



Influenza-Related Colitis: A Summary on a Sparsely Mentioned Colorectal Disorder

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Abstract

Background: Influenza is an important viral respiratory disease. The disease mainly affects the respiratory organ. In severe cases, patients may die from this condition. To date, influenza remains a problematic infectious disease. The atypical manifestations of influenza are observable in clinical practice. The colorectal presentations of influenza are highly interesting.

Methods and Evidence Acquisition: The authors searched and summarized clinical data from articles published in an international database regarding colitis in influenza.

Results: Influenza-related colitis is an important medical condition that includes various types. Hemorrhagic colitis is a rare but possible clinical complication of influenza. In a patient with influenza-related colitis, lower abdominal pain, bloody diarrhea and hematochezia may be present. Severe colonic bleeding might occur for which hemostatic therapy is required. On the other hand, antiviral therapy is itself a possible cause of colitis. In a patient with influenza receiving oseltamivir, a possible adverse effect of this antiviral drug is hemorrhagic colitis. The problem might be acute; the patient usually complains of abdominal pain, diarrhea, and hematochezia after the first administration of oseltamivir. In addition to hemorrhagic colitis, ischemic colitis due to influenza is also observable. The patient might require colectomy, and this condition might even lead to death. Another possible colonic complication of influenza is colonic apoptosis secondary to influenza-related fulminant hemophagocytic lymphohistiocytosis; the patient would have abdominal pain and skin rash.

Conclusion: There is the possibility that colonic complications occur in any patient with influenza. The practitioner should recognize the possibility that there might be a colorectal manifestation in any patient with influenza.

Keywords: Colitis; Influenza

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Context

Influenza is an important viral respiratory disease. The disease mainly affects the respiratory organ. In severe cases, patients may die due to this condition. Influenza is still an important and problematic infectious disease. The atypical manifestations of influenza are observable in clinical practice. The colorectal presentation of influenza is very interesting, but little is mentioned in the literature in this regard. Colitis is an important clinical condition that might be related to influenza. The review on this topic is interesting and useful for practitioners who manage colorectal diseases.

Evidence Acquisition

The authors searched and summarized clinical data from articles published in an international database, PubMed (www.pubmed.com), regarding colitis in influenza. The search keywords included “colitis” and “influenza”. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram for this work is presented below (Figure 1 and Table 1).

Results

Influenza is an important viral infection of the respiratory tract. The pathogen involved is the influenza virus. In general, influenza mainly affects the respiratory organs. The patient generally presented with an acute febrile illness and respiratory clinical symptoms. At present, influenza is still an important and problematic infectious disease. Prevention of influenza by influenza vaccination is recommended. In general, the disease starts with upper respiratory tract involvement and can further progress to involve the lower respiratory tract. In

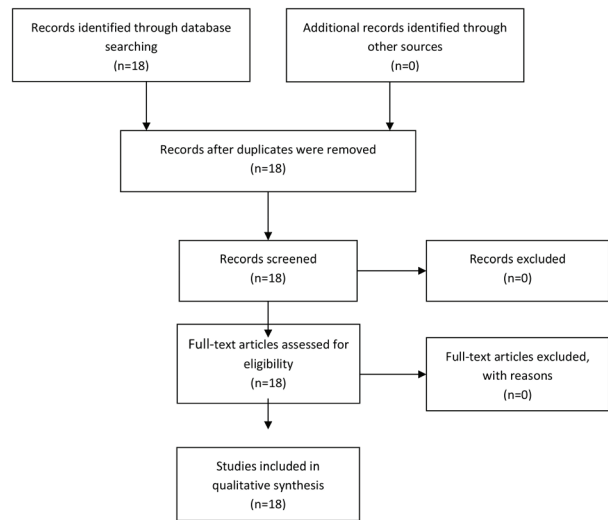


Figure 1: PRISMA 2009 Flow Diagram

the case of lower respiratory tract involvement, pneumonia might occur. In severe cases, patients might die.

The atypical manifestations of influenza are sometimes present. In clinical practice, an atypical presentation of influenza might be missed, with delayed diagnosis being common. The extra-respiratory tract involvement of influenza is considered atypical. The colorectal presentation of influenza is very interesting, though has barely been investigated. In this short review, the authors summarize and discuss the various types of influenza-related colitis.

Influenza-Related Colitis

A. Hemorrhagic Colitis

An important colorectal problem in influenza is influenza-related colitis. The influenza virus might cause pathology in the colon. Clinically,

Table 1: The PRISMA characteristics are presented

Reports	Intervention	Focused outcomes
[1]	Case report	Influenza related colitis
[2]	Case report	Influenza related colitis
[3]	Laboratory report	Influenza related colitis
[4]	Laboratory report	Influenza related colitis
[5]	Laboratory report	Influenza related colitis
[6]	Review report	Influenza related colitis
[7]	Case report	Influenza related colitis
[8]	Case report	Influenza related colitis
[9]	Case report	Anti-influenza drug and colitis
[10]	Case report	Anti-influenza drug and colitis
[11]	Case report	Anti-influenza drug and colitis
[12]	Case report	Anti-influenza drug and colitis
[13]	Case report	Anti-influenza drug and colitis
[14]	Case report	Anti-influenza drug and colitis
[15]	Case report	Anti-influenza drug and colitis
[16]	Case report	Influenza vaccination and colitis
[17]	Case report	Influenza vaccination and colitis
[18]	Metanalysis	Influenza vaccination and colitis

hemorrhagic colitis is a rare but possible clinical complication of influenza virus infection (1). In cases with influenza-related colitis, patients might have lower abdominal pain, bloody diarrhea, and hematochezia (1). Severe colonic bleeding might also occur, for which hemostatic therapy is required (2). Regarding the pathogenesis of colitis, it is believed that viral binding to sialoglycoconjugates at the colon tissues is the basic pathological process, further leading to colon pathology (3, 4). In the course of seasonal influenza infection, the viral RNA could be detected in the mucosa of the sigmoid colon and were shed into the feces for many weeks (5). In atypical influenza, bird flu, the colon is also involved and the diarrhea is an important clinical problem (6). Hirose et al. noted that the colon is an important target organ of the influenza virus (5).

B. Ischemic Colitis

In addition to hemorrhagic colitis, ischemic colitis due to influenza is also sometimes seen (6). The patient might require colectomy, and this condition might lead to death (6, 7). The problem is usually seen in obese patients (7). Ischemic colitis is accepted as an important deadly complication in pandemic swine flu (7).

C. Fulminant Hemophagocytic Lymphohistiocytosis

Another possible colonic complication due to influenza is colonic apoptosis due to influenza-related fulminant hemophagocytic lymphohistiocytosis (8). The patient would have abdominal pain and skin rash (8). Therefore, it is not impossible that the colonic complication occurs in any patient with influenza. The practitioner should recognize the possibility that there might be such a colorectal manifestation in any patient with influenza.

Anti-influenza Drugs And Colitis

Anti-influenza drugs comprise the standard medication for treatment of influenza, and are widely used for the management of influenza in the present day. The main anti-influenza drug is oseltamivir. Nevertheless, antiviral therapy is itself a possible cause of colitis.

In a patient with influenza receiving oseltamivir,

a possible adverse effect of the antiviral drug is hemorrhagic colitis (9-11). The problem might be acute (11, 12). The patient usually has abdominal pain, diarrhea, and hematochezia after the first administration of oseltamivir (11-14). A drug-induced lymphocyte stimulation test positivity for oseltamivir can help confirm the diagnosis (12). An area of hemorrhage and erosion in the colon is a common finding in the colonoscopic examination (12). The symptoms usually disappear after cessation of oral oseltamivir medication (12).

In addition to oseltamivir, baloxavir, a new anti-influenza drug, has also been reported for its adverse colonic effect. Baloxavir can result in acute ischemic colitis (15). Colonoscopy can result in colonic edema and inflammation. The patient might present with abdominal pain, diarrhea, nausea and hematochezia (15).

Influenza Vaccination and Colitis

In addition to influenza, the interrelationship between influenza vaccination and colitis should be mentioned. The influenza vaccine is considered safe. Adverse effects are usually mild and include fever and muscle pain. Regarding colitis, pancolitis is a possible rare adverse effect of influenza vaccination (16). Influenza vaccination has also been reported as a trigger for relapses of ulcerative colitis (17). Kwon et al. noted that "*Vaccination should be administered to the patients with inflammatory bowel disease with the caution of its possible side effects*" (17). Nevertheless, in a recent meta-analysis, it was confirmed that influenza vaccination is considered safe for use in patients with irritable bowel disease (18).

Conclusion

Colorectal manifestations are possible in influenza. The practitioner should recognize that colonic complications might occur in any patient with influenza. Influenza-related colitis is an important condition that should be listed in the differential diagnosis of unexplained cases with colitis.

Conflict of Interests: None declared.

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