Case Report

A FATAL CASE OF ACUTE MASSIVE GASTRIC DILATATION PRESENTING WITH SYNCOPE: A RARE BOWL-SHAPED STOMACH APPEARANCE ON COMPUTED TOMOGRAPHY

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Abstract

Background: Acute massive gastric dilatation (AMGD) is a rare but potentially fatal emergency characterised by extreme gastric distension that may rapidly progress to ischaemia, necrosis, perforation, and sudden cardiovascular collapse. Early diagnosis is often challenging because of its rarity and non-specific clinical presentation.

Case Presentation: A 28-year-old woman presented to the emergency department with syncope and a history of long-standing abdominal distension. Computed tomography demonstrated a massively dilated stomach with a characteristic bowl-shaped configuration consistently observed on the axial, coronal, and sagittal planes. Prompt nasogastric decompression and supportive treatment were initiated; however, the patient developed sudden cardiac arrest during transfer for hospital admission and died despite advanced cardiac life support.

Conclusion: This case highlights the importance of recognising AMGD as a life-threatening emergency in patients presenting with syncope and marked abdominal distension. The characteristic bowl-shaped stomach appearance on computed tomography may represent an important radiological red-flag sign, facilitating earlier diagnosis and timely intervention.

Keywords: Acute gastric dilatation, Bowl-shaped stomach, syncope, Computed tomography, Emergency medicine, Sudden death

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INTRODUCTION

Acute massive gastric dilatation (AMGD) is an uncommon but life-threatening condition caused by extreme gastric overdistension [1,3]. It may lead to gastric ischaemia, necrosis, perforation, abdominal compartment syndrome, and abrupt cardiovascular collapse [2,3,10]. Neurological diseases, postoperative states, eating disorders, and spinal deformities have been reported as predisposing factors [4–9]. Because of its rarity and non-specific clinical presentation, the diagnosis is often delayed, resulting in high mortality rates [1,6,10]. Computed tomography (CT) plays a crucial role in the early diagnosis, particularly when characteristic findings such as the bowl-shaped stomach configuration are present [1,5,7].

CASE PRESENTATION

A 28-year-old woman presented to the emergency department with syncope occurring one hour before admission and long-standing abdominal distension. Her medical history included hydrocephalus and previous scoliosis surgery. On physical examination, the patient appeared moderately unwell. Vital signs were as follows: blood pressure 100/60 mmHg, heart rate 88 beats/min, oxygen saturation 95%, and body temperature 36.7°C. The abdomen was markedly distended and tense.

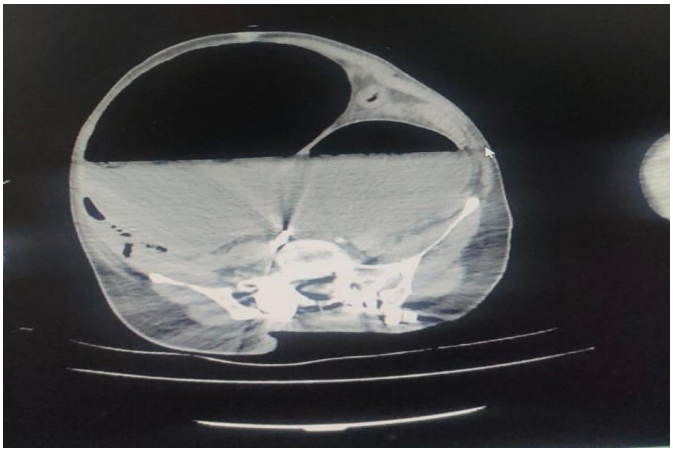
Laboratory evaluation revealed mild anaemia and thrombocytosis (haemoglobin 11.9 g/dL, platelet count $546\times10^3/\mu L$). The remaining biochemical parameters were within normal limits.

Abdominal computed tomography revealed a massively dilated stomach with a characteristic bowl-shaped configuration observed consistently on axial, coronal, and sagittal planes (Figure 1a–c). Diffuse colonic gas–faecal distension and postoperative spinal stabilisation materials were also noted.

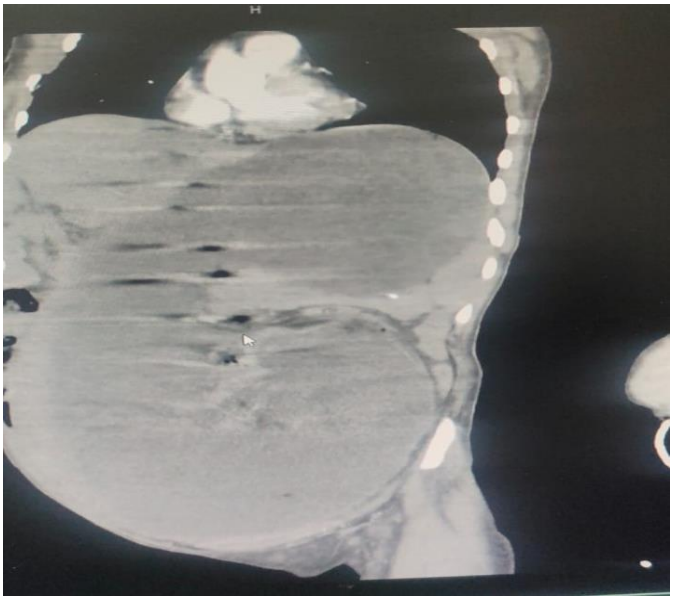
Nasogastric decompression and intravenous fluid–electrolyte therapy were initiated promptly. Following consultation with the general surgery team, hospitalisation was recommended. However, while being transferred for admission, the patient suddenly developed cardiac arrest. Despite advanced cardiac life support, resuscitation efforts were unsuccessful, and the patient died.

FIGURES

1a



1b



1c

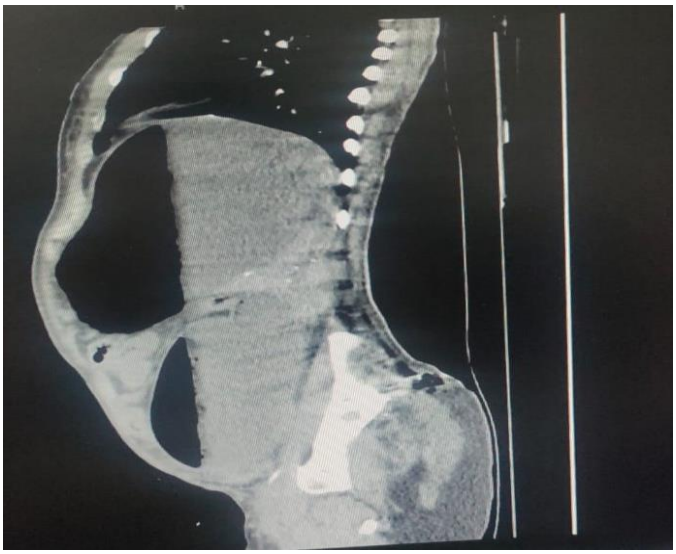


Figure 1: Abdominal computed tomography images demonstrating massive gastric dilatation with a characteristic bowl-shaped configuration: (a) axial view showing extreme gastric distension occupying the majority of the abdominal cavity, (b) coronal view illustrating diffuse gastric enlargement with associated colonic gas–faecal distension, and (c) sagittal view demonstrating the vertical extent of the dilated stomach and its compressive effect on surrounding structures.

DISCUSSION

Acute massive gastric dilatation (AMGD) is a rare but potentially fatal clinical entity characterised by extreme gastric overdistension that may rapidly progress to ischaemia, necrosis, perforation, and sudden cardiovascular collapse [1,3]. Mortality remains high, particularly when diagnosis is delayed or when complications such as abdominal compartment syndrome develop [1,2,10]. The present case highlights the catastrophic course of AMGD and emphasises that even early decompression and supportive management may not always prevent fatal outcomes. Recent evidence, including the largest published case series to date, suggests that delayed recognition remains the major determinant of mortality in AMGD [1]. Despite advances in diagnostic imaging and critical care, gastric ischaemia, perforation, and haemodynamic collapse continue to be associated with poor clinical outcomes, particularly when diagnosis is delayed [1,6,7].

The "bowl-shaped stomach" appearance observed on computed tomography in this patient represents an advanced form of gastric dilatation in which the stomach occupies the majority of the abdominal cavity and assumes a rounded, dependent configuration. This radiological finding, although rarely described, may serve as a critical red-flag sign of dangerously elevated intra-abdominal pressure and impending haemodynamic deterioration [1,5,7]. Severe gastric distension can compress major abdominal vessels, reduce venous return, impair diaphragmatic excursion, and compromise cardiac output, thereby precipitating sudden cardiovascular collapse or cardiac arrest [2,3,10]**.** Recent case reports have further demonstrated that computed tomography is indispensable for the diagnosis of AMGD because it rapidly identifies the degree of gastric distension, gastric wall abnormalities, pneumoperitoneum, portal venous gas, and associated mechanical obstruction [1,5,7]. Early CT evaluation is therefore essential for timely surgical decision-making and prevention of irreversible gastric necrosis [1,7].

Neurological disorders and spinal deformities, as present in our patient, are recognised risk factors for gastrointestinal dysmotility and autonomic dysfunction. These conditions may predispose patients to impaired gastric emptying, unrecognised gastric outlet obstruction, and progressive gastric overdistension. Previous studies have also reported associations between AMGD and eating disorders, postoperative states, prolonged immobilisation, and metabolic disturbances [4,5,8,9]. In this context, the long-standing abdominal distension observed in our patient likely reflected a chronic motility disorder that acutely progressed to life-threatening gastric dilatation. Similar fatal presentations have recently been reported following binge eating, superior mesenteric artery syndrome, and postoperative gastric outlet obstruction, indicating that AMGD may occur in various clinical settings and should not be considered exclusive to patients with eating disorders [8,9,12].

Syncope in this case may have resulted from reduced venous return secondary to increased intra-abdominal pressure or a vasovagal response triggered by severe visceral distension [2,3]. Abdominal compartment syndrome can lead to decreased preload, hypotension, and impaired organ perfusion, which may manifest clinically as syncope or sudden collapse [2,3]. Therefore, emergency physicians should maintain a high index of suspicion for AMGD in patients presenting with syncope accompanied by marked abdominal distension. Syncope is an exceptionally uncommon presenting symptom of AMGD. In the present case, syncope preceded catastrophic haemodynamic deterioration and cardiac arrest, emphasising that unexplained syncope accompanied by marked abdominal distension should prompt immediate abdominal imaging to exclude life-threatening gastric dilatation.

Although immediate nasogastric decompression remains the cornerstone of initial management, several recent reports have demonstrated that decompression alone may be insufficient once gastric ischaemia or abdominal compartment syndrome has developed [3,7,10,11]**.** Emergency surgical intervention should therefore not be delayed in patients with clinical deterioration or radiological evidence of gastric necrosis or perforation [1,6,7].

Unfortunately, in the present case, the patient developed sudden cardiac arrest during transfer for hospitalisation, illustrating the unpredictable and rapidly fatal nature of AMGD. Our case further demonstrates that AMGD may initially present with syncope rather than severe abdominal pain and that the characteristic bowl-shaped appearance on computed tomography may represent an early radiological warning sign of impending haemodynamic collapse. Increased awareness of this rare imaging finding may facilitate earlier diagnosis, more rapid surgical consultation, and ultimately improve survival.

CONCLUSION

Emergency physicians should consider acute massive gastric dilatation in patients presenting with syncope and marked abdominal distension. Recognition of the bowl-shaped stomach appearance on computed tomography as a life-threatening radiological red-flag sign may facilitate earlier diagnosis and intervention, potentially improving clinical outcomes and preventing fatal complications.

Ethics Statement

Written informed consent could not be obtained because the patient died before consent could be obtained. All

patient data were fully anonymised. In accordance with institutional policy and the journal's guidelines, ethics committee approval was not required for this single-patient case report.

Conflict of Interest

The authors declare that there are no conflict of interest.

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