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Case Report

Life-threatening rectal bleeding due to cytomegalovirus colitis in a haemodialysis patient

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Abstract

Cytomegalovirus (CMV) disease is a well-recognized complication in immunocompromised patients such as renal transplant recipients, occurring due to reactivation of latent infection or primary infection. It is, however, uncommon in immunocompetent patients. We report a haemodialysis patient who presented with pyrexia and life-threatening rectal bleeding due to CMV colitis, who had none of the classical risk factors for CMV disease, although was at risk. We review the literature surrounding CMV colitis in immunocompetent patients. This case highlights the importance of considering unusual causes for the common presentation of rectal bleeding in vulnerable patient populations.

Keywords: cytomegalovirus; haemodialysis; immunocompetent; rectal bleed

Background

Infection with the herpes virus, cytomegalovirus (CMV), is common, with high seroprevalence rates worldwide. CMV disease is a well-recognised complication in immunocompromised patients including those with human immunodeficiency virus (HIV) infection, following organ transplantation, malignancy (especially haematological) and immunosuppressive therapy. It occurs due to reactivation of latent infection or from primary infection, with a number of organ systems at risk of disease including the lungs, gastrointestinal tract (GIT), liver and central nervous system. It is, however, rarely reported in immunocompetent patients, with the GIT being the most frequent site affected in these patients [1]. Here we present a case of CMV colitis in an apparently immunocompetent patient, with risk factors for CMV disease.

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Case report

A 72-year-old Caucasian male was admitted to hospital with symptoms of breathlessness and wheeze, consistent with chronic obstructive airways disease (COPD). He was commenced on salbutamol and ipratropium nebulizers, intravenous antibiotics, controlled oxygen therapy and a 5-day course of 30 mg prednisolone. His past history included stage 5 chronic kidney disease (with absent right kidney and cystic left kidney) requiring haemodialysis three times weekly, type 2 diabetes mellitus, COPD and cardiovascular disease; 1 month previously he had been an inpatient with diarrhoea secondary to norovirus infection. He was an ex-smoker.

A few days after commencing treatment he developed rectal bleeding mixed with dark stool, associated with a pyrexia of 37.7°C. He was cardiovascularly stable; abdominal examination was unremarkable except for fresh red blood per rectum. Haemoglobin was 9.5 g/dl, white cell count 20.2 $\times$ 10^9/L (neutrophils 17.2/L, lymphocytes 2.2/L), platelets 323 $\times$ 10^9/L, CRP 42 mg/L, liver function tests normal. An upper gastrointestinal endoscopy and flexible sigmoidoscopy did not identify the site of blood loss. The rectal bleeding was severe, and a seven-unit blood transfusion was needed to maintain a haemoglobin level of 8 g/dl. A computed tomography (CT) angiogram failed to locate the site of bleeding, although thickening of the caecum and ascending colon with associated stranding of adjacent mesentery was noted, consistent with infection, inflammation or malignancy. Colonoscopy was abandoned due to copious melaena. The bleeding settled over several days and a further colonoscopy revealed mucosal inflammation of the right colon with exudates and pseudopolyps, suggestive of colitis (Figure 1). Histological examination of biopsies taken at the time of colonoscopy showed CMV inclusion bodies (Figure 2) and a diagnosis of CMV

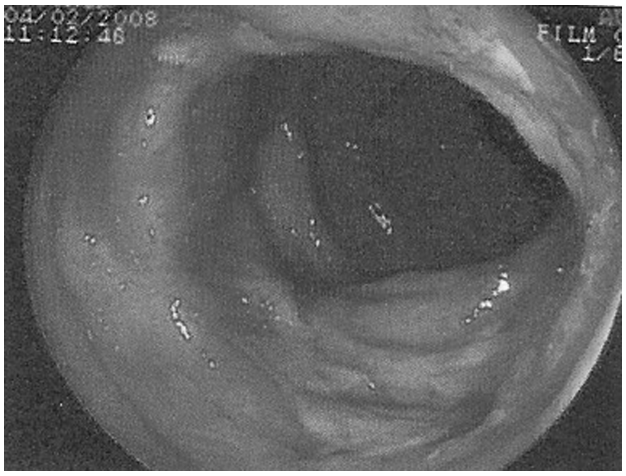

Fig. 1. Colonoscopic examination revealed mucosal inflammation of the right colon with exudates and pseudopolyps, suggestive of colitis.

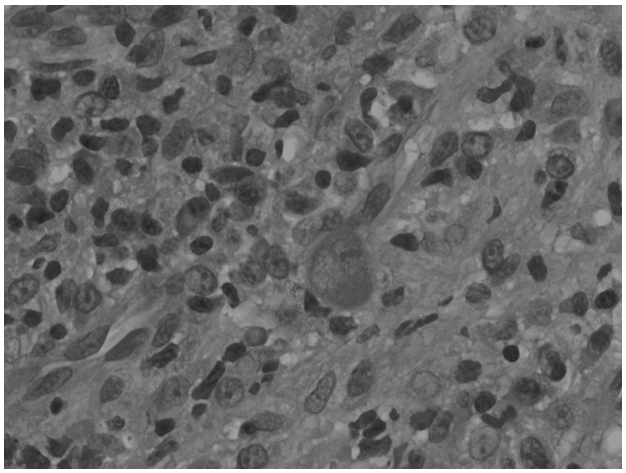

Fig. 2. Histopathological examination of colonic tissue revealed CMV inclusion bodies (haematoxylin and Eosin stain).

colitis was confirmed with immunohistochemistry. Further tests revealed a CMV viral load of 30 238 copies/ml whole blood; HIV, hepatitis B and C serological tests were negative. He had not received any blood products before this presentation.

A blood sample prior to the patient's illness showed that he was CMV IgG antibody positive, supporting a diagnosis of CMV reactivation. Intravenous ganciclovir was commenced at a dose of 1.25 mg/kg (adjusted for renal function). CMV viral load was undetectable by Day 9 of treatment, and oral valganciclovir was continued to complete a 3-week course. His CMV viral load remained undetectable 6 months after initial diagnosis.

Discussion

CMV disease in immunocompetent patients is rare with one review identifying only 290 patients over a 50-year period with severe CMV infection [1].

Risk factors for CMV disease in immunocompetent patients include increasing age [2] that is accompanied by a decline in cellular and humoral immunity, and the presence of co-morbidities including diabetes mellitus and renal failure [2] that predispose to impaired cell-mediated immunity. Interestingly given the preceding norovirus infection in our patient, an association exists between CMV colitis and other gastrointestinal infections [3] with the associated inflammation potentially triggering reactivation of latent infection [4].

The colon is the most common site for CMV disease in the immunocompetent [1], the most common symptoms being diarrhoea and rectal bleeding, with or without a fever [5–7]. Neither radiological investigations such as CT scanning, which may demonstrate bowel wall thickening with inflammatory infiltrates [7], nor colonoscopy, which may reveal ulceration [6] and inflammatory polyps [5–7], is diagnostic, and inflammatory masses visualized at the time of endoscopy can be mistaken for neoplasms, underlining the importance of obtaining a histological diagnosis [5]. Histology reveals CMV inclusion bodies [3] seen most commonly in endothelial cells, with ulcers seen in more than 50% [3]; immunohistochemistry improves the sensitivity of histopathological analysis [8]. Relevant serological investigations include serum IgM and IgG specific antibodies, avidity assays to distinguish primary disease from reactivation and CMV DNA levels [9].

Complications of CMV colitis may be severe. Patients may suffer diarrhoea, leading to a malnourished state and further risk of infection. Local complications include colonic strictures and fistula formation [6]. Venous thromboses and pulmonary embolism can occur [1], and prophylaxis against thromboembolism should be considered. Mortality rates in one meta-analysis were as high as 31.8% in those over 55 years, with the highest rates in those with an associated immune modulating condition [2].

Some patients with CMV disease may achieve spontaneous remission, and there is no clear consensus regarding which patients would benefit from the potentially toxic anti-viral therapy. However, elderly patients and those with an immune modulating condition would be less likely to recover without specific treatment and have a higher risk of death [2]—we would recommend initiating treatment in these individuals.

In conclusion, we present a case of CMV colitis in a patient with multiple risk factors for the disease including increasing age, renal failure, type 2 diabetes mellitus, previous steroid use and norovirus infection. He recovered with anti-viral therapy. The case highlights the importance of considering unusual causes of rectal bleeding in vulnerable patient populations.

Conflict of interest statement. None declared.

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