Type 1 Leprosy Reaction in Multibacillary (MB) Leprosy Patient That Have Not Received MDT-MB Therapy

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Abstract: Leprosy reaction is a variety of symptoms and signs of acute inflammation of leprosy reactions, which can be considered as part of journey of leprosy. In the type 1 reaction that plays a role is cellular immunity. A 31-year-old man complaint of reddish skin thickness on the face, body, back, hands, and feet experiences since 2 weeks ago. On dermatological examination, erythematous plaque is found in the facial region, thoracic, abdominal and posterior trunk, erythematous macules of the superior extremity and the inferior extremity, the right side of the sinus. On examination of the peripheral nerve, left and right N. Auricularis Magnus are found enlarged, N. Ulnaris, N. Popliteal lateralis and N. posterior tibialis tenderness are present. Bacterial examination (BTA) +1. Diagnosis in this patient was multibacillary leprosy who had type 1 reactions that had not received MDT-MB therapy. the patient was given Prednison 40 mg/day and was reduced gradually every 2 weeks as much as 5-10 mg. leprosy reactions can occur becfor, during, and after treatment. Various factors that are considered to cause leprosy reactions. In this case, stress was the trigger factor.

1 INTRODUCTION

Leprosy is one of chronic infection disease, caused by *Mycobacterium leprae*, mainly affect peripheral nerve but can also affect skin, mucosa and other tissue organ, except central nerve system (Bryceson and Pfaltzgraff, 1990).

The prevalence of leprosy worldwide is estimated less than 1 case per 10.000 populations. Nevertheless, leprosy is still one of health problems in Indonesia. There are still many provinces and districts in Indonesia that have not achieved leprosy elimination that was targeted in 2000 (Lewis et al, 2012; Hernani et al 2004).

Diagnosis of leprosy is based on cardinal signs that consist of anesthetic skin lesion, thickened peripheral nerve with impaired nerve function, and positive acid-fast bacilli (AFB) from slit skin smears (Hernani et al, 2004; Amirudin et al, 2003).

According to WHO classification in 1981 that was modified in 1988, leprosy can be classified into Paucibacillary (PB) and Multibacillary (MB) (Amirudin et al, 2003; Noordeen 1994; Kosasih et al, 2008). This classification was based on clinical features and AFB from slit skin smear examination (Amirudin et al, 2003).

Leprosy treatment in Indonesia was based on WHO classification, using Multi Drug Therapy (MDT). MDT-PB consists of Rifampicin and Dapsone, while MDT-MB consists of Rifampicin, Dapsone and Clofazimine (Hernani et al, 2004).

Leprosy reaction is a group of acute inflammatory sign and symptoms on leprosy skin lesions that were considered as part of leprosy. There are two types leprosy reaction. In type 1 reaction, cellular immunity takes the main role, whereas there are shifting toward tuberculoid pole (*reversal/upgrading*) or lepromatose (*downgrading*). The clinical manifestations of type 1 reaction are skin lesion become more erythematous, thickened peripheral nerve with tenderness and function disorder, with minimal systemic manifestations (Hernani et al, 2004). Type 2 reaction, also known as erythema nodosum leprosum, is type III reaction according to Coomb and Gell with clinical manifestations such as bright red, painful and tender nodules, on normal looking skin. It can be found in skin or subcutaneous tissue on any body part, especially on the face, hands, and limbs with systemic symptoms (Bryceson and Pfaltzgraff, 1990; Martodihardjo and Susanto, 2003).

The principle treatment of leprosy reaction consist of antireaction medication, rest or immobilization, analgetic or sedative to treat the pain and continue

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antileprosy medication (Martodihardjo and Susanto, 2003).

We report a case of multibacillary leprosy with type 1 reaction in 31 years old male patient.

2 CASE

A male, age 31 years old, Bataknese, entrepreneur, came to Dermatology and Venereology Policlinic H. Adam Malik General Hospital on March 2nd 2009 with reddish thickened skin without itchiness on his face, body and back with reddish patch, also without itchiness on his hand and leg since 2 weeks ago. At first, the reddish patches were seen in his body and it got bigger. There is history of white patches that were not itchy on his back since 2 years ago. His body felt unwell and he also had family problem. He never went to seek medical advice for his condition. There was no similar family history.

Physical examination showed his general condition was good with good nutritional status. Dermatological examination showed erythematous plaques on facial, thorax, abdomen, and trunk posterior region, erythema maculae on both superior and inferior extremities. Examination on peripheral nerve showed thickened auricularis magnus nerve, there were no thickened and tenderness on ulnar nerve, lateral popliteal nerve, and tibial posterior nerve. There were anesthesia found in the lesion and both inferior extremities. There were no anomalies in motoric nerve function test.

The differential diagnoses for this patient are multibacillary leprosy with type 1 reaction that have not received MDT-MB, paucibacillary leprosy with type 1 rection that have not received MDT-MB, and urticaria. The temporary diagnosis for this patient is multibacillary leprosy with type 1 reaction that has not received MDT-MB.

The patient was then referred to dr. Pirngadi General Hospital Medan to have AFB examination and get appropriate treatment.

Bacteriological examination (AFB) from right earlobe showed (+) 1, left earlobe showed 1(+), and back (+) 1. The patient refused to undergo biopsy examination. Laboratorium examination of blood and urine sample is within normal range.

Working diagnosis for this patient is multibacillary leprosy with type 1 reaction that has not received MDT-MB.

The patient was advised to rest and was given MDT-MB, which consist of Rifampicin 600 mg/month, Clofazimine 300 mg/month, and continue with Clofazimine 50 mg/day and Dapsone 100 mg/day. For his reaction, the patient was given Prednisone 40 mg/day (1x8 tablet/day) and the dosage was planned to be reduced 5-10 mg every 2 weeks, Paracetamol 3x500 mg.

After 2 weeks, erythematous plaques are become less thick and reduced; there were no new erythematous maculae and plaques. There was no fever. From peripheral nerve examination, we found

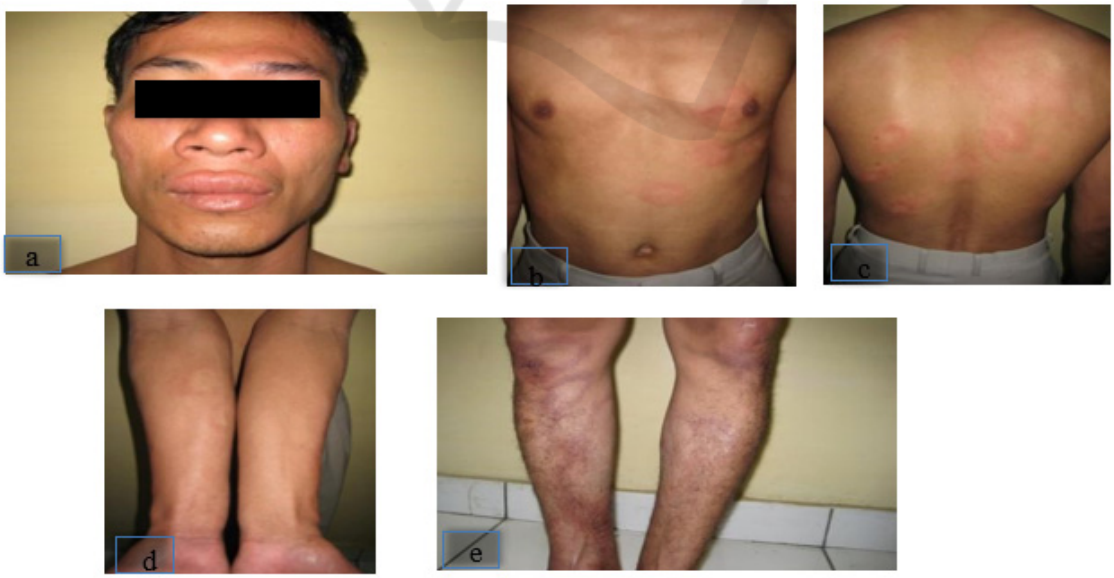

Figure 1. a-e First visit of the patient. (a,b,c) erythematous plaques on facialis, thorax, abdomen and posterior trunk; (d,e) erythematous maculae on superior and inferior extremities.

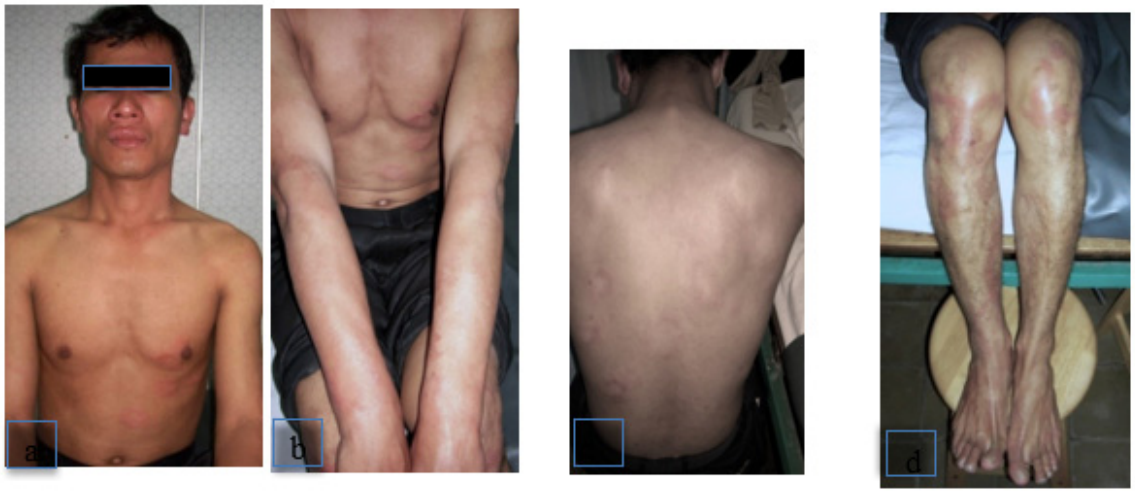

Figure 2. (a) First Control, (b) erythematous plaques were reduced and less thick on facial, thorax, abdomen, and posterior trunks region, (c) erythematous maculae were also reduced on superior extremities (d) erythematous maculae were reduced in the inferior extremities.

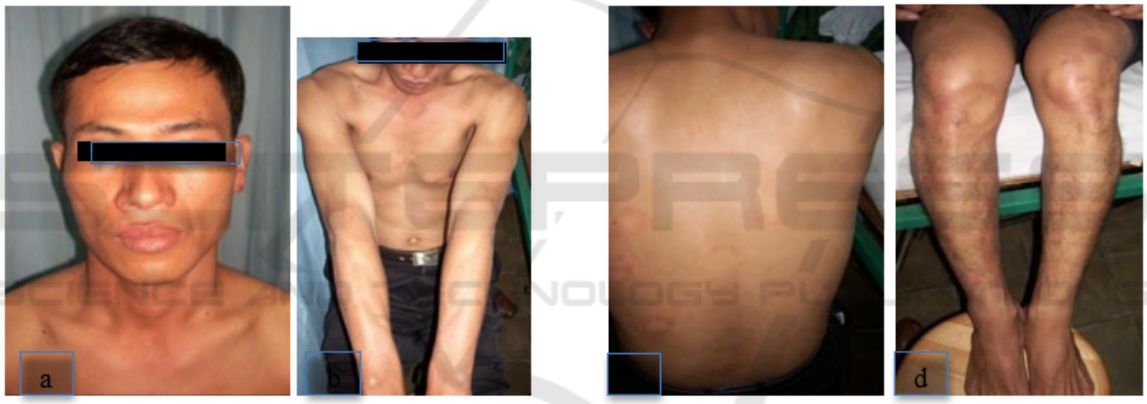

Figure 3. (a,b,c) Erythematous plaques were less thick on facial, thorax, abdomen, posterior trunk; previous erythematous maculae were not seen on superior extremities (d) erythematous maculae became less on inferior extremities.

thickened both auricularis magnus nerve, tenderness in ulnar nerve was not found anymore, but it still can be found on popliteal lateral nerve. Sensory function test showed anesthesia is decreased in both inferior extremities. Motoric nerve function test showed no anomalies.

Prednisone dose was reduced to 30 mg/day (1x6 tablet/day). We still continue MDT-MB treatment until 12-18 months.

After 2 weeks, in the next control, the erythematous plaque and erythematous maculae had reduced, and there were no new lesion were found. The peripheral nerve examination found that there were no thickened peripheral nerve on both auricularis magnus, no tenderness on ulnar and lateral popliteal, but tenderness can still be found on posterior tibial nerve. Sensory nerve function showed that less anesthesia on both inferior extremities. There were no anomalies in motoric nerve function.

The prednisone dosage was lowered to 20 mg/day (1x4 tablet/day). We continue the MDT-MB treatment and hopefully it will be finished in 12-18 months.

The prognosis of this patient is *quo ad vitam ad bonam, quo ad functionam ad bonam, quo ad sanationam dubia*.

3 DISCUSSION

Diagnosis of leprosy can be concluded based on cardinal signs, such as numb skin lesion, thickened peripheral nerve lesion with tenderness and positive

AFB examination (Hernani et al, 2004; Amirudin et al, 2003).

From anamnesis, there are erythematous plaque without itchiness on his face, body, and back with erythematous patch without itchiness on his hand and legs since 2 weeks ago. At first, the reddish patch was seen on his body and slowly spreading. The patient also felt feverish. The patient also said that he had family problem and never seek medical advice for his skin condition. Leprosy reaction is a group of acute inflammatory sign and symptoms on leprosy skin lesions that were considered as part of leprosy (Martodihardjo and Susanto, 2003). Leprosy reaction can happen to leprosy patient before, during, and after treatment (Bryceson and Pfaltzgraff, 1990; Hernani et al, 2004). Various factors that contributed to this condition is physical stress caused by pregnancy or after labor, after vaccination, infection, anaemia, malnutrition, fatigueness, and psychological stress that caused by shame, also drug that enhance immunity (Hernani et al 2004, Rea and Modlin, 2008). In this case, leprosy reaction probably caused by stress.

Dermatological examination showed erythematous plaques on facial, thorax, abdomen, and posterior trunk; erythematous macules on both inferior and superior extremities. Peripheral nerve examination showed thickened both auricularis magnus and tenderness also shown in ulnar, lateral popliteal, and posterior tibial nerve. Sensory nerve function test showed anesthesia on skin lesion and both inferior extremities. Clinical manifestation of type 1 leprosy reaction is erythematous and edematous skin lesion that sometimes with ulceration and followed by tenderness and nerve disorder with minimal systemic manifestation such as fever, malaise, and joint pain (Bryceson and Pfaltzgraff, 1990; Hernani et al, 2004).

Bacteriological examination (AFB) on right earlobe is (+) 1, on left earlobe (+) 1, and back (+) 1. This examination support MB leprosy diagnosis. According to WHO classification in 1988, positive AFB examination is classified as MB leprosy (Kosasih et al, 2008).

The differential diagnoses for this patient are multibacillary leprosy with type 1 reaction that have not received MDT-MB, paucibacillary leprosy with type 1 rection that have not received MDT-PB, and urticaria. The diagnosis of paucibacillary leprosy with leprosy reaction that have not received MDT-PB can be removed because we found AFB (+)1 (Hernani et al, 2004). Differential diagnosis of urticaria can be removed based on clinical manifestation. Usually in urticaria, the skin lesions suddenly appear and disappear gradually. In urticaria, we will not found AFB and sensory disorder (Aisah S, 2008).

For his treatment, the patient was given MDTMB that consist of Rifampicin 600 mg/month, Clofazimine 300 mg/month followed by Clofazimine 50 mg/day and Dapsone 100 mg/day with prednisone 40 mg/day (1 x 8 tablet/day, taken every morning) with reduced dosage every 2 weeks and paracetamol 3x500 mg. The principle treatment of leprosy reaction consist of antireaction medication, rest or immobilization, analgetic or sedative to treat the pain and continue antileprosy medication (Kosasih et al, 2008). Prednisone should be started at high dose, which is 40-80 mg/day depending on the reaction degree of severity and taken in the morning. The dosage is decrease gradually, 5-10 mg every 2 weeks until reaching 5 mg. If there are no clinical improvement, the dosage should be increase and reevaluate (Bryceson and Pfaltzgraff, 1990; Hernani et al, 2004).

Generally, the prognosis of this patient is good, but there are possibilty of recurrence. After finishing antileprosy medication for 12 weeks and avoid factors that caused the reaction, it is hoped that the patient is going to recover from reaction.

Nevertheless, recurrence can happen if the patient is exposed to predispose factor (Rea and Modlin, 2008; James, 2006).

4 CONCLUSIONS

Type 1 leprosy reaction can occur before, during and after completed MDT therapy. In this case, the type 1 leprosy reaction occurred before MDT therapy and the trigger factor was stress.

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