CONDITION

CMV - gastroenteritis/colitis

Learn how cytomegalovirus can inflame the stomach or colon, including symptoms, risk factors, diagnosis, treatment, complications, and follow-up.

WHAT IT IS
CMV inflammation of the stomach or intestines

BODY SYSTEM
Digestive

MAIN SYMPTOMS
Watery diarrhea, bloody stool, abdominal pain, fever

WHAT CAUSES IT
CMV infection, usually reactivation with weakened immunity

HOW IT IS DIAGNOSED
Endoscopic tissue biopsy with CMV immunohistochemistry

MAIN TREATMENT
Antiviral therapy

CAN IT BE CURED?
No, virus remains for life

IS IT AN EMERGENCY?
Sometimes, with heavy rectal bleeding

LONG-TERM OUTLOOK
Variable, with recurrence if immune suppression continues

Overview

Cytomegalovirus, or CMV, is a common virus in the herpesvirus family. After a person is infected, CMV remains inactive in the body for life. It may later become active again, especially if the immune system is weakened.

Most healthy people with CMV have no symptoms or only a mild illness. CMV gastroenteritis occurs when the virus causes inflammation in the stomach or intestines. CMV colitis specifically affects the colon, also called the large intestine. The virus can cause swelling, irritation, and open sores called ulcers in the digestive tract.

CMV found in blood or tissue does not always mean it is causing disease. Doctors distinguish between CMV infection, meaning the virus is present, and CMV disease, meaning it is damaging an organ and causing symptoms.

CMV gastroenteritis or colitis matters because its symptoms can resemble inflammatory bowel disease, medication side effects, or other intestinal infections. It can also occur at the same time as these problems. Diagnosis often requires a tissue sample from the affected area rather than a blood test alone.

Serious digestive disease is most likely in people with significant immune suppression, such as some transplant recipients or people with advanced HIV. It can also affect people receiving immune-suppressing treatment for inflammatory bowel disease. Rarely, severe CMV colitis occurs in people without a known immune-system condition.

Symptoms

Symptoms depend on which part of the digestive tract is affected and how severe the inflammation is.

CMV colitis may cause:

Inflammation of the stomach may cause upper abdominal pain, nausea, vomiting, poor appetite, or early fullness during meals. CMV can also affect the esophagus, the tube connecting the mouth and stomach. This may cause painful swallowing, difficulty swallowing, or pain behind the breastbone.

These symptoms are not specific to CMV. Other infections, inflammatory bowel disease, ulcers, and medication effects can cause similar problems. People with weakened immunity should contact their medical team promptly about new or persistent diarrhea, abdominal pain, vomiting, blood in the stool, or painful swallowing.

Seek urgent medical care for signs of significant dehydration, such as very little urine, severe dizziness, fainting, or an inability to keep fluids down. Heavy rectal bleeding, black or tar-like stool, severe or rapidly worsening abdominal pain, a swollen or rigid abdomen, confusion, or loss of consciousness requires emergency evaluation. These symptoms can indicate bleeding, a hole in the intestine, or another serious complication.

- Frequent or watery diarrhea
- Blood or mucus in the stool
- Abdominal pain or cramping
- An urgent need to have a bowel movement
- Fever
- Reduced appetite

- Unintended weight loss
- Tiredness or weakness

Causes and risk factors

CMV spreads through body fluids, including saliva, urine, blood, semen, vaginal fluids, and breast milk. It can also be transmitted through a transplanted organ or blood products. Many people acquire CMV during childhood or early adulthood without realizing it.

Digestive disease can develop during a first CMV infection, but it more often results from reactivation of virus already in the body. The immune system usually keeps inactive CMV under control. If immune defenses become weaker, the virus may multiply and injure tissue.

Risk is higher in people with:

Among transplant recipients, risk varies according to the type of transplant, the CMV status of the donor and recipient, preventive treatment, and the strength of immune suppression. In inflammatory bowel disease, CMV may become active in severely inflamed colon tissue. It can be difficult to determine whether CMV is driving the inflammation or is present because the tissue is already damaged.

A person can develop CMV digestive disease without a recognized risk factor, but this is uncommon. Older age and serious underlying illness may contribute in some people whose immune systems are not intentionally suppressed.

- A solid-organ or stem-cell transplant
- Advanced or untreated HIV, particularly with severe immune suppression
- Blood cancers or some other cancers
- Chemotherapy or medicines that suppress immune activity
- Severe inflammatory bowel disease, especially ulcerative colitis
- Treatment with corticosteroids or other immune-modifying medicines
- Critical illness, frailty, or multiple serious medical conditions

Diagnosis

Diagnosis begins with a review of symptoms, medical conditions, transplant history, HIV status, and current medicines. The clinician may check for abdominal tenderness, dehydration, weight loss, fever, and signs of bleeding.

Blood tests may be used to assess anemia, inflammation, kidney and liver function, and immune status. A CMV polymerase chain reaction, or PCR, test measures viral genetic material in the blood. A positive result supports active CMV infection, but it does not prove that CMV is causing intestinal symptoms. A negative blood PCR does not always rule out CMV limited to digestive tissue.

Stool testing is often needed to look for other causes of diarrhea, such as Clostridioides difficile and other bacterial, viral, or parasitic infections. More than one problem can be present at the same time.

Endoscopy is often central to diagnosis. During this procedure, a flexible camera is used to inspect the esophagus, stomach, small intestine, or colon. CMV may cause redness, fragile tissue, erosions, or ulcers, but appearance alone cannot confirm the cause.

Small tissue samples, called biopsies, are taken from inflamed or ulcerated areas. A pathologist examines them under a microscope. Special staining called immunohistochemistry can identify CMV proteins in infected cells. Tissue PCR may also detect CMV genetic material, although a highly sensitive result must be interpreted with the tissue findings and symptoms because low-level virus may not represent tissue-damaging disease.

In someone with inflammatory bowel disease, doctors must assess both CMV activity and the underlying bowel inflammation. In transplant recipients or people with HIV, they may also look for CMV in other organs, such as the eyes, lungs, liver, or nervous system, if symptoms suggest wider disease.

Treatment and management

Treatment depends on the severity and location of disease, the person's immune function, and whether other organs are involved. Care is often coordinated among gastroenterology and infectious disease specialists. A transplant, HIV, cancer, or inflammatory bowel disease team may also be involved.

The main antiviral medicines used for CMV disease are ganciclovir, which is commonly given into a vein, and valganciclovir, an oral medicine that the body converts to ganciclovir. Severe disease, an inability to absorb oral medicine, or unreliable oral intake may favor initial intravenous treatment. Some people may later change to an oral medicine after their condition improves. The treatment length is individualized according to clinical response, immune status, laboratory results, and the site of disease.

These antivirals like acyclovir or oseltamivir can lower white blood cells, red blood cells, and platelets. They can also affect kidney function, and their safe use may require treatment

adjustments based on kidney tests. Blood counts and kidney function are therefore monitored during therapy. Ganciclovir and valganciclovir may harm a developing fetus and may affect fertility, so patients should discuss pregnancy possibility, pregnancy planning, breastfeeding, and contraception with their medical team.

If CMV does not respond as expected, clinicians may check whether the medicine is being absorbed, whether the immune system remains profoundly suppressed, or whether the virus has developed antiviral resistance. Other medicines, such as foscarnet or cidofovir, may be considered in selected cases. They can cause serious toxicity, especially kidney injury, and require specialist supervision.

Supportive treatment may include fluids, correction of electrolyte problems, nausea control, pain management, and nutritional support. A blood transfusion may be needed for major bleeding or severe anemia.

When CMV occurs with inflammatory bowel disease, treatment decisions are complex. The medical team must balance antiviral therapy against the need to control bowel inflammation. Immune-suppressing medicines should not be stopped, reduced, or restarted without guidance because sudden changes can worsen the underlying disease or create other risks.

For people with HIV, starting or improving effective antiretroviral therapy helps rebuild immune function and lowers the chance of further CMV disease. Transplant teams may adjust immune suppression when it is safe to do so. These changes must be individualized to avoid organ rejection or worsening another condition.

Surgery is not routine treatment for CMV colitis. It may be necessary if there is uncontrolled bleeding, a perforation, severe enlargement of the colon, or tissue damage that does not respond to medical care.

Complications

Inflamed intestinal tissue may ulcerate and bleed. Ongoing diarrhea or vomiting can cause dehydration, abnormal levels of sodium or potassium, weight loss, and poor nutrition. Blood loss may lead to anemia.

Deep ulcers can rarely create a perforation, meaning a hole through the intestinal wall. This can allow intestinal contents to enter the abdomen and cause a serious infection. Severe colitis can also lead to dangerous widening of the colon, sometimes called toxic megacolon.

Some people develop narrowed areas of the digestive tract as tissue heals. CMV disease may also return if immune suppression continues or if treatment does not fully control the infection.

In people with major immune-system weakness, CMV may affect more than one organ.

Possible sites include the retina at the back of the eye, lungs, liver, brain, and nerves. New blurred vision, floating spots, blind areas, or loss of vision needs urgent assessment because CMV retinitis can threaten sight.

The outlook depends on the severity of intestinal injury, the underlying condition, and whether immune function can recover. Prompt recognition and coordinated treatment can reduce the chance of major complications.

Follow up

Follow-up usually includes a review of diarrhea, pain, bleeding, appetite, weight, and the ability to drink and take medicine. Blood counts and kidney function are monitored during antiviral treatment. Other tests may be needed according to the person's underlying condition.

Blood CMV PCR can help track response in some patients, especially transplant recipients, but it is not a complete measure of intestinal healing. Symptoms, examination findings, and laboratory trends must be considered together. Repeat endoscopy is not required for everyone. It may be considered if symptoms continue, return, or do not match the blood-test results.

Keep scheduled follow-up with the specialists managing immune suppression, HIV, transplantation, cancer, or inflammatory bowel disease. Do not stop antiviral or immune-modifying medicine without speaking with the prescribing team.

Contact the care team promptly if symptoms worsen during treatment, doses cannot be kept down, or side effects develop. Fever, mouth sores, unusual bruising, marked weakness, or signs of infection may be related to low blood-cell counts and should be reported. Emergency symptoms such as heavy bleeding, fainting, severe abdominal pain, a rigid or swollen abdomen, confusion, or inability to stay hydrated should not wait for a routine appointment.

Sources

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