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Unusual Culprit: Upper Gastrointestinal Bleed Following Influenza-A Infection in a Child

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ABSTRACT

Background: Influenza virus infection is generally self-limited and uncomplicated in healthy children, but it is often associated with significant morbidity and mortality worldwide. Influenza is a respiratory illness; however, gastrointestinal (GI) symptoms are common and include nausea, vomiting, diarrhea, and abdominal pain. Significant GI complications such as gastrointestinal bleeding or perforation are rare, with only a few cases reported in the literature. Here, we present a rare case of recurrent hematemesis in a pediatric patient with acute influenza infection.

Case Report: We report a case of a six-year-old male with respiratory symptoms and hematemesis with positive influenza A infection. Influenza should be considered in the differential diagnosis of pediatric patients presenting with respiratory illness and hematemesis during the influenza season.

Conclusion: This case highlights the rare but serious presentation of hemorrhagic gastritis presenting with hematemesis in the setting of acute Influenza infection.

Background

Influenza virus infection is generally self-limited and uncomplicated in healthy children, but it is often associated with significant morbidity and mortality worldwide. Although influenza is primarily a respiratory illness, it frequently presents with gastrointestinal (GI) symptoms such as nausea, vomiting, diarrhea, and abdominal pain. Significant GI complications such as gastrointestinal bleeding or perforation are rare, with only a few cases reported in the literature. Here, we present a rare case of recurrent hematemesis in a pediatric patient in the context of an acute influenza infection.

Case Report

A six-year-old male with a history of branchial cleft cyst and eczema presented to our emergency department for concerns of hematemesis. This presentation was in the setting of three days of upper respiratory symptoms, including a progressively worsening cough. On the day of admission, he developed abdominal pain, nausea, and a large-volume episode of hematemesis (Figure 1). There was no history of trauma, NSAID use, GI disease, recent surgery, bleeding disorders, or foreign body ingestion. In the emergency department, he experienced another significant episode of hematemesis with large blood clots. He was tachycardic, had borderline oxygen saturation requiring supplemental oxygen, and appeared dehydrated but had no abdominal tenderness on exam.

Initial baseline CBC with differential revealed mild thrombocytosis without anemia, with a Hemoglobin of 11.7 g/dL; PT and PTT were within normal limits. Chest X-ray was unremarkable. However, he tested positive for Influenza A. The patient was started on intravenous resuscitation, pantoprazole, and pediatric gastroenterology was consulted. He was admitted to the pediatric intensive care unit, after which he underwent esophagogastroduodenoscopy (EGD). EGD findings showed a normal esophagus and duodenum but revealed multiple ulcers in the antrum, fundus, and body of the stomach. Post-procedure labs revealed a drop in hemoglobin to 8.7 g/dL. Biopsies of the stomach antrum revealed gastritis, focal congestion, and there were no helicobacter microorganisms seen in H&E stain. The patient was continued on pantoprazole, sucralfate, ondansetron, and iron supplements. Following clinical stabilization, he was discharged home in stable condition.

Readmission and Further Evaluation

Two days post-discharge, he was readmitted with recurrent hematemesis and worsening anemia (hemoglobin dropped to 6.6 g/dL). He was febrile, tachycardic, and had desaturations to the high 80s. He received a packed red blood cell transfusion and underwent a repeat EGD. This EGD revealed a patchy gastritis on the antrum, body, and fundus of the stomach, as well

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Figure 1: Gross hematemesis of large blood clots, sample collected post-emesis in the emergency department.

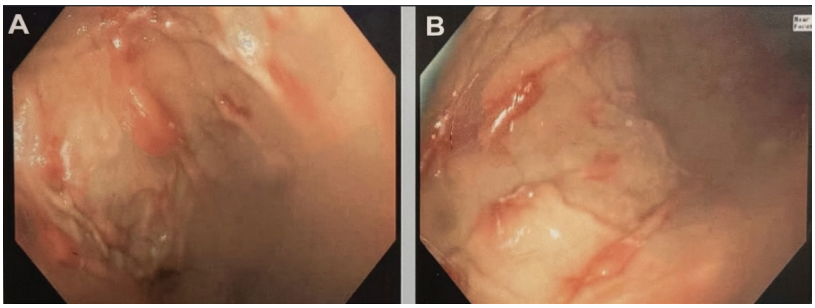

Figure 2: Gross hematemesis of large blood clots, sample collected post-emesis in the emergency department.

as multiple non-bleeding gastric ulcers in the fundus, antrum, and body of the stomach (Figure 2). No hiatal hernia was observed. Biopsies of the fundus, antrum, and body of the stomach showed gastritis, and there were no Helicobacter pylori organisms seen. During recovery, blood was noted in the nares. ENT evaluation considered posterior epistaxis unlikely. Nasal endoscopy was deferred at the parents' request. Hemoglobin improved to 9.9 g/dL. The patient remained hemodynamically stable, with no further episodes of hematemesis, and was discharged in stable condition.

Discussion

Although most children infected with influenza primarily have respiratory symptoms, GI manifestations such as diarrhea, vomiting, and abdominal pain are not uncommon. Nevertheless, serious GI complications such as GI bleeding and perforation are rare. Although influenza is well known to be associated with upper or lower respiratory complications and frequently attacks the gastrointestinal system, significantly fewer case reports have described serious gastrointestinal problems related to influenza, including GI bleeding and hemorrhagic gastritis [1,2]. This report adds to the limited body of literature by highlighting that influenza A can present with unusual and prominent GI symptoms such as haemorrhagic gastritis.

The pathogenesis of GI symptoms associated with influenza infection remains unclear [3]. Some studies have shown that the pathogenesis for GI symptoms in influenza infection may involve multiple factors [2]. Potential mechanisms include NSAID-induced gastritis, mucosal injury from forceful vomiting [including Mallory-Weiss tears], oseltamivir-induced mucosal injury, and a direct or immune-mediated origin. Our patient, however, had no history of NSAID use, gastrointestinal disease, recent surgery, or trauma, and did not receive oseltamivir prior to hematemesis. Given the endoscopic findings of multiple linear superficial gastric ulcers and erosions, a direct or immune-mediated viral effect on the gastric mucosa is likely.

Some investigators have proposed that influenza viruses may bind to alpha-2,3 sialic acid receptors in the human gastrointestinal tract, thereby facilitating their entry into and replication in gastrointestinal epithelial cells [4]. However, studies have not consistently identified influenza viral antigens or receptors in intestinal epithelial tissues [5]. In murine and in vitro studies, influenza infection has been shown to induce cytokine dysregulation, leading to the recruitment of inflammatory cells and the production of excessive cytokines. This cascade may increase capillary permeability, leading to a systemic inflammatory response, shock, and distal organ injury, including intestinal mucosal damage [6]. Further studies are needed to identify the exact mechanisms of GI involvement in influenza infection and to determine the risk factors associated with severe complications in patients with influenza infection.

Conclusion

This case underscores the importance of including influenza in the differential diagnosis for pediatric patients presenting with hematemesis or melena during the influenza season. This rare but serious presentation of haemorrhagic gastritis emphasizes the need for clinicians to remain vigilant for atypical manifestations of influenza, particularly when patients present with significant GI symptoms.

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

Patient Consent: Written consent was obtained from the patient's parents for publication of this case report and accompanying images.

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