CASE REPORT

Molluscum contagiosum associated immune reconstitution inflammatory syndrome in human immunodeficiency virus infection treated with trichloroacetic acid 80% and imiquimod 5% cream

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SUMMARY

Urgency in treating molluscum contagiosum (MC) is still controversial due to its efficacy, especially when MC is associated with either human immunodeficiency virus (HIV) or immune reconstitution inflammatory syndrome (IRIS). Despite its manifestation as a benign skin disease that is mostly transmitted sexually, it has a negative impact on quality of life for the patient that is infected due to its cosmetical aspect. We reported a case of MC with HIV on highly active antiretroviral therapy (HAART) that was treated with trichloroacetic acid (TCA) 80% on body and imiquimod 5% cream on the face. In four weeks, improvement was more visible on TCA 80%. HIV on HAART may interfere the improvement of the lesion.

INTRODUCTION

It is estimated that 5 to 18% of human immunodeficiency virus (HIV) patients experienced molluscum contagiosum (MC) when $CD4^+$ levels are below 100 cells/µL. MC has been a predictor of weak immunity in HIV patients and is associated with immune reconstitution inflammatory syndrome (IRIS).[1,2] In cases of serious disease and aesthetic complaints, there are several therapeutic options for MC, including physical destruction, topical keratolytic agents, and topical immunomodulators. Trichloroacetic acid is a keratolytic agent that is often used in the treatment of MC. Meanwhile, another option is imiquimod, a topical immunomodulatory agent that stimulates local innate and adaptive immunity in lesions. The choice of therapeutic modality in MC with HIV has its own challenges regarding the therapeutic efficacy and side effects that differ from immunocompetent patients.[3,4]

CASE REPORT

A female, age 22 years old, complained of skin-coloured bumps since July 2021. Initially, only one lesion appeared on the face, and over time, the lesion increased accompanied by itch, sore or painful at the same time. The patient reported that when the lesion was pressed by hand, white patches such as rice came out of the lesions. But no medication was taken regarding to the bumps. She suffered prolonged fever and weight loss in December 2021. She was diagnosed with HIV and had a two-cell/UL CD4 count in January 2022. Highly active antiretroviral therapy (HAART) consisted of tenofovir 300 mg, lamivudine 300 mg and dolutegravir 50 mg were given daily. Due to the bumps still persisting, she consulted a dermatologist and was given 20% potassium hydroxide topically on the lesion every night for two weeks, but there was no improvement.

On the face, right breast, right infra mammary, inguinal, right and left labia, inferior abdominal, right and left femoral, right and left gluteus, were multiple papules, skin coloured, firm borders, round to oval, diameter 0.3 to 0.8 cm, shiny smooth surface with central umbilication, with discrete configuration. The treatment was 80% trichloroacetic acid (TCA) solution topically on MC lesions regularly every week on majority of the lesions (except face) and 5% imiquimod cream every two days on facial lesions.

During the sixth week of treatment, the patient still complained of several new lesions appearing on the face. In May 2022, the CD4 count was 115 cells/µL. On the face, right breast, right infra mammary, inguinal, right and left labia, inferior abdominal, right and left femoral, right and left gluteus, there were multiple papules, skin coloured, firm borders, shaped round to oval, diameter 0.3 to 0.8 cm, shiny smooth surface with central umbilication, and discrete configuration. On the right infra mammary, posterior abdomen, right and left femoral were multiple hyperpigmented macules, well defined round to oval in shape, 0.3 to 0.8 cm in diameter, with discrete configuration. The treatment was continued until all lesions disappeared.

DISCUSSION

Before starting treatment, it is important to discuss the risk and benefit to the patient because MC is a naturally benign condition and resolves without complications in immunocompetent patients. Treatment may be required for

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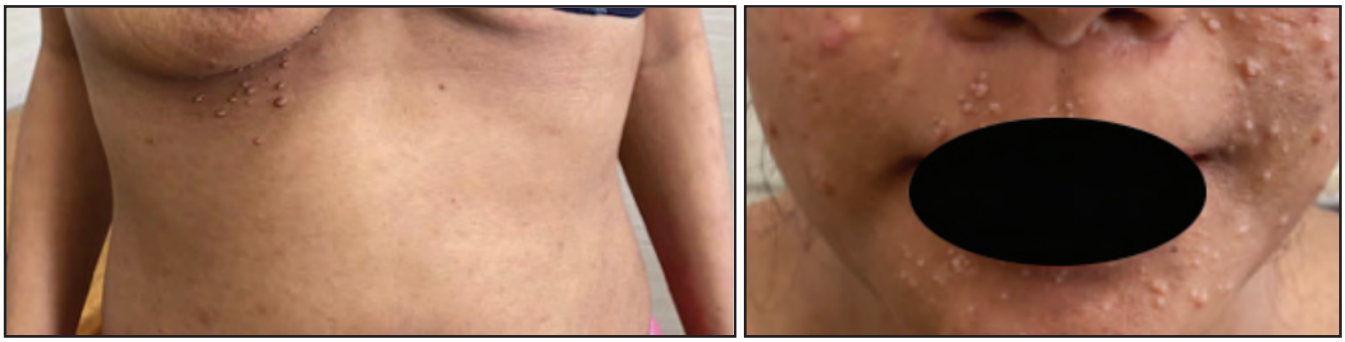

Fig. 1: Lesions before treatment

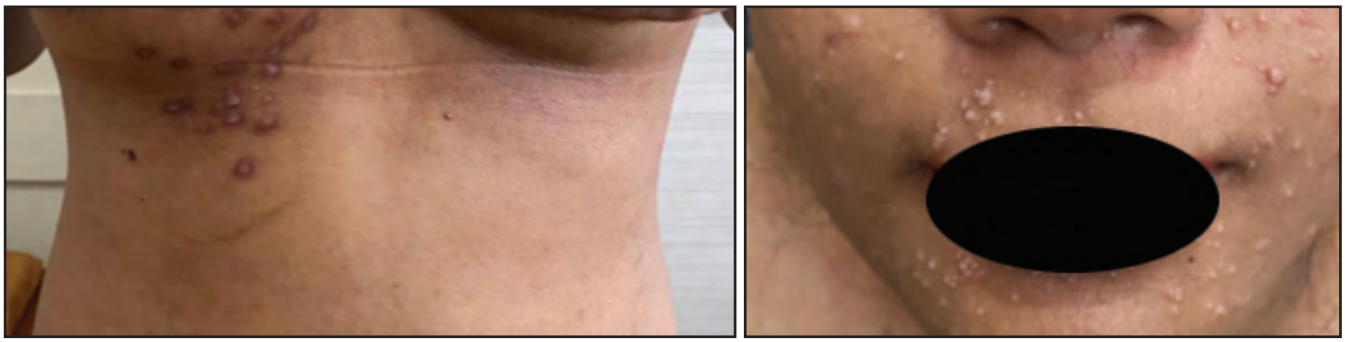

Fig. 2: Lesions after 4 weeks of treatment

persistent, pruritic, diffuse, or cosmetically undesirable lesions, and to prevent autoinoculation or transmission to others.[1,5]

In the immunocompetent population, 30% of cases resolved spontaneously due to strong cellular immunity. However, spontaneous regression usually does not occur in MC patients with HIV/AIDS.[1] Patients with HIV/AIDS tend to have more extensive MC lesions and are less responsive to conventional therapy. HIV infection lowers the immunity in the skin, so it is unable to suppress MCV replication and this results in the growth of lesions in large numbers and sizes. Factors that influence the responsiveness of the lesion to therapy include CD4 cell count, viral load and HAART consumption. HIV patients with CD4 counts <200 cells/uL and viral loads >100,000 copies/mL had more persistent lesions.[6] In this case, the patient was infected with HIV with CD4 count only 2 cells/uL, leading to more extensive MC lesions.

Various studies have shown that the management of the underlying disease, HIV with HAART, is the most important first step in the eradication of MC lesions. However, it should be noted that at the time of initiation of HAART, there may be impaired immune function, known as IRIS.[7] This condition is an improvement of the immune system in patients with severe immunosuppression. At the beginning of the reconstitution phase, CD4 lymphocytes will increase and viral load decreases, so that IRIS will occur as a result of an inflammatory reaction against microbes and autoimmune antigens, which mistaken seen as a decrease in clinical condition. This incidence occurs in 25% of patients starting HAART, 52 to 78% of cases of IRIS involve dermatological manifestations, such as herpes zoster, condyloma acuminata, and MC. In a cohort study of 199 patients, 2% of patients developed MC within six months of HAART initiation. The lesion will then spontaneously resolve once the reconstruction phase is complete.[5,8] Patients already taking HAART daily within 4 months, there was an improvement, but a new lesion still appeared continuously.

On the breast, abdomen, and thighs patient were given 80% TCA. TCA is an acidic caustic agent. It has a mechanism of action in the form of protein denaturation and coagulation that causes necrosis of the superficial tissues. According to the Centers for Disease Control and Prevention (CDC) therapeutic guidelines, the TCA concentration used is between 80% and 90%.[6] The TCA treatment can be applied carefully directly to the surface of the lesion using a cotton swab until it forms a white clot (frosting) every week. The advantages of TCA is that it is relatively inexpensive, easy to perform, safe if used with caution, rarely causes systemic toxicity, very effective for small lesions, as well as large and extensive lesions. Side effects include pain and burning for 5 to 10 minutes after application, erosion and hyperpigmentation. Excessive use of TCAs can cause scarring which can be minimised with petroleum jelly to protect normal skin around the lesion and washing with sodium bicarbonate or liquid soap immediately after excessive application.[6,9] After 80% TCA therapy, an improvement was seen in the form of lesions that were destroyed in only one treatment. The crushed lesions leave scars which then become hyperpigmented. After application, the patient complains of a burning sensation but still tolerable.

Patient also got 5% imiquimod cream every two days on facial lesions. Imiquimod, is a synthetic compound of the

imidazoquinoline group. It has strong antiviral and antiproliferative properties that can induce the production of various proinflammatory and antiviral cytokines such as interferon-α, IL-12, TNF-α and interferon-γ, followed by activation of innate and acquired immunity.[10] There will be Langerhans cell activation with increased antigen presentation and increased migration to lymph nodes. In addition, imiquimod directly induces a death receptor-independent apoptosis by the mitochondrial route. These observations underlie the use of imiquimod in viral infections. Its strong effectiveness has been demonstrated in various trials in condyloma acuminata (HPV). However, in several double-blind, or controlled trials[11] comparing the use of imiquimod with other topical treatments in molluscum contagiosum, imiquimod has shown good results. Imiquimod has also shown good results in immunocompromised patients, although it is primarily used as monotherapy. Compared with other destructive agents, imiquimod has been shown to be non-traumatising and has no side effects of scarring.[6,10] Based on a Cochrane systematic review, it was found that in a 2015 study by Chatra,[11] the use of imiquimod 5% cream daily gave a better clearance rate than KOH 20% which was also applied daily for 12 weeks. The use of 80% TCA and 5% imiquimod in several studies gave similar results and the majority of studies were carried out in combination. The difference in side effects that are less favourable is the use of 80% TCA.[4] In this case, facial lesions with imiquimod 5% found gradual changes in the form of thinning of the lesion. After application, the patient complained of minimal itching which was tolerable.

CONCLUSION

After four weeks of therapy, there was an improvement in the lesion in the form of a reduction in the size of the lesion and the destruction that is more visible on trichloroacetic acid (TCA) 80% application. It was suspected that the progression interferes by several comorbidities, such as human immunodeficiency virus (HIV) infection, (immune reconstitution inflammatory syndrome (IRIS) condition. Increase of CD4 count was found in patient which contribute as a good prognostic factor. To evaluate the skin improvement, a longer observation is needed until the IRIS phase completed.

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CONFLICT OF INTEREST

None to declare.

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