# Abdominal Pain in the Immunocompromised Patient—Human Immunodeficiency Virus, Transplant, Cancer

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**KEYWORDS**

• Immunocompromised • Immunosuppressed • Human immunodeficiency virus
• Cytomegalovirus • Necrotizing enterocolitis

**KEY POINTS**

- Immunocompromised patients include those with human immunodeficiency virus, malignancy, and organ transplant and present frequently to emergency departments with abdominal pain.
- Opportunistic infections are a common cause of abdominal pain in the immunocompromised patient and include cytomegaolovirus, mycobacterium avium complex, and abdominal tuberculosis.
- Abdominal pain can also be caused by complications from surgery in transplant patients such as nosocomial infections, including pneumonia or urinary tract infection.
- Maintaining a broad differential diagnosis is required in immunocompromised patient evaluation.
- Emergency department evaluation of immunocompromised patients includes assessment of electrolytes and cross-sectional abdominal imaging.
- Emergency department disposition is most often admission.

## INTRODUCTION

Immunocompromised patients include those with chronic illnesses being treated with immunomodulatory medications and those with the more severe form caused by impairment of a patient's own immune responses. **Box 1** lists examples of immunosuppressed states. In immunocompromised patients, abdominal pain is a nonspecific

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**Box 1**
**Classification of immunocompromised patients**

*Conditions*

Mild-to-moderate immunosuppression
- Elderly
- Diabetes
- Uremia
- SLE
- RA
- Sarcoidosis
- Inflammatory bowel disease
- HIV with CD4 count >200
- Malignancy
- Posttransplant on maintenance immunosuppressive therapy

Severe immunosuppression
- HIV/AIDS with CD4 <200
- Neutropenia
- Posttransplant <60 d

Medications
- Steroids
- Anti-TNF$\alpha$ medications
- Methotrexate
- Cyclosporin
- Tacrolimus

*Adapted from* Spencer SP, Power N. The acute abdomen in the immune compromised host. Cancer Imag 2008;8:93.

symptom arising from extra-abdominal or retroperitoneal pathologic conditions, including genitourinary or pulmonary etiologies. Diagnosis of peritonitis in immunosuppressed patients is delayed because of delayed presentation and lack of definitive physical examination findings.[1] This is all secondary to the inability to mount an immune response. It is important to maintain vigilance and a broad approach in these patients.

## HUMAN IMMUNODEFICIENCY VIRUS/AIDS

Patients with chronic immunosuppression secondary to human immunodeficiency virus (HIV)/AIDS who have abdominal pain warrant significant consideration when being evaluated in the emergency department. Although the advent of highly active antiretroviral therapy (HAART) has greatly diminished the incidence of opportunistic infections in this population, the emergency provider must still have a high index of suspicion owing to potential poor adherence to medication regimens and unknown HIV/AIDS status. Furthermore, because HAART has resulted in increased survival in those with this disease, further diagnostic challenge is presented in an aging and elderly HIV population.

### *Diagnostic Considerations*

This article focuses on patients with known HIV as provided in the patient's history, but it is important to consider the possibility of an undiagnosed HIV infection with the appropriate clinical picture or historical risk factors. In the acute infectious setting, primary HIV may preferentially deplete CD4 cells in the gastrointestinal tract, with up to 60% of T lymphocytes being found in that distribution.[2,3] Abdominal pain,