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Case Study

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Unusual Presentation of an Everest Trekker

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Abstract

Gastro-intestinal symptoms including nausea, vomiting, and abdominal pain are common in high altitude areas of Nepal due to Acute Mountain Sickness (AMS) or due to a gastro-intestinal illness. Occasionally complications of common conditions manifest at high altitude and delay in diagnosis could be catastrophic for the patient presenting with these symptoms. We present a rare case of duodenal ulcer perforation at high altitude. Timely evacuation from high altitude, proper diagnosis and prompt treatment are essential for taking care of such patients.

Keywords: Duodenal Ulcer; Everest; High-Altitude; Hypoxia; Perforation

Case Report

A 45-year-old Korean male had been trekking in the Everest region for seven days when he developed severe nausea and vomiting at Lobuje (4900m). He took Buscopan and ascended to Gorak Shep (5140m). While in Gorak Shep, he had further episodes of vomiting, ongoing nausea and severe abdominal cramps. He was given prednisolone 10mg, Sildenafil, acetazolamide 250mg and Ibuprofen 400mg by a trekker doctor friend with concern of altitude illness. As his symptoms continued, he was carried down on the back of a horse from Gorak Shep to Pheriche (4200m). After an overnight rest, a helicopter brought him to Lukla and then to Kathmandu (1330 m).

At CIWEC Hospital in Kathmandu, he continued to have repeated vomiting and upper abdominal pain of severity 10/10. He had pulse of 62/min, blood pressure of 160/90mm, temperature of 37.3 and oxygen saturation on room air of 99%. He was ill looking and appeared dehydrated. Lungs were clear and cardiac examination was normal. Abdominal examination initially revealed epigastric tenderness which was later followed by guarding and rigidity. Upright X-Ray chest showed gas under both hemi-diaphragms (Figure A). He was referred to surgery and emergency exploratory laparotomy was done. He was found to have a solitary perforation in the anterior wall of the first part of the duodenum which was repaired using modified Graham's Patch (Figure B). *Helicobacter pylori* (*H. pylori*) antibody in the serum was positive and he was given triple therapy for H. pylori eradication. Post-operative recovery was uneventful and he returned to Korea.

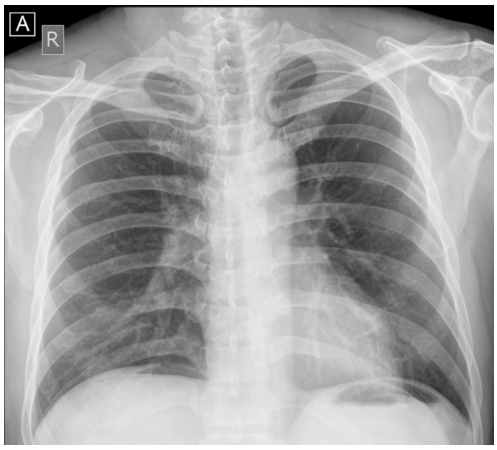

Figure A: X-ray chest erect showing gas under both hemi-diaphragms.

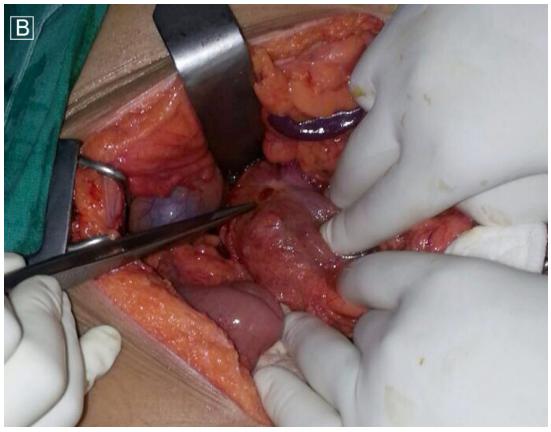

Figure B: Intra-operative findings of perforation in anterior wall of the first part of the duodenum.

Discussion

Symptoms of acute mountain sickness including headache, nausea and vomiting are common in trekkers to high altitude areas of Nepal where rates of AMS can be up to 50% [1]. These symptoms are equally common due to a gastro-intestinal infection which is the most common ailment in travellers to Nepal [2,3]. Our patient had symptoms of nausea, vomiting initially with later development of abdominal pain. He was initially treated for AMS with steroid and Ibuprofen both of which could have made the duodenal ulcer worse. Helicobacter pylori infection is known to be associated with peptic ulcer disease [4] and our patient was positive for this infection. He was evacuated to Kathmandu promptly where he was noted to have a surgical abdomen. Prompt treatment of perforated DU led to a speedy recovery. Medical facilities for performing surgeries do not exist in high altitude areas of Nepal and patients have to be evacuated to lower altitudes for prompt diagnosis and treatment.

Did hypoxia at high altitude have a role in causing DU in this patient? Increased incidence of gastric ulcers and bleeding have been described in Chinese lowlanders who moved to high altitude to work on a railroad project [5]. The risk increased in persons who consumed large amounts of alcohol, took aspirin or dexamethasone. Gastric mucosal lesions and gastrointestinal bleeding from peptic ulcers have also been noted in Japanese mountaineers [6,7]. Perforation of duodenal ulcer was noted in pilgrims from India during "Shri Amarnath Ji Yatra" where devotees do a difficult trek of 40 km to reach a holy cave at 4200m [8]. Although increased incidence of gastric mucosal lesions has been noted in trekkers and mountaineers from the eastern cultures, this has not been a prominent finding in the Western literature. In our patient, *H. pylori* infection, combined with NSAID and steroid use at high altitude most likely led to the DU with perforation.

Conclusion

One should be aware of the varied presentations that patients evacuated from high-altitude can present with. Abdominal cramps and vomiting can also be symptoms of acute mountain sickness but as in this case, with wide differentials in mind, life-threatening emergencies can be recognized and treated promptly.

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