

Herpes Simplex Virus Type 2 (HSV-2) Infection

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Abstract: More than 90% of people worldwide are seropositive for herpes simplex virus (HSV) by the fourth decade of their lives. HSV is usually asymptomatic or follows a mild, self-limited course in healthy individuals. In severely immunocompromised hosts or in patients with underlying inflammatory bowel disease (IBD) treated with immunomodulators, HSV can cause significant morbidity and mortality, including mucocutaneous ulcerations, esophagitis, hepatitis, and encephalitis. This is a rare case of HSV-2 causing necrotizing ischemic colitis, toxic megacolon, and necroinflammation of the liver in the absence of transaminitis in a patient who received steroids for drug rash with eosinophilia and systemic symptoms (DRESS) syndrome.

Keywords: Herpes Simplex Virus Type 2; Colitis

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Case Presentation

A seventy-year-old African American female with a past medical history of essential hypertension, type two diabetes mellitus, gout, and osteoarthritis presented to the hospital with complaints of pruritic skin rash around the eyes, diarrhea, and weakness. The patient was started on allopurinol a few weeks prior to presentation after an acute gout flare in the right foot. Patient had an oral temperature of 103 °F, a maculopapular rash of the face, eyelids, torso, and extremities, and diffuse tenderness with palpation of the abdomen.

Initial Blood Work and Diagnostic Workup

White Blood Cell Count	14.3 K/UL with 21% bands
Eosinophils	16%

Hemoglobin	6.8 g/dl
Blood Urea Nitrogen	38 mg/dl
Creatinine	2.0 mg/dl
Aspartate Aminotransferase	79 IU/L
Alanine Aminotransferase	44 IU/L
Alkaline Phosphatase	173 IU/L
Total Bilirubin	1.9 mg/dl
Lactate Dehydrogenase	505 IU/L
Haptoglobin	less than 15
Direct Coombs test	Positive
HIV Antigen and Antibodies	Negative

An esophagogastroduodenoscopy revealed reflux esophagitis and an erythematous duodenum (Figure 1). A colonoscopy showed congested mucosa in the ascending colon and diverticulosis in the sigmoid and descending colon (Figure 2). The histopathology of colon biopsies revealed extensive crypt dropout and crypt epithelial apoptosis, suggestive of a drug reaction. The viral immunostains were negative.

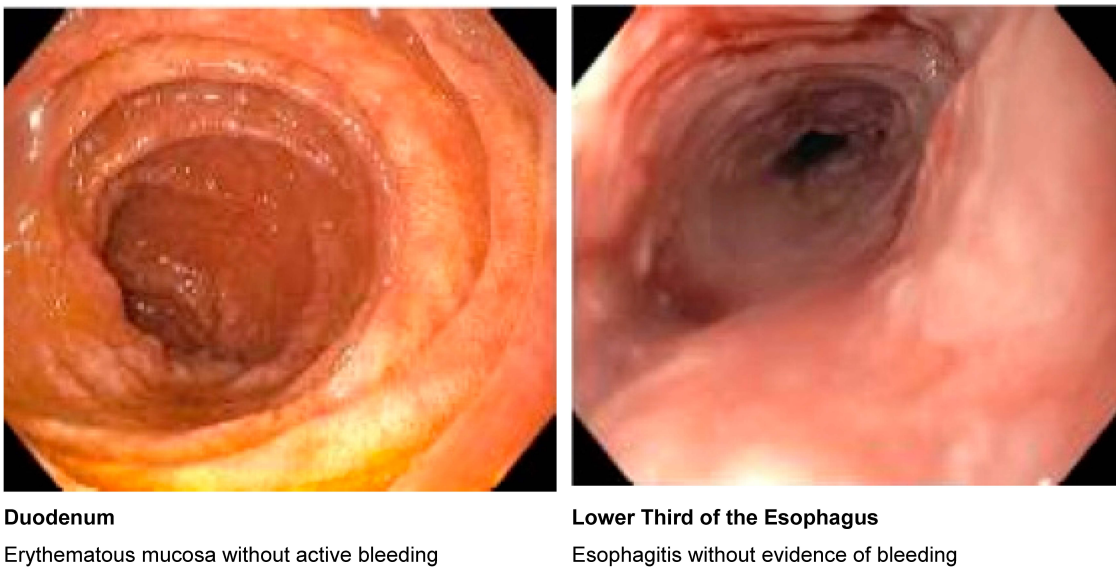


Figure 1: Initial Upper Endoscopy.

The patient was diagnosed with DRESS syndrome and autoimmune hemolytic anemia secondary to allopurinol. She was started on IV solumedrol and topical triamcinolone cream.

On day ten of admission, the patient became hypotensive with a blood pressure of 79/61 mmHg and was complaining of persistent diarrhea. A computed tomography (CT) scan of the abdomen and pelvis showed severe dilatation of the small bowel, suggestive of severe ileus, and free fluid surrounding the liver and spleen.

Day Ten Diagnostic Workup	
White Blood Cell Count	13.6 K/UL with 21% bands
Hemoglobin	7.8 g/dl
Eosinophils	1%
Blood Urea Nitrogen	102 mg/dl
Creatinine	1.7 mg/dl
Aspartate Aminotransferase	18 IU/L
Alanine Aminotransferase	44 IU/L



Ascending Colon

Congested mucosa without signs of ischemic colitis or ulcerated mucosa.



Descending Colon

Diverticulosis without evidence of ischemic colitis or ulcerated mucosa.



Sigmoid Colon

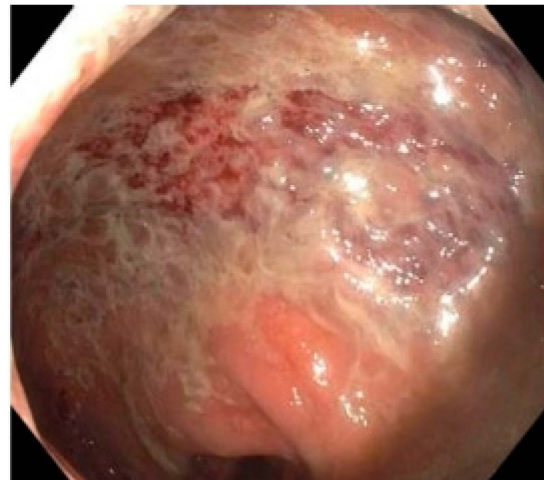
Diverticulosis without evidence of ischemic colitis or ulcerated mucosa.

Figure 2: Initial Lower Endoscopy.

A repeat colonoscopy reported evidence of segmental ischemic colitis in the descending and sigmoid colon as well as erythema and punctate hemorrhage in the rest of the colon, with suspicion of small bowel involvement (Figure 3).



Descending Colon



Sigmoid Colon

Figure 3: Segmental ischemic colitis in the descending and sigmoid colon.

The patient underwent an exploratory laparotomy, and a toxic megacolon and segmental ileal ischemia were found. A left hemicolectomy, a segmental ileal resection, an end colostomy, and a takedown of the splenic flexure were performed.

On day fourteen of admission, the patient was experiencing severe abdominal pain, and the ostomy site was noted to be dusky. A repeat colonoscopy revealed a continuous area of non-bleeding ulcerated mucosa in the descending colon and ulcerated ischemic changes in the colostomy and right colonic mucosa which were not present before surgery (Figure 4).

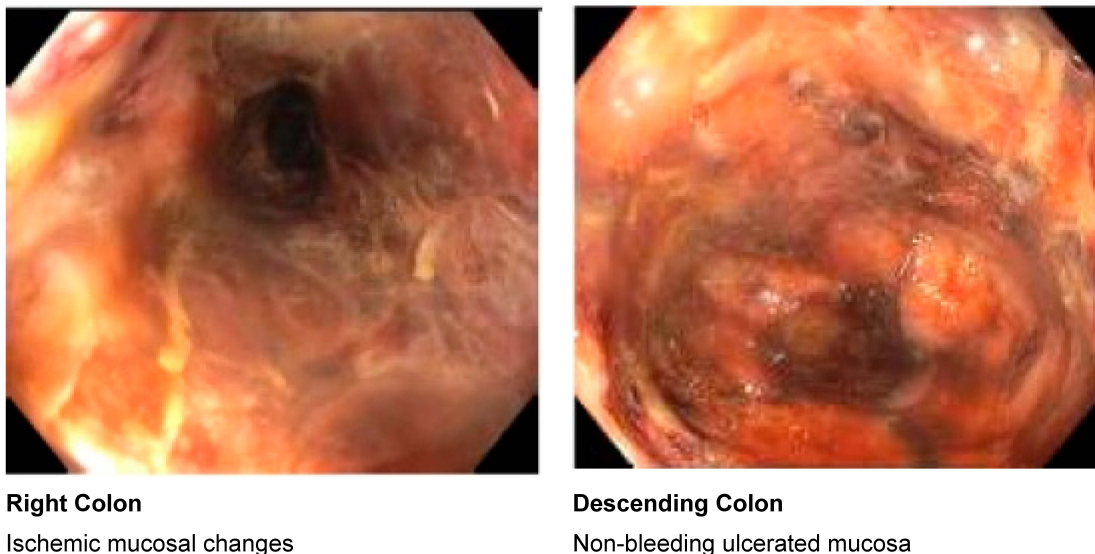


Figure 4: Ongoing Ischemic changes in Right Colon and Descending Colon.

The patient was taken back to the operating room. Nodular tissue in the liver and patchy, dusky areas in the right colon concerning for severe ischemic colitis were noted. A liver biopsy was performed, and she underwent a right hemicolectomy with resection of the distal ileum. The pathology from the colon and ileum biopsies showed submucosal necrosis, transmural inflammation, and multiple cells exhibiting an HSV viral cytopathic effect, which was confirmed via HSV immunostaining. A liver biopsy showed subcapsular necroinflammation and focal cells exhibiting an HSV viral cytopathic effect, which was confirmed via HSV immunostaining. A qualitative HSV PCR in the serum came back positive for HSV-2 and negative for HSV-1. The patient was started on intravenous acyclovir and significantly clinically improved.

Discussion

This is a case of a patient with HSV-2 infection presenting with toxic megacolon, ischemic colitis, and necroinflammation of the liver in the absence of transaminitis. Classically, HSV tends to infect squamous epithelial cells rather than columnar epithelial cells. In the literature review, disseminated gastrointestinal HSV infection can occur in immunocompromised hosts, particularly those on steroids or in IBD patients treated with immunomodulators [1–3]. Cytomegalovirus has been described to cause toxic megacolon and ischemic colitis in patients with underlying IBD [2,3]. HSV is known to cause mucocutaneous ulcerations and esophagitis when reactivated in immunocompromised hosts, but it does not typically cause ischemic colitis [4]. There are rare case reports of HSV causing ischemic colitis in patients with IBD on immunomodulators [2,3]. This patient was different than other prior case reports of HSV causing ischemic colitis because she was not on any immunomodulators. This is also the first known reported case of HSV causing toxic megacolon. In patients who present

with fulminant HSV hepatitis, one of the hallmark signs is markedly elevated transaminases. This patient was noted to have visible intraoperative nodular changes to her liver, and a liver biopsy showed necroinflammation secondary to HSV despite the normal aspartate aminotransferase and alanine transaminase at the time of her surgery. To our knowledge, this is the first case of a patient presenting with toxic megacolon, ischemic colitis, and hepatitis (in the absence of transaminitis) secondary to disseminated HSV-2 following steroid use

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Conflicts of Interest: The authors declare no conflict of interest.

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