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An Atypical Case of Herpes Simplex Virus-2 (HSV-2) Hepatitis in an Immunocompetent Male

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Keywords

HSV hepatitis; Herpes simplex virus; Acute hepatitis

Short Communication

A 17-year-old male presented to the Emergency Department following accidental ingestion of alkaline-based fish tank cleaner. He describes swallowing approximately 50 ml which was apparently mixed with another unknown liquid. He rapidly developed a painful oropharynx with concomitant odynophagia and dysphonia.

He had a single episode of vomitus with pink-stained fluid but no frank haematemesis or haemoptysis. He then began to complain of progressive dyspnoea and orofacial swelling with evolving stridor and the decision was taken to undertake a rapid-sequence induction (RSI) and intubation.

An index upper gastrointestinal endoscopy demonstrated some Grade C esophagitis while fiber-optic nasal-endoscopy (FNE) revealed some erythema of pharynx. There was no evidence of immediate stricture formation.

A course of high-dose intravenous dexamethasone was initiated, which was continued as a 7 day, non-tapering course. He was extubated on day 3 and initially received TPN supplementation while observing for delayed oesophageal stricture formation.

The patient made a relatively good recovery, until he complained of dysuria and penile pain on day 6 of admission.

On examination; there was marked ulceration of the prepuce including a large intra-meatal lesion and some satellite vesicles which were suspicious for herpes simplex infection. There was no evidence of orchitis or regional lymphadenopathy.

He subsequently began to develop swinging pyrexia; however multiple peripheral cultures (x4) were negative. In addition, culture of the central venous catheter tip also failed to yield any microbial growth. Viral throat swabs and mid-stream urine collections were negative. Concomitantly, an isolated transaminitis (peak ALT >3,200 $\mu\text{mol/l}$; Ref Range 15 $\mu\text{mol/l}$ to 50 $\mu\text{mol/l}$) developed with prolongation of prothrombin time (PT 18; Ref Range 11.5-12 seconds) time. He did not develop any encephalopathy or features of renal impairment.

A CT scan of the cervical region, thorax and abdomen failed to identify any specific infective focus, whilst a full liver screen including paracetamol level, CMV, EBV, HIV, HAV, HBV, HCV, HEV, VZV and autoimmune profile were all inconclusive.

Swabs of the genital lesions tested positive for herpes simplex virus 2 (HSV2) and serology for HSV-2 specific antibodies were strongly reactive, demonstrating fulminant systemic infection. Aciclovir was subsequently initiated.

Upon initiation of acyclovir, the patient displayed rapid improvement with the pyrexia resolving within 24 hour period, whilst concurrently resolving his transaminitis over the subsequent days. The patient underwent regular serological testing until HSV-2 PCR was undetectable, whereby antiviral treatment was discontinued.

Thankfully, the patient's liver function returned to baseline and he made an otherwise

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unremarkable recovery.

Discussion

Herpes simplex virus (HSV) hepatitis represents a rare complication of HSV infection, which can progress to acute liver failure and, in rare cases, death.

To our knowledge, within the medical literature there have been no documented cases of fulminant hepatitis in the context of acute genital infection. A review of the literature by Kaufman et al. [1] collated 10 cases of steroid-related instances, however; none of which were ever in relation to a corrosive injury.

Peppercorn et al. [2] have presented an analogous case in a patient with significant burns who ultimately succumbed to HSV-pneumonitis and hepatitis. They postulated aberrant immune-regulation in the context of the widespread burns sustained. Similarly, in our patient it is plausible that there is an element of immune dysregulation as a consequence of ingestion of a caustic substance; a concept further complicated by high dose corticosteroid therapy.

More recently; Down et al. [3] demonstrated a case in a 67-year-old immunocompetent gentleman who had originally been treated as a liver abscess given appearances of multilobar hepatic lesions with ring-enhancing edges. Liver biopsy subsequently demonstrated the presence of hepatocellular necrosis but no evidence of pyogenic processes. On reviewing our patients imaging however there was no structural anomalies or radiological features of active hepatocellular necrosis apparent.

HSV hepatitis remains a somewhat difficult diagnosis to establish given the inherent variation in presenting features and severity. It should be considered in the differential diagnosis of any case of severe

hepatitis with concomitant fever, abdominal pain and deranged liver function tests with or without jaundice. Norvell et al. [4] cites that fever (98%), coagulopathy (84%) and encephalopathy are apparent at presentation in a review of 137 cases (132 in literature, 5 institutional). Rash or lesions were identified in less than half of patients.

Patients who are male, older, immunocompromised, and/or presenting with significant liver dysfunction are more likely to progress to death and should thus be evaluated for LT early [4]. There is no consensus around antiviral therapy duration however, and a pragmatic approach would seem to suggest that ensuring absence of viraemia before cessation would be reasonable.

This unusual case demonstrates the rarely encountered manifestations of systemic herpes simplex infection in an otherwise immunocompetent male. Herpes simplex virus (HSV) hepatitis is an uncommon cause of fulminant liver failure, but one with a potentially deadly outcome.

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