and HCV positive. A skin biopsy was taken from the dorsum of the right hand, which showed clusters of foamy histiocytes around neuro-vascular appendages along with chronic inflammatory cell infiltrate (Figure 2). Many lepra bacilli were seen with globi formation. MB-MDT with daily Ofloxacin was initiated, which he has been consuming regularly. ENL subsided with rest and anti-inflammatory medication. Hemogram showed a hemoglobin of 11.5mg/dl, total leukocyte count of 7,900/mm^3, neutrophils 68%, lymphocytes 30%, metamyelocyte 1% and eosinophil 1%. Platelet count was 1,49,000/mm^3. Liver function tests showed a total protein of 8.3 gm/dl, albumin was 3.7 gm/dl, total and direct bilirubin were 0.3 mg/dl and 0.02 mg/dl respectively. Alkaline phosphatase was 107 U/L, GGT 157 U/L, SGOT 34 U/L and SGPT 29 U/L. Renal profile showed a blood urea of 18 mg/dl and creatinine of 0.5 mg/dl with a serum sodium of 134mEq/L and potassium of 4.6 mEq/L. CD 4 counts were found to be 946/mm^3.

On follow up, there was no episode of ENL for at least 1 year after starting multidrug therapy, repeat CD4 counts were 669/mm^3. HIV-1 RNA quantitative PCR was found to be 5982 copies/mL.

Discussion

As Hansen's disease is accompanied by defects in cellular immunity, the susceptibility to develop co-infections may be increased. Leprosy infection has been shown to aggravate HIV pathogenesis, and probably causes disease progression, especially if the patient is in reaction. Indian data indicates that HIV prevalence was not increased in leprosy patients; neither was there rapid progression to AIDS. All spectrums of leprosy were noted in patients who were co-infected, and the number of reactions was also the same as

those with mono infection. In our patient, the CD4 counts were normal.

According to a study done in 5 patients with co-infection of HIV and leprosy, there was no discordance between the clinical presentation and histopathology, only more edema was noted . However, in our patient, the histology showed features of borderline lepromatous rather than polar lepromatous Hansen's.

In a recent case report from India, type 2 reaction could not be controlled until anti-retroviral therapy was initiated inspite of normal CD4+ counts. Inspite of type 2 reaction, our patient's reaction was controlled with bed rest and NSAIDS. He responded to MB-MDT and Ofloxacin. Ofloxacin was also given to add another drug with rapid antimycobacterial activity and high bioavailability to the multi-drug regimen. Follow up has been advised for a prolonged duration after completion of therapy for early detection of relapse. Although standard MD-MDT has been advised with ART for a patient with co-infection, Rifampicin causes a mild decrease in the level of Efavirenz. Apart from this interaction, as 1st line therapy given freely by the government includes a higher pill burden; compliance may be reduced with the addition of MB-MDT. Cost of therapy will greatly increase if ENL necessitates the initiation of thalidomide, which is rather expensive, and is the drug of choice in co-infection.

The risk of HCV was found to be increased in the lepromatous spectrum, with increasing age and duration of leprosy. Our patient was incidentally detected to be HCV positive, as he was an intravenous drug user, and although he had hepatomegaly, his liver function tests were normal. Drugs routinely given for HCV infection, including ribavarin and pegylated interferons do not interact significantly with MD-MDT.

We present this case for its rarity and to make other leprologists aware of the implications of co-infection with blood borne viral agents.

References

1. Carvalho KI, Maeda S, Marti L et al (2008). Immune cellular parameters of leprosy and human immunodeficiency virus-1 co-infected subjects. *Immunol*. **124:** 206-214.
2. de Moraes Braga AC, Reason IJM, Maluf ECP et al (2006). Leprosy and confinement due to leprosy show high association with hepatitis C in Southern Brazil. *Acta Tropica*. **97:** 88-93.
3. Douek D, Roederer M and Koup R (2009). "Emerging Concepts in the Immunopathogenesis of AIDS". *Annu Rev Med.* **60**: 471-484.
4. Einav S and Koziel MJ (2002). "Immunopathogenesis of hepatitis C virus in the immunosuppressed host". *Transpl Infect Dis.* **4**: 85-92.
5. Faye O, Mahé A, Jamet P et al (1996). [Anatomopathologic study of five cases of leprosy in HIV seropositive patients]. *Acta Leprologica*. **10:** 93-99.
6. Kar HK and Sharma P (2007). Does concomitant HIV infection has any epidemiological, clinical, immunopathological and therapeutic relevance in leprosy? *Indian J Lepr.* **79:** 45-60.
7. National AIDS Control Organisation (2014). Department of AIDS Control National AIDS Control Organisation Annual Report 2013-14.
8. National Centre for Disease Control (2014). Quarterly Newsletter from the National Centre for Disease Control (NCDC) January-March 2014.
9. National Leprosy Eradication Programme (2014). NLEP- Progress report for the year 2013-14.
10. Sachdeva S, Amin SS and Qaisar S (2011). Type 2 lepra reaction with HIV1 co-infection: a case report with interesting management implications. *Indian J Lepr.* **83:** 103-106.
11. Weiss R (1993). "How does HIV cause AIDS?". *Science.* **260**: 1273-1279.

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