Dysplastic changes secondary to cytomegalovirus-induced Lipschutz ulcer: Unraveling complexity

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Abstract

Lipschutz ulcer is a rare nonvenereal condition affecting predominantly young females who are not sexually exposed and can be triggered by various infectious agents, trauma, and drugs. It presents with single or multiple painful ulcers over labia minora, labia majora, vestibule, and lower part of the vagina and may be preceded by prodromal symptoms akin to influenza or mononucleosis. Diagnosis is based on specific criteria, which include age, ulcer characteristics, and absence of immunodeficiency. Management involves reassurance, supportive measures, and in severe cases, corticosteroids. This case highlights the importance of considering cytomegalovirus as a potential causative agent in Lipschutz ulcer and a cause for dysplasia.

Key words: Cytomegalovirus, dysplasia, genital ulcer

Introduction

Lipschutz vulvar ulceration, also known as ulcus vulvae acutum (virginis) or ulcus pseudo venereum, is a nonsexually transmissible condition characterized by the sudden onset of single or multiple painful genital ulcers.[1] The development of Lipschutz ulcer is associated with infectious and other immunological causes, with an exacerbated immune response to Epstein-Barr virus (EBV), cytomegalovirus (CMV), influenza, paratyphoid fever, toxoplasmosis, *Mycoplasma pneumoniae*, and mumps.[2,3]

In this report, we present a case of Lipschutz ulcer triggered by CMV and accompanied by dysplasia. To the best of our knowledge, this association has not been documented in the existing literature to date.

Case Report

A 19-year-old female presented at our outpatient department, complaining of discomfort due to a painful lesion in her genital area that had persisted for the past 3 days. She experienced flu-like symptoms, 3 days before the onset of the ulcer. The patient had no other skin lesions, oral ulcers, joint pain, history of irritant application, medication use, or physical trauma before the lesions appeared. She had no history of sexual contact or immunodeficiency.

On examination, we observed a single 3 cm × 1 cm ulcer with an erythematous base on the left lip of labia majora [Figure 1a]. The lesion was tender, nonindurated, discharged serous fluid, and did not bleed on touch. Inguinal lymph nodes were not palpable. Tczank smear revealed no multinucleated giant cells and gram staining did not show microorganisms. Routine blood tests yielded normal results. Serological tests for venereal disease research laboratory, HIV 1 and 2, hepatitis C virus, and Hepatitis B surface antigen were negative, while CMV serological testing was positive (immunoglobulin M [IgM]- 186 AU/mL, IgG- 23 AU/mL). IgM and IgG testing for rubella, toxoplasmosis, and herpes virus were negative. Deoxyribonucleic acid polymerase chain reaction (DNAPCR) was positive for CMV. The Mantoux test and the pathergy test were both negative.

Histopathological examination showed irregular acanthosis, neutrophil exocytosis, and focal moderate dysplasia with a high nucleo–cytoplasmic ratio, nuclear pleomorphism, vesicular nuclei, prominent nucleoli, and occasional mitotic figures in the epidermis. The dermis displayed a dense, patchy inflammatory infiltrate consisting of lymphocytes, plasma cells, and a few polymorphs [Figure 2a and b].

Initially, the patient received oral antivirals (Tab Acyclovir 400 mg three times a day for 7 days) during her first visit, resulting in partial improvement. At her second visit, 7 days later, a short course of oral corticosteroids (Tab prednisolone 40 mg for 3 days) and additional anti-inflammatory medication (Tab paracetamol 650 mg to be taken as required) were initiated. By her third follow-up visit, 7 days after the second visit, the patient showed significant symptomatic improvement [Figure 1b]. She was followed up for 3 months' posttreatment with no recurrence.

Discussion

Lipschutz ulcer, first documented in 1913 by Benjamin Lipschutz, an Austrian dermatologist and microbiologist, is an uncommon cause of nonvenereal vulvar ulcers. Typically affecting young females, this condition manifests as a painful acute vulvar ulcer often accompanied by symptoms such as fever, malaise, asthenia, myalgia, pharyngotonsillitis, adenopathy, and headache. EBV is frequently associated with genital lesions.[4] The self-resolution of Lipschutz acute vulvar ulceration without scarring or recurrence is the typical outcome. Triggers can include EBV, CMV, *Mycoplasma* species, and *Toxoplasma gondii*.[5]

The diagnostic criteria are outlined in Table 1, with a definitive diagnosis confirmed when both major criteria and at least two minor criteria are met.[6] Our case satisfies all major, and four minor criteria. Management relies on reassurance, local hygiene, wound care, and pain management.[7] The treatment involves supportive measures, including pain relief using topical anesthetics or oral analgesics. In cases with multiple, large, or deep necrotic ulcers, topical or a short course of systemic corticosteroids may be considered.[8]

A literature review-based study by Govindan reported only four cases of Lipschutz ulcer secondary to CMV.[9] Upon reviewing the literature, a correlation has been identified between CMV and dysplastic changes in the bronchopulmonary, renal, and bone marrow systems.[10-12]

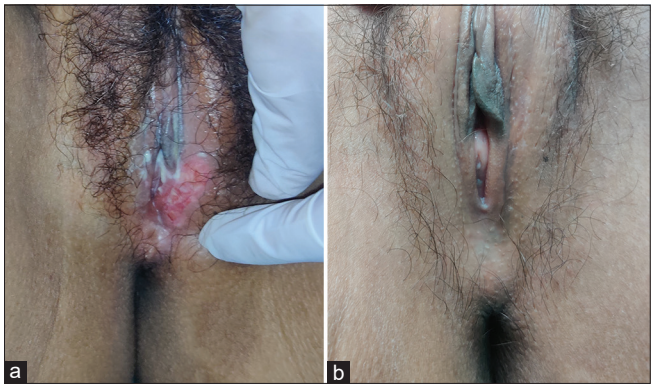

Figure 1: (a) Single ulcer measuring 3 cm × 1 cm with erythematous base over left labia majora. (b) Healed ulcer, 14 days post procedure

Table 1: Diagnostic criteria of Lipschutz ulcer[6]

Major criteria	Minor criteria
Acute onset of one or more painful ulcerous lesions in the vulvar region	Localization of ulcer at vestibule or labia minora
Exclusion of infectious (sexually transmitted infections, fungi, bacteria) and other noninfectious causes for the ulcer	No sexual intercourse ever or within the last 3 months
	Flu like symptoms
	Systemic infections within 2-4 weeks prior to onset of vulvar ulcer

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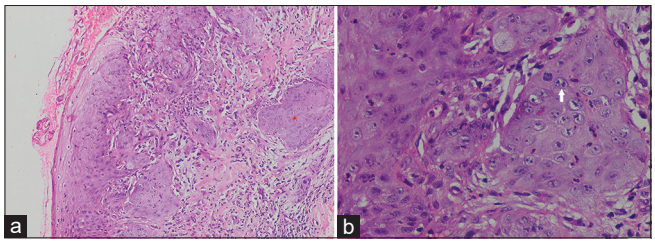

Figure 2: (a) Histopathology image in ×10, showing dysplastic cell nest with vesicular nuclei (red mark). (b) Histopathology image in ×40, showing dysplastic cell nest with mitotic figures (white arrow)

In our case study, we present a case report of Lipschutz ulcer induced by CMV, accompanied by dysplasia observed during histopathological analysis. The increase in IgG levels and decrease in IgM titers can be explained by a possible systemic infection by CMV, 2–4 weeks before appearance of the ulcer, satisfying the fourth minor criteria of Lipschutz ulcer. Our investigation into the existing literature revealed a scarcity of case reports related to CMV-induced Lipschutz ulcer. Our report is the first documentation of CMV-induced Lipschutz ulcer with associated dysplastic changes.

Conclusion

Identifying the cause of genital ulcer is very crucial, as not all genital ulcers are sexually acquired. Any misdiagnosis could lead to unnecessary medical interventions, even more significantly, unnecessary anxiety and mental agony. It is essential to consider CMV as a potential source of nonvenereal genital ulcers, especially when linked with dysplasia (an aspect that has been relatively unexplored in the current literature).

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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