Vape-Induced Herpes Simplex Esophagitis in an Immunocompetent Host

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Abstract

We present a case of a 28-year-old male presenting to the emergency department on back-to-back days with retrosternal chest pain and worsening odynophagia. Less than two months ago he had begun vaping, frequently in a group setting and sharing with friends. During the preceding week he noted fevers and odynophagia and was presumed to have strep throat. EGD with biopsies revealed HSV esophagitis. IV acyclovir almost immediately resolved his symptoms; the patient was quickly transitioned to oral medication and discharged home.

HSV esophagitis in an immunocompetent host is exceedingly rare, and vape-induced esophagitis has also been sparingly reported in literature in recent years. Both infectious and non-infectious etiologies for esophagitis should be considered in appropriate populations, and while guidelines for infectious esophagitis in immunocompetent hosts are lacking, we propose initiating antiviral therapy for such patients.

Introduction

About half of patients with esophagitis present with a nonspecific retrosternal chest pain, and less than 40% present with either dysphagia or odynophagia [9]. Treatment depends largely on etiology, however acid suppression therapy is nearly always provided.

Infectious esophagitis occurs almost exclusively in patients with impaired immunity. HSV esophagitis is predominantly caused by HSV-1 serotype, with a majority of infections likely traversing CN X via dorsal root ganglion. Direct extension from the oropharynx is also plausible in primary infection.

Immunocompetent patients are highly unlikely to develop infectious esophagitis, and from 1960 – 2000 less than 40 reported cases existed in the literature [4]. The actual prevalence of HSV esophagitis in immunocompetent patients is unknown, as these conditions are thought to be self-limiting. Vape-induced esophagitis has also been diagnosed in a handful of case reports [8] and an interplay between vaping, damaged esophageal mucosal protection, and HSV spread can easily be imagined. Treatment guidelines for HSV esophagitis in immunocompetent hosts are absent as the condition is so rarely encountered, however most anecdotal evidence suggests benefit of antiviral therapy. Recognition of at-risk populations, suggestive symptomatology, and pathogenesis of infectious esophagitis (as well as vape-induced esophagitis) is imperative given the rapidly-increasing prevalence of vaping and vape-sharing in young populations, particularly as it relates to the spread of HSV.

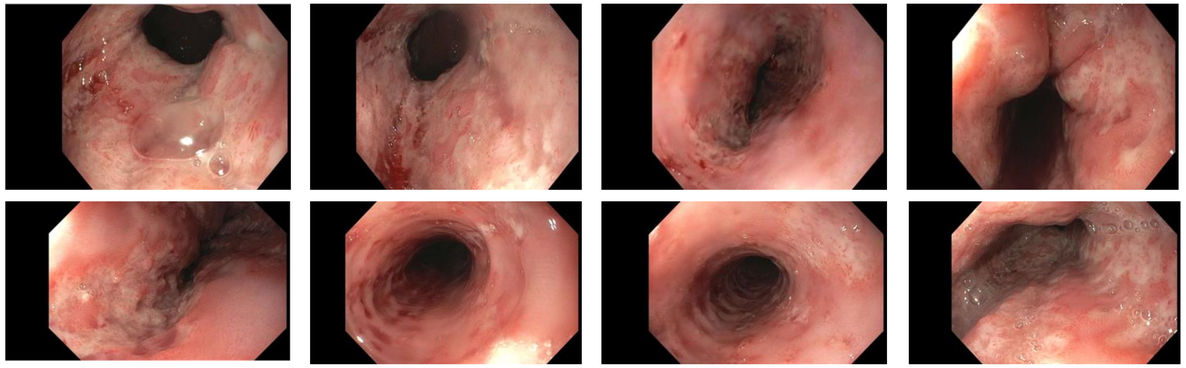
Case Overview

Our patient is a 28-year-old male who, six days prior to admission, began feeling lethargic and feverish. Three days prior he developed odynophagia that was deterring him from eating, resulting in weight loss. After a visit to a local urgent care he was presumed to have strep throat, however he was unable to take his amoxicillin secondary to severe odynophagia. Two days prior to admission, he came to our emergency department with these same complaints: retrosternal chest pain exacerbated by oral intake, odynophagia, and anorexia leading to a 5lb weight loss over the last week.

On initial presentation to the ED, his vital signs were stable and he had no laboratory abnormalities. His physical exam and review of systems were entirely negative aside from his presenting complaints. The patient's serum was negative for heterophile antibodies and his streptococcal rapid antigen test was also negative; a CT scan of his neck showed mild tonsillar enlargement without any additional pathology. He was given sucralfate, pantoprazole, and viscous lidocaine with good relief of his symptoms. Admission for possible EGD was discussed however, in lieu of his symptom remission, he expressed his wishes to be discharged home and to return if symptoms recurred or worsened.

The very next day he returned to the emergency department with recurrent, and now worsened, symptoms. Vitals showed a temperature of 38.4 degrees Celsius and a mildly elevated BP at 158/77. He had a mild leukocytosis of 12,300 with 26% band neutrophils. His ESR was found elevated at 45mm/h. The patient agreed to admission for further evaluation. At this time it was also revealed that he had begun using a vape pen containing nicotine every day for the last two months, frequently sharing with his friends.

On day 2 of his hospitalization the patient underwent an endoscopic evaluation and was found to have ulcerations in the middle and lower 1/3rd of his esophagus, along with inflammation meeting criteria for LA grade D esophagitis (Figures 1-8, below). Biopsies were taken and pathology specimens showed cells that were reactive with HSV, consistent with HSV esophagitis. The patient was subsequently tested for HIV and hepatitis, both of which returned negative. He was given sucralfate as well as viscous lidocaine and started on IV acyclovir, 400mg q8h, as he could not tolerate PO intake at this time. He received several doses of the medication through his IV and experienced rapid symptomatic resolution. As soon as he could tolerate oral intake he was switched to PO acyclovir, 400mg three times daily and was discharged with enough medication to complete a 10d course, along with pantoprazole 40mg twice daily for the foreseeable future.



Discussion

This patient's recent use of vape pen is important for several reasons, as the transmission of HSV is well-known to occur primarily through saliva. We know the prevalence of HSV in persons aged 50 and younger is almost 50% [6] and asymptomatic shedding occurs via saliva occurs in up to 25% [5]. This patient had biopsy-proven HSV esophagitis, and the ability of vape pens to damage mucosal barriers and, therefore, cause a certain degree of local immunosuppression, likely contributed to his progression of disease. HSV has a propensity to invade through damaged mucosal or skin surfaces [5], so we postulate that this patient's recent vaping endeavors likely impaired his ability to clear an HSV infection, leading to severe esophagitis.

Treatment guidelines do not exist for immunocompetent patients with HSV esophagitis. In the largest (46 patient) case series of HSV esophagitis victims, 33/46 were immunocompromised. Only 75% of patients in each group received antiviral treatment. Immunocompetent hosts were less likely (though not significant by p-value) to require IV antivirals, 2/13 vs 7/33 in the immunosuppressed group. Immunocompetent hosts also received shorter durations of antiviral therapy (12.7 days vs 17.6 days) and had significantly shorter duration of symptoms (7.0 days vs 15.5 days) [7] which are both seemingly reflective of both disease severity and, obviously, innate immunity.

In our case, our patient recovered quite quickly after the initiation of antiviral therapy – less than 48h –and his overall symptoms lasted for right around five days. He was treated with a standard course of 400mg acyclovir three times daily, initially through his IV and subsequently switching to PO upon toleration of oral intake. He also experienced immense relief with viscous lidocaine, so the importance of symptomatic management cannot be overstated.

The long-term health effects of vaping are unknown, however it would be rather challenging to find a physician who condones the use of e-cigarettes and other mimics. In our case, a healthy young man likely contracted both HSV and esophagitis from his vape pen, and this combination of pathologies resulted in a severe case of HSV esophagitis.

Non-responders to PPI therapy or those with alarm signs should always be investigated more thoroughly. Cigarettes are well-known causes of esophageal cancers and esophagitis [2] and it would be prudent to treat vape pens in the same light. Patients should be counseled on the cessation of using their vape pens, particularly those with seemingly difficult-to-control GERD symptoms, as long-term sequelae of esophagitis can be extremely debilitating and impair quality of life.

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