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REPORTE DE CASO

Infectious mononucleosis, beyond what is seen

Mononucleosis infecciosa, más allá de lo que se ve

Danilo Mesa Rincón[1], Silvia Natalia Suárez Mantilla[2] & Claudia Lucía Durán Chacón[2]

[1] Pregrado, Programa de Medicina, Universidad Industrial de Santander, Bucaramanga, Colombia.
[2] Especialización en Pediatría, Programa de Medicina, Universidad Industrial de Santander, Bucaramanga, Colombia.

ABSTRACT

Introduction: infectious mononucleosis is an infection caused by various viruses, the most common being the Epstein-Barr Virus, which affects adolescents and young adults. Only 10% of pediatric patients are symptomatic and not all present the typical triad of the disease.

Clinic case: this report presents a case of infectious mononucleosis due to Epstein-Barr Virus, which highlights a course of disease in an unusual age group, with compromised liver function that resolves with symptomatic treatment.

Conclusions: patients with infectious mononucleosis due to Epstein-Barr Virus should undergo long-term follow-up to identify complications early.

Keywords: Infectious Mononucleosis; Pediatrics; Herpesvirus 4 Human; Neoplasms.

RESUMEN

Introducción: la mononucleosis infecciosa es una infección causada por diversos virus, siendo el más frecuente el Virus de Epstein-Barr, que afecta a adolescentes y adultos jóvenes, sólo el 10% de los pacientes pediátricos son sintomáticos y no todos presentan la tríada típica de la enfermedad.

Caso clínico: en este reporte se presenta un caso de mononucleosis infecciosa por Virus de Epstein-Barr, en el que se destaca un curso de enfermedad en un grupo etario poco común, con compromiso de función hepática que resuelve con tratamiento sintomático.

Conclusión: a los pacientes con mononucleosis infecciosa por Virus de Epstein-Barr se les debe realizar seguimiento a largo plazo para identificar las complicaciones en forma temprana.

Palabras Clave: Mononucleosis Infecciosa; Pediatría; Herpesvirus Humano 4; Fiebre glandular; Neoplasias.

ACCESO ABIERTO

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Autor de correspondencia:
Danilo Mesa-Rincón
danilomesarincon@gmail.com

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INTRODUCTION

Infectious mononucleosis (IM) is a highly contagious viral infection primarily caused by the Epstein-Barr virus (EBV), a member of the herpesvirus family. It infects the epithelial cells of the oropharynx and salivary glands, as well as the B lymphocytes in the palatine tonsils when it spreads within the lymphoid system (1-3).

IM primarily affects teenagers and young adults, with its peak occurrence between the ages of 15 to 24. It has a seroprevalence rate of 90%, with only 10% of cases presenting symptoms in pediatric patients. The incubation period ranges from 21 to 50 days. Its classic triad of symptoms includes fever (28-95% of cases), pharyngitis (50-85%), and reactive cervical lymphadenopathy (72-100%). (3).

The EBV is transmitted through various means, including oral secretions, sexual transmission, breastfeeding, blood transfusion, or organ transplantation. Therefore, it is crucial to take appropriate precautions and maintain good hygiene to reduce the risk of infection (1,2).

A case of infectious mononucleosis in a school-aged patient is presented, emphasizing the clinical significance of diagnosis and long-term patient follow-up.

CLINICAL CASE

A 7-year-old male school-aged patient in good nutritional condition, with no significant medical history, presents with a two-week clinical picture of quantified fever, loss of appetite, weakness, fatigue, headache, and sore throat without a clear source of contagion. During the physical examination, positive findings in the patient include stable hemodynamics with jaundice, pharyngeal erythema, multiple cervical and inguinal lymph nodes ranging in size from 1x1.5x1 cm, which are mobile, painful, and non-rubbery, generalized myalgias, with no evidence of organomegaly. Therefore, infectious mononucleosis was suspected, with the etiology to be determined, and laboratory tests were performed, which report: complete blood count without leukocytosis but showed the presence of 15% vacuolated monocytes. Liver function tests indicated levels three times higher than the reference values, elevated alkaline phosphatase, and normal bilirubin levels. Epstein-Barr IgM testing returned as a positive result. A neck ultrasound demonstrated multiple lymph nodes with inflammatory characteristics, while an abdominal ultrasound ruled out organ enlargement. (Table 1). The diagnosis of infectious mononucleosis (IM) due to EBV was made, and symptomatic treatment was prescribed, including hydration and antipyretics, along with rest and contact isolation. During follow-up, the patient showed clinical improvement and became asymptomatic. On physical examination, lymph nodes decreased in size, were non-painful, and mobile. Laboratory tests showed a return to normal values for liver function. The patient continues to be monitored clinically.

DISCUSSION

Infectious mononucleosis is associated with EBV. Its incidence varies depending on socio-economic conditions, with antibodies against EBV found in 100% of patients by the age of 4 in developing countries and 25% in high-income countries. However, it is a disease that often goes unnoticed because 90% of the patients who suffered from it are asymptomatic (1,4).

Its typical presentation is mononucleosis syndrome, which can be observed in our patient, particularly due to the presence of fever, fatigue, and lymphadenopathy in various lymph node chains. It is noteworthy that the patient's age at presentation was below the average age of onset reported in developed countries, where the infection typically occurs during adolescence.

Table 1. Initial and follow-up laboratory tests

	16/08/23	17/08/23	31/08/23
Complete blood count	Red Blood Cells 4.61 mm3 Hemoglobin 12.3 g/dl, Hematocrit 35.4% White Blood Cells 9,890 mm3 Neutrophils 2,910 ul Lymphocytes 6,550 ul Monocytes 0.31 ul Platelets 293,000	-	Red Blood Cells 4.47 mm3 Hemoglobin 12.1 g/dl Hematocrit 36.2% White Blood Cells 8.60 mm3 Neutrophils 1,820 ul, Lymphocytes 3,810 ul Monocytes 530 ul Platelets 482,000
Peripheral blood smear.	Segmented 20%, Lymphocytes 65%, Monocytes 15%, Vacuolated monocytes, Normal red blood cells, Normal platelets		
Liver function	AST: 220 UI/L ALT: 640 UI/L	AST: 507 UI/L ALT: 208.3 UI/L ALP: 745 UI/L TB: 0.42 mg/dl DB: 0.24 mg/dl IB: 0.18 mg/dl	AST: 38.5 UI/L ALT: 43.7 UI/L ALP: 248 UI/L
17/08/ 2023: Epstein Barr virus antibodies IgM 12.08 (positive >1).			
Abdominal ultrasound: Normal. **Neck ultrasound:** Enlarged lymph node chains with preserved cortical thickness on the right side at level IIA, with the largest node measuring 29x2mm, and at level III, a node measuring 14x5mm. On the left side, the largest IIA node measures 23x7mm, showing images of reactive inflammatory lymph nodes			

* AST: aspartate aminotransferase, ALT; alanine aminotransferase, ALP: alkaline phosphatase, TB: total bilirubin, DB: Direct bilirrubin, IB: Indirect bilirubin.

Additionally, on laboratory analysis, a monocyte count greater than 15% with atypical lymphocytes is noted, which enhances diagnostic sensitivity (LR 11.4, 95% CI); however, this is relatively less known in clinical practice. (5). Similarly, although the patient had a positive Epstein-Barr IgM, it doesn't always manifest this way, as during the early stages of the disease, there is a high rate of false negative results (5). Another significant finding is the abnormal liver function tests; it is common to encounter some patients with hepatitis, as seen in this case. Nevertheless, despite being a clinical condition that responds well to symptomatic management, this disease requires close post-diagnosis monitoring, primarily due to the significant number of complications associated with the infection, such as the risk of hepatitis, splenic rupture, and respiratory obstruction. Regarding treatment, the use of antivirals has been studied, and it has been found that acyclovir reduces the presence of the virus in the oropharynx. Still, it has not been found to alter the course of the disease (4), and there are currently no new proposals under investigation (5,6).

EBV induces memory B cells and can evade both innate and adaptive immune responses, establishing a latent infection. As a result, these patients may experience reactivations at later stages of life. It was the first human virus associated with malignancy, owing to EBV's ability to transform infected B cells into lymphoblastoid cell lines and other mechanisms that continue to be studied (3). This transformation is facilitated by a complex interplay of environmental and genetic factors that predispose to unregulated cell proliferation. EBV infection has been linked to certain neoplasms and neurodegenerative diseases as mentioned in Figure 2 (4). Additional studies are needed to identify characteristics within our population that serve as risk factors promoting its development. Based on these findings, clinical and therapeutic predictive models can be designed.

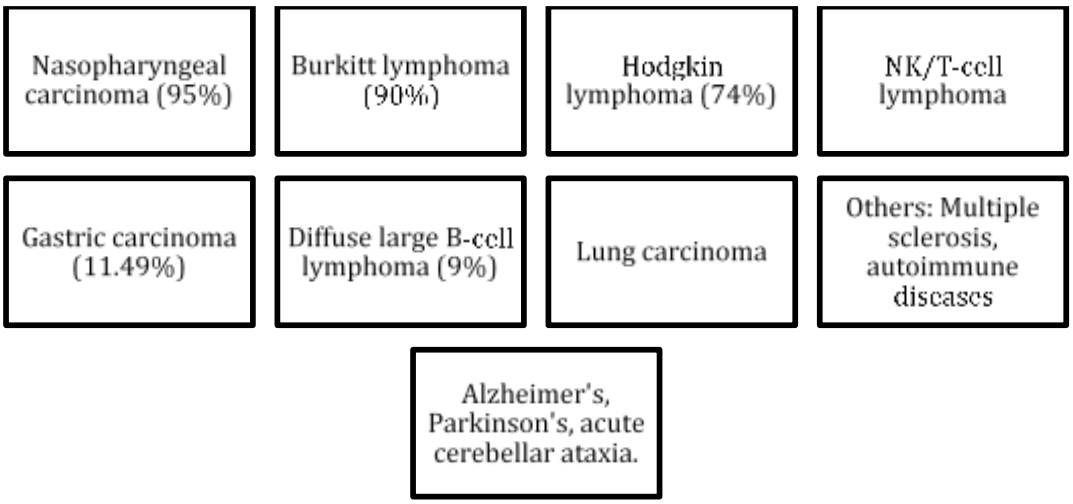

Figure 2. Neoplasms, other conditions, and associations with EBV (seroprevalence)

In a study conducted in Colombia among pediatric patients with EBV infection, 91 patients were evaluated, and 17.5% were suspected of having lymphoproliferative syndrome, with 8.8% undergoing bone marrow aspiration with normal results (2). There were no similar data or comparisons found in the literature; however, this suggests that a percentage of EBV-infected patients may have a suspicion of cancer. Based on the above, it can be concluded that efficient tests for early detection of lymphoproliferative syndromes in patients are lacking, and the utility of invasive procedures such as bone marrow aspiration for monitoring is not clear. Therefore, a proper correlation between clinical and laboratory findings remains the cornerstone for diagnosing acute EBV infection and each of its complications (2).

Currently, there are no studies demonstrating a favorable therapeutic response to pharmacological management with antivirals or the use of immunoglobulins to prevent the development of late complications such as neoplasms. However, in August of this year, a vaccine against EBV was published, which acts on humoral immunity and showed positive results in phase I studies. Therefore, promising results can be expected in the future (4,7).

CONCLUSIONS

Under best clinical practices, medical history is a fundamental cornerstone for diagnosing common childhood pathologies. Infectious mononucleosis caused by EBV typically manifests with fever, generalized lymphadenopathy, pharyngitis, and hepatitis, as described in this case. Despite its self-limiting presentation, which is relatively rare in this age group, it should not be underestimated due to its strong association with the long-term development of malignancies. Therefore, we anticipate the development of a vaccine in the future, along with the proposal of efficient early detection and therapeutic tools to timely prevent higher-risk outcomes.

CONFLICT OF INTEREST: no conflicts of interest were declared among the authors.

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CONTRIBUTIONS OF THE AUTHORS: **DMR:** Drafting of the article, revision and correction of the written document, responsible for the accuracy and integrity of the article, article citations. **SNSM:** Conception and study design, critical review of the article draft, data collection from the medical record, and reporting of laboratory results. **CLDC:** Drafting of the article, correction of the written document, critical review, responsibility for the

accuracy and integrity of the article, and approval of the final version of the article.

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