Coexistence of HIV Infection and SLE: A Case Report

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Abstract: The co-existence of SLE and AIDS has been rarely reported. When the patient with SLE is complicated by HIV infection, the clinical manifestation will be modified to be milder degree. Our case was a 44-year old woman who was definitely diagnosed as SLE, depending on the combination of polyarthritis, autoimmune hemolytic anemia (AIHA), painless oral ulcer, repeated lymphopenia and positive ANA antibody. The corticosteroid could induce all clinical manifestations into the remission and it could be tapered and stopped within six months. She had been clinically in remission without drug for one and a half years until she was urgently admitted because of *E. coli* septicemia due to the upper urinary tract infection and *Pneumocystis carinii* pneumonia concomitantly with the recurrence of AIHA. The HIV antigen/antibody was positive while the CD4 count was 251/mm^3. She again responded well to steroid and the appropriate antibiotics. Within 8 months, her CD4 count was gradually lowered to be 147/mm^3 and the viral load was 32,800 copies/ml. The antiretroviral therapy was started and continued until 7 months, the polyarthralgia recurred whereas the CD4 level was raised to 225/mm^3. But it could be easily controlled by only NSAIDs. In general, the natural course of SLE is to remit and to relapse but our case could be in remission for a long time without steroid therapy, presumably due to HIV infection and it recurred after the CD4 count was increased following antiretroviral therapy.

Key word: SLE, CD4, AIDS

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บทคัดย่อ: **SLE ที่มีการติดเชื้อเอชไอวีร่วมด้วย: รายงานผู้ป่วย**

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การพบผู้ป่วยโรค SLE ร่วมกับการติดเชื้อเอชไอวียังพบได้น้อย เมื่อผู้ป่วยที่เป็น SLE มีการติดเชื้อเอชไอวีร่วมด้วย อาการทางคลินิกของโรค SLE มักจะเปลี่ยนแปลงไปในทางลดความรุนแรงลง รายงานนี้ เป็นผู้ป่วยหญิงไทย อายุ 44 ปี ได้รับการวินิจฉัยว่าเป็นที่แน่นอนแล้วว่า SLE โดยเกณฑ์การวินิจฉัยประกอบด้วย ข้ออักเสบหลายข้อ, autoimmune hemolytic anemia (AIHA), แผลแบบไม่เจ็บในช่องปาก, เซลล์ lymphocyte ต่ำหลายครั้ง และตรวจพบ ANA antibody เมื่อได้รับการรักษาด้วย corticosteroid ผู้ป่วยตอบสนองดีจนสามารถลดยาได้และหยุดยาได้ภายใน 6 เดือน ผู้ป่วยอยู่ในภาวะสงบโดยไม่ต้องใช้ยาเป็นเวลา 1 ปีครึ่ง อยู่ ๆ ผู้ป่วยมีอาการแสดงของ *E. coli* septicemia จากการติดเชื้อในทางเดินปัสสาวะส่วนบน และโรคปอดบวมจากเชื้อ *Pneumocystis carinii* พร้อมกับอาการกำเริบของ AIHA ตรวจพบ HIV antigen/antibody โดยพบระดับ CD4 251/ลบ.มม. ผู้ป่วยตอบสนองดีต่อ steroid ร่วมกับยาปฏิชีวนะที่เหมาะสม หลังจากนั้น 8 เดือน ค่า CD4 เหลือเพียง 147/ลบ.มม. และตรวจ viral load พบ 32,800 copies/มล. จึงเริ่มให้การรักษาด้วยยา antiretroviral therapy เมื่อรับประทานยาต้านไวรัสได้ 7 เดือน ผู้ป่วยมีอาการปวดข้อหลายข้อกำเริบ ในขณะที่ CD4 เพิ่มขึ้นเป็น 225/ลบ.มม. แต่ก็ตอบสนองดีต่อยาต้านการอักเสบชนิดที่ไม่ใช่สเตอรอยด์ โดยทั่วไปธรรมชาติของโรค SLE คือ มีภาวะสงบและกำเริบสลับกันไป แต่ผู้ป่วยของเราอยู่ในช่วงสงบเป็นเวลานานโดยไม่ต้องใช้ยา steroid สันนิษฐานว่าโรคคงสงบเพราะมีการติดเชื้อเอชไอวีร่วมด้วย และโรคมีการกำเริบขึ้น เมื่อปริมาณ CD4 เพิ่มขึ้นหลังจากที่ผู้ป่วยได้รับยาต้านไวรัส
คำสำคัญ: SLE, CD4, AIDS

Introduction

Some basic immunologic abnormalities of systemic lupus erythematosus (SLE) are supposed to be due to the increased numbers and function of helper T cells (CD4)[1,2] which normally promote B cells function, or due to decreased function of suppressor T cells which normally downregulate the immune response[3] or due to polyclonal activation of B cells[4]. Therefore autoantibodies such as antinuclear antibody (ANA) are commonly found. On the other hand, in the case of human immunodeficiency virus (HIV) infection, the main target of the virus is to infect and to destroy the helper T cells, leading to decrease the amount of the helper T cells[5], and to decrease the promotion of B cell function. Therefore the victim of HIV infection is vulnerable to be easily infected by various opportunistic organisms. The co-existence of these 2 entities has been rarely reported[6-8], and in most

cases, clinical and laboratory manifestations relating to SLE are much improved after they are infected by HIV[9,10]. However, in some HIV-infected persons, they have the polyclonal B cell activation which leads to produce many autoantibodies such as anti-dsDNA, anti-ENA by ELISA method with the low titer and the unknown clinical significance[11] while some have rheumatic symptoms, i.e. arthritis[12]. Here we report one case of the co-existence of full blown SLE and acquired immune deficiency syndrome (AIDS) from HIV infection.

Case Report

Three and a half years ago, a Thai female, 44 years of age, had been diagnosed as having definite SLE because she developed gradual onset of polyarthritis of both wrists, both knees and many proximal interphalangeal joints for two months, successively followed by, painless oral ulcer at the hard palate, positive ANA antibody, homogeneous type 1:80 by immunofluorescent method and acute autoimmune hemolytic anemia (AIHA) with hemoglobin (Hb) 7.8 g%, lymphopenia of 1,090/mm^3. The direct Coombs' test was positive 2+ whereas the indirect Coombs' test was negative, her ESR was 94 mm/hour while the rheumatoid factor was negative. Chest film showed mild cardiomegaly, no lung infiltration and the echocardiogram revealed left ventricular hypertrophy without valvular or pericardial lesion. She had been treated with oral prednisolone, 60 mg a day, chloroquine and piroxicam. Within 2 months, her SLE manifestations gradually disap-peared. Her Hb level was 13.8 g%, lymphocyte 2,310/mm^3. All drugs could be tapered and finally stopped and she could be in clinical remission without therapy since then.

One and a half years ago, she was emergently admitted in the ICU because of her progressive dyspnea, fever, non-productive cough and bilateral blurred vision in a few days. Her physical examination revealed dyspnea with bilateral maculopathy. Her chest film showed bilateral interstitial infiltration with sharp costophrenic angles of both sides. Her urine showed numerous WBC and the urine culture and 2 of 2 specimens of hemoculture yielded *E. coli*. Her direct Coombs' test was again positive. The Hb level was 8.1 g% while the total lymphocyte was 630/mm^3. She was clinically diagnosed as *Pneumocystis carinii* pneumonia (PCP), acute urinary tract infection with *E. coli* septicemia and the recurrence of AIHA, she was treated with intravenous ceftriaxone, cotrimoxa-zole and dexamethasone. HIV antibody was positive with microparticle enzyme immunosorbent assay (MEIA) method. However, she did not express the other lupus manifestations, such as polyarthritis or oral ulcer, any more.

After she completely recovered from *E. coli* septicemia, PCP and AIHA within a few months, her Hb became 11.9 g%, without blood transfusion. And again the steroid was then tapered and stopped after the direct Coombs' test was proved to be negative. Other blood tests including VDRL, HBsAg and anti-HCV, were all negative. The total WBC was 11,400/mm^3 whereas total lymphocyte was 1,615/mm^3, CD4+ (T helper) was 13.2.0% or absolute count was 251/mm^3. Antiretroviral therapy was not started yet, just only 2 tablets a day of cotrimoxazole for PCP prophylaxis. She was free from SLE symptom, and CBC was serially normal. The direct Coombs' test, anti-ds DNA and anti-SM antibodies were all negative. Ten months ago, ANA became positive by immuno-fluorescent

method, 1:80 for homogeneous type, 1:320 for nucleolar type and positive ANCA antibody 1:320. The CD4 count was 147/mm^3 while the viral load was 32,800 copies /ml.

GPOvir (the combination of D4T 30 mg+3TC 150 mg+ NVP 200 mg) 1 tablet every twelve hours was immediately started. Within 7 months, the CD4 was up to 225/mm^3 without side effect, the ANA titer was rising, viz., homogeneous type 1:320, nucleolar type 1:320. The patient began complaining mild degree of polyarthralgia at both wrists, both elbows and many PIP joints which were easily overcome by only oral NSAIDs. When this report was performed, the antiretroviral therapy was going on without steroid therapy.

Her husband had also positive anti-HIV antibody with pulmonary tuberculosis and he was being treated in another hospital.

Discussion

Our case was diagnosed as the definite SLE because she fulfilled 4 of 11 criteria[13], i.e., polyarthritis, oral painless ulcer, positive ANA antibody, repeated lymphopenia and additional AIHA. She responded well to steroid therapy and could maintain the state of clinical remission for nearly 2 years without any medication.

When she developed *E. coli* septicemia and PCP, the HIV antibody was proved to be positive. In fact, the HIV-infected person always needs at least four years or more from the primary HIV infection to develop the full blown AIDS which may be recognized by the occurrence of various opportunistic infections such as PCP[14]. Therefore our case was presumed to be infected by HIV for a year or more before she firstly manifested her SLE symptoms.

However most cases of PCP complicating the HIV-infected persons always are diagnosed when their CD4 count is less than 200/mm^3. If the CD4 ranges between 201-300/mm^3, PCP can hardly occur, i.e., the infected rate less than 0.5%[15]. Although PCP may happen during the long term steroid therapy[16], our case has stopped using prednisolone for a year therefore the susceptibility to PCP may solely be due to the quite low CD4 count.

Actually autoantibodies could be commonly found in the children with AIDS, e.g., anti-dsDNA 20.5%, anti-ENA 68.1%, anti-RNP 61.3%, anti-Sm 29.5%, anti-Ro 50%, and anti-La antibody 18.1% by ELISA method[1]. However, the clinical syndrome of the autoimmune diseases relating to these autoantibodies was not recognized in these children. However the autoimmune diseases such as SLE, rheumatoid arthritis, antiphospholipid syndrome[17] and AIHA in cases of AIDS have been occasionally reported[18].

If the patient with SLE was infected by HIV, the clinical manifestation would improve and the autoantibody production disappeared[2] while one patient went into remission[3]. For our case, she could be free from the symptom of SLE with the presumably preceding silent HIV infection except for the AIHA. The explanation for this observation is the fact that the enhanced function of the CD4 which is the basic mechanism of SLE, is decreased or even destroyed by HIV infection.

In fact, the HIV-infected persons may develop various autoantibodies[1] or even rheumatic symptoms i.e., polyarthralgia 25-35% of cases[19,20]. But the report of definite SLE on top of AIDS is rarely seen. For our

case, the infection of HIV was supposed to happen before the occurrence of SLE because the duration between the appearance of SLE and PCP was 2 years which is too short for the HIV progression which always takes at least 4 or 5 years from the primary HIV infection to the full blown AIDS. This supposedly preceding HIV infection may possibly modify the fate of SLE in our case not to be serious, viz., no involvement of CNS or kidney, the easy remission by the short course of steroid therapy and the long term remission for 2 years without therapy.

Within 8 months after the recognition of HIV infection, her CD4 was gradually lowered to 147/mm^3, with neither symptom of SLE nor steroid therapy. And after she had been treated with ARV therapy for 7 months, the CD4 count rose to 225/mm^3. At the same time, she complained of mild polyarthralgia without AIHA which was simply controlled by NSAIDs without steroid. Some authorities propose when the patients with AIDS have the immune restoration after highly active anti-retroviral therapy (HARRT), CD4 would recover and probably activate the autoimmune disease[4], leading to a resurgence of SLE[21], DLE[22], the rheumatological syndromes range 1-60%[17]. The average rate of increase of CD4 is 100/mm^3 a year[23]. For our case, the CD4 rose from 147/mm^3 to 225/mm^3 within 7 months. The recovery rate looks similar to that of the majority of HIV-infected persons who were not complicated by SLE.

Conclusion

A definite SLE in a middle-aged woman was established 2 years before the recognition of the full blown AIDS. The CD4 cell is destroyed in HIV infection but its function is enhanced in SLE. In case of co-existence of SLE and HIV infection, when the CD4 is rescued after the ARV therapy, the symptom of SLE may recur as seen in our case who developed polyarthralgia after the CD4 was raised.

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