

## Cytomegalovirus (CMV) Colitis in an Immunocompetent Patient: A Case Report

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### **Abstract**

Cytomegalovirus (CMV) is a virus that can be considered as an invasive infection after transplantation or chemotherapy, long-term corticosteroid users or in immunodeficient patients such as Human Immunodeficiency Virus (HIV). Different complications were seen in immunocompetent patients but colitis rarely occurs. The diagnosis of CMV was based on pathology by colonoscopy, positive CMV antigen and high Cytomegalovirus Immunoglobulin M (CMV-IgM) titer serum samples and a good response to systemic gancyclovir treatment. We reported a 20-month-old girl with bloody diarrhea that her colonoscopy showed CMV ulceration.

**Key Words:** CMV, Cytomegalovirus, Immunocompetent.

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## Introduction

Cytomegalovirus (CMV) is a common virus, especially in developing countries (1). CMV usually affects patients with chronic immunosuppressive diseases (HIV, leukemia) or immunosuppressive drugs for the treatment of autoimmune diseases or cancers. CMV infection may also affect immunocompetent patients with no history of chronic disease (2). CMV infection in immunocompetent hosts range from asymptomatic to CMV-induced mononucleosis, pneumonitis, hepatitis, fever, tiredness, sore throat, vomiting, muscle and joint pain, loss of appetite, esophagitis and colitis. In congenital infection the symptoms include, jaundice, pneumonia, rash consisting of small, purplish spots, enlarged liver and spleen, low birth weight, seizures and small head. CMV infection is due to hearing loss during childhood. The treatment of CMV infections is depends on the type and severity of symptoms and immunity of patient and anti-viral drugs such as ganciclovir should be prescribed (2-3). Our patient was a 20 months girl with bloody diarrhea so that her colonoscopy showed CMV infection then treated well with ganciclovir without any complication.

## Case Report

A 20- month- old girl with chronic bloody diarrhea admitted 4 months ago to Gastrointestinal (GI) Unit. She was the first child of family with birth weight 3kg and height 55cm. She has admitted to the hospital several times for diarrhea and poor weight gain during last 4 months. In the admission, her weight and height was below the 5th percentile for her age. She had 10-12 times bloody diarrhea per day that her mother was so irritable. The patient was so ill and dehydrated. In the physical

examination we did not find any significant clue such as fever, organomegaly, skin rash, trush and the anus was normal with no fissure or ulcer. The Laboratory investigations showed a leukocytosis (Table.1).

Many White Blood Cells (WBCs) and Red Blood Cells (RBCs) were detected in Stool Exam (SE). Scrotal Circumference (SC) was normal with no organism. Abdominal sonography, chest x-ray and Purified Protein Derivative (PPD) test were normal. After hydration therapy with normal saline for infant and stabilization, colonoscopy was done. Colonoscopy was performed up to Ileum. The anus up to ascending colon just have mild Nodular Lymphoid Hyperplasia (NLH) but the cecum has a deep large ulcer with irregular margin with debris and erythema, multiple biopsies were taken from ulcer and cecum and sent to the laboratory for investigate the Tuberculosis (TB), CMV, Toxoplasma (TOXO), Epstein-Barr Virus (EBV) by Polymerase Chain Reaction (PCR). After colonoscopy, the serum HIV, CMV, EBV was checked. HIV, TOXO, TB, EBV tests and Immunoglobulin G (IgG) electrophoresis were normal, Nitroblue-tetrazolium test (NBT) was 100% and fungal infection was role out but PCR CMV in tissue and serum were positive and confirmed CMV infection in infant. Histopathology examination revealed severe active colitis, with multiple deep ulcers and focal subserosa fibrosis.

The surrounding mucosa demonstrated regenerative change. The patient was treated with intravenous ganciclovir for two weeks and then with oral valganciclovir for additional four weeks. Her diarrhea settled within a few days of initial treatment. Her blood studies normalized. The patient remained asymptomatic during 2 months of follow-up with weight gain.

**Table 1:** Evaluation of patient tests

Abbreviations	Clinical results in patient
WBC= White blood cells.	20,000
PMN= polymorphonuclear neutrophils.	40%
Hb= Hemoglobin.	7.5
PLT= Patient Location Tracking.	g/dl
Na= Sodium.	16500
K=Potassium.	0
Mg= Manganese.	130
Ca= calcium.	3.4
P= phosphorus.	2
BUN= Blood urea nitrogen.	8
Cr= Creatinine.	3.8
AST= aspartate aminotransferase.	29
ALT= Alanine transaminase.	1
ALP= Alkaline phosphatase.	23
ALB=Albumine.	34
PT= prothrombin time.	890
INR= international normalized ratio.	3
PTT= Partial thromboplastin time.	12
U/A ,U/C= urine Analysis , urine culture	1
	32
	normal

**Discussion**

Human cytomegalovirus (CMV) is a member of herpes virus subfamily, which also includes the Human Herpes Virus 6 (HHV6). Infection with CMV is generally asymptomatic in healthy children and adults. The risk factors for CMV infection are organ transplantation, bone marrow transplantation, HIV, chemotherapy, radiation and use of immunosuppressive drugs such as corticosteroid (4-5). CMV is also a major cause of morbidity and occasional mortality in newborn infants. The risk of congenital cytomegalovirus (CMV) infection is not well defined in the developing world. Both sexes are equally susceptible to infection and morbidity from cytomegalovirus (CMV) (5). The colon is the most commonly affected region of GI tract, but we can see CMV in esophagus or

stomach. The most commonly colonoscopy features of CMV colitis are multiple ulcers with persistent inflammation and fibrotic changes followed by large and deep ulcers in the colon resulting in lumen stricture (6-7). CMV organism may be detected with Hematoxylin-Eosin (H&E) stain. Direct specific immunofluorescent antibody detects viral antigens or viral DNA can show the infection (7-8). Patients who are not immunosuppressed should be treated with antiviral agents such as Ganciclovir (Cytovene) and Foscarnet (Foscavir) (9-12). CMV colitis, although rare in immunocompetent patients but it should be considered when the patients have severe diarrhea or bloody stool. Colonoscopy or endoscopy should be done with taken multiple biopsies for finding infection in tissue (10-14).

Our infant with chronic bloody diarrhea and Failure to Thrive (FTT) diagnosed as CMV colitis and treated with ganciclovir, so her symptom resolved without any complication and she has a weight gain after treated. We recommended that patients with chronic GI manifestation should be evaluated for CMV and other infection because these infections in immunocompetent patients cure without any complication.

**Conclusion**

We recommended that patients with chronic GI manifestation should be evaluated for CMV and other infection because these infections in immunocompetent patients cure without any complication.

**Conflict of interests:** None.

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