

## Black esophagus in the setting of Diabetic Ketoacidosis A systematic review of clinical presentation and outcome

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### INTRODUCTION

Black esophagus (BE) also known as the acute black esophagus or necrotizing esophagitis is a rare condition (0.2% in autopsy series). It is defined as a circumferential black appearing esophageal mucosa.

It arises in a setting of tissue hypoperfusion due to hemodynamic instability, insults to the esophagus with gastric acid reflux further damaging the vulnerable mucosa. Patients are often critically ill or with significant comorbidities. Septic shock or acutely decompensated heart failure can lead to hypoperfusion states that predispose patients to necrotizing esophagitis. Diabetes mellitus (DM) leads to significant microvascular disease that can be a substrate for the development of esophageal necrosis.

In this systematic review, we looked at the clinical presentation, radiological, endoscopic findings, and the outcome of the BE occurring in the setting of diabetic ketoacidosis (DKA).

### AIM

To evaluate the clinical presentation, radiological, and endoscopic findings of the black esophagus in the setting of diabetic ketoacidosis and to evaluate the outcome.

### METHOD

A database search was conducted (PubMed, Embase, and Cochrane) for all case reports and case series of BE with DKA published in the English language. All the available reported cases were analyzed.

**TABLE . 1**

Epidemiology	
Mean Age	51.1
Male	(73.08%)
Female	(26.9%)
Type of Diabetes	
Type 2	(61.54%)
Type 1	(30.77%)
Unknown	(7.69%)
GI presentation	
Hematemesis	(60%)
N&V	(15.3%).
Dysphagia	(15.3%).
Melena	(3.8%)
No GI symptoms	(3.8%)

**TABLE . 2**

Endoscopic Esophageal findings	
Upper esophagus	3.85%
Mid to lower esophagus	34.5%
Lower esophagus	15.38%
Pan Esophageal	46.1

### RESULTS

A total of 29 patients were identified and 26 published cases were included in the analysis. The mean age of presentation was 51 years, and (74%) of cases were male. DM type II (61%), DM type I in (30%), all cases included had DKA at presentation. The most common gastrointestinal symptoms prior to endoscopic evaluation were hematemesis (60%), nausea and vomiting (15.3%), dysphagia (15.3%), and melena (3.8%) (Table 1). (34%) of cases had pre-endoscopic CT chest and abdomen, (90%) revealed esophageal thickening, and one patient CT had no findings. On upper endoscopy, (46.1%) had pan-esophageal involvement, (34.5%) mid to lower esophageal involvement, (15.38%) had lower esophageal involvement, and upper esophageal involvement in 1 patient (3.85%) (table2). Regarding outcomes, (57%) had repeat endoscopy which showed complete healing in (46.67%), improvement in (26.67%), No changes seen in (6.67%), and stricture as a complication was seen in (20%) of the cases on repeat endoscopy Case Mortality was (3.7%).

### CONCLUSION

BE in the setting of DKA is rare. Clinicians should be familiar with this condition as treatment depends on addressing underlying medical problems to avoid complications and mortality.