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Multibasillary Leprae Borderline Lepromatous Type with Erythema Nodosum Leprosum Reaction: Establishing the Diagnosis

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ABSTRACT

Leprosy is a chronic infectious disease with major involvement in the skin and peripheral nervous system caused by the bacterium bacillus Mycobacterium leprae. Borderline lepromatous (BL) is one of leprosy types characterized by annular with poorly demarcated outer borders and sharply defined punch out centers. This case report aimed to know and establish the diagnosis of multibasillary leprae borderline lepromatous. A 65 year old man came with a complaint of numbed erythematous patches. Smear test showed the presence of IB + 3 and IM 10%. Histopathological examination found red intact acid bacilli. Based on these findings we diagnosed him with multibasillary borderline lepromatous. We gave multy drugs therapy (MDT) for MB type for 12 months. But at 4 month follow up ENL reaction appeared thus. We managed him with continued MDT and prednisone 40 mg / 24 hours with tappered dose the ENL clinical improvement. The clinical feature of leprosy depends on the host response. Skin lesions can be hypoesthesia or anesthesia. The peripheral nerve is palpable and thick. Symmetrical anesthesia of the fingertips may also occur.

Keywords:
leprosy, erythema nodusum leprosum, borderline lepromatous

Introduction

Leprosy is a chronic infectious disease caused by bacilli with major involvement in the skin and nervous system.[1]Based on World Health Organization (WHO) data 2015 there were 211,973 new cases per 100,000 populations worldwide. Indonesia is still one of the most endemic countries for leprosy in the world after India and Brazil.[2]

Leprosy is classified as papibacillary leprosy (PB) and multibacillary leprosy (MB). Ridley-Jopling classified leprosy into 5 clinical spectrums namely true tuberculoid (TT), borderline tuberculoid (BT), mid borderline (BB), borderline lepromatous (BL) and lepromatous leprosy (LL).[3]Borderline lepromatous type (BL) leprosy shows a clinical picture in the middle of a normal-looking lesion with a deeper edge clearer than the outer edge, and some plaques can be punched out.[4]

Leprosy reaction is immune response reaction to *M. leprae* bacillus. The leprosy reaction is differentiated according to the underlying hypersensitivity reaction, namely type 1 leprosy reaction or reversal reaction and type 2 leprosy reaction or erythema nodule leprosum (ENL).[5]

Based on this description the purpose of reporting this case is to find out and establish a diagnosis of MB leprosy with an ENL reaction so that appropriate management can be achieved.

Case

A 65 years old man to our hospital due to reddish rounded numbness in some parts of the body and muscle pain. Since 5 months ago reddish the patch first appeared on the chest then

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spread to the back , hand and legs. These occurred when patient lived in Surabaya, where leprosy endemic. None of his family experiences the same complaints. The Dermatological examination obtained well defined erythemathous macule and patches on face, trunk, upper and lower extremities (Figure 1).

Wood lamp examination revealed no a greenish color change KOH examination demonstrated no spores and hyphae.

To establish a diagnosis of leprosy, AFB smear test showed a bacterial index (IB) +3 and a morphological index (IM) of 10%, so that our patients were diagnosed with MB type leprosy (Figure 2).

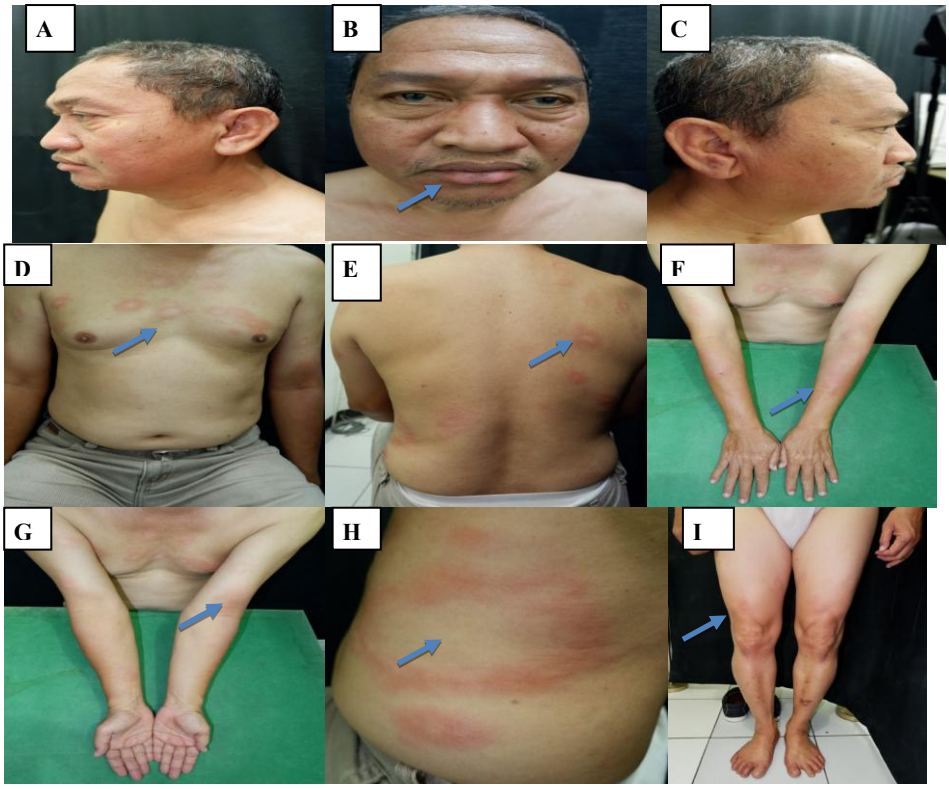

Figure 1. (A-C) In the facial region the erythematous patch is clearly demarcated. (D-G) In the anterior trunk region et posterior et superior extremity there are several well-defined erythematous macules and patches with a diameter of 9-10 cm, erythematous (punch out) edges without induration. (I, J) In the region of the inferior extremity there are strict erythematous macules of 3-4 cm diameter, erythematous edges without

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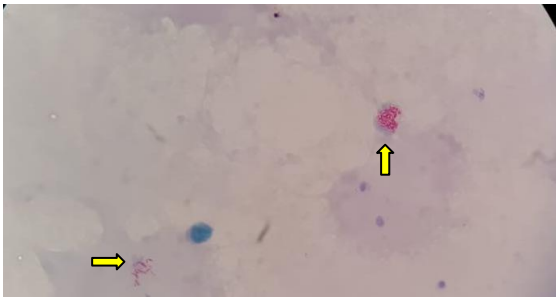

Figure 2. Acid-resistant bacillus (BTA) staining. Some red M. leprae bacilli (yellow arrows) appear.

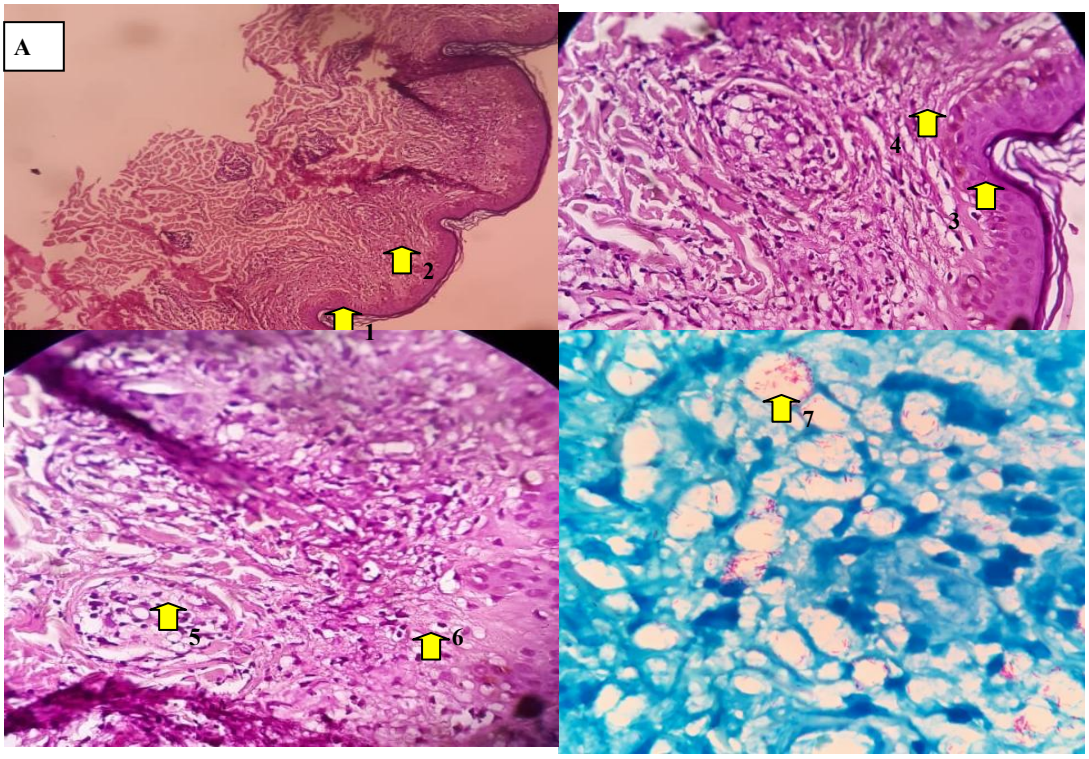

Figure 3. (A) Epidermis, (1) basketwave type orthokeratosis with (2) regular reteate leveling (yellow arrow) (HE, 10x). (B-C) Dermis, (3) mild spongiosis and (4) regular reteation of the type of ridges. Dermis (5) histiocyte cells appear, (6) lymphocyte cells (HE, 40x). (D) Upper dermis : (7) red bacilli germ (yellow arrow) (FF, 100x).

The Faraco Fite in the epidermis found basketwave type orthokeratosis with regular reteate leveling and in the Dermis found mild spongiosis, reguler reteation of type of ridges, histiocyte cells and lymphocyte cells. In the Upper dermis found red bacilli germ (Figure 3).

Based on the history, physical, laboratory and histopathological examinations the patient was diagnosed with MB leprae borderline lepromatous. Then the patients received MB type leprosy multi drugs therapy (MDT) with 600mg / month rifampicin caplet regimen, 300 mg / month tablet clofazimin followed by a dose of 50 mg per month and dapsone tablet 100 mg per day for 12 months.

Four months later the patient return to our hospital because he had painful, reddish lumps on his face, trunk and extremities as well fever and muscle pain. Dermatological findings

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obtained multiple erythematous nodules and hyperpigmented patches. The patients was the diagnosed with Multibasillary leprae boderline lepromatous with ENL. We treat him with continued MDT along with prednisone 40 mg tappered dose until his ENL improves clinically.

Discussion

Leprosy is also referred to as Morbus Hansen, a chronic infectious infectious disease caused by Mycobacterium leprae, an acid resistant bacterium intercellular with clinical manifestations in the nervous system and skin.

The clinical picture of leprosy depends on the host's response. BL type leprosy skin lesions are lesions with a normal middle section with elevated edge lesions and some plaques can be punched out. Skin lesions can sometimes be hypoesthesia or anesthesia and the peripheral nerve thickens so that we can palpable it. The fingertips may become symmetrical anesthesia.[6,7] The distribution of asymmetrical lesions is generally on the face, body or limb extensor areas. In our patient there were more than 5 skin lesions in the form of well defined erythematous patches. BTA was examined with the results of IB +3 and IM 10%. To determine the type of leprosy based on Ridley-Jopling criteria, histopathological examination and Faraco Fite staining from biopsy of back skin tissue can be found in red M.leprae bacilli.[8] From the results of the examination, patients were diagnosed with multibasillary leprae BL type.

Erythema nodusum leprosum (ENL) or type 2 reaction is one of reaction forms, an increase in the concentration of TNFα in the circulation forms a complex resulting from an antigen-antibody reaction involving activation of the complement system. This reaction is commonly seen in people over 30 years old.[9,10] Our patient is in high risk group as he is 58 years old.

The reaction of ENL is characterized by fever, atralgia, myalgia, anorexia and painful nodules. Purplish red nodules spread widely on the body but are more common on the face and extensor parts of the extremities.[11] Erythema nodusum leprosum reaction appeared in our patient at month 4 of MDT course.

ENL reaction can occur in multibacillary leprosy, namely type BL and LL. ENL reaction present in 50% of LL and 25% in BL.[12] In our patient suffered from multibasillary leprae borderline lepromatous which which put him at risk for ENL.

The common therapy for leprosy is Multi drug therapy (MDT). PB type MDT regimen consists of 600 mg rifampicin and 100 mg dapsone taken for 6-9 months. The MB type regimen consists of rifampicin 600 mg, dapsone 100 mg and lampren 300 mg the first day of each month followed by a dose of 50 mg per day and taken for 12-18 months.[13,14] In this case the patient is diagnosed multibasillary leprae borderline lepromatous with an ENL reaction so that the treatment regimen given is in the form of a combination of rifampicin, dapsone and lamprene taken for 12 months and for ENL reaction prednisone 40 mg tappered dose until his ENL improves clinically.

Conclusion

Patients with multibasillary leprae borderline lepromatous type are at risk for experiencing type II reaction known as ENL. Typical dermatological finding of hypoasthesia lesion can differentiate this disease from others. AFB smear test plays an important role in determining the type of leprosy so that proper management can be carried out.

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