

## SEVERE DELAYED COMPLICATIONS FOLLOWING ACCIDENTAL INGESTION OF ALKALINE CLEANING FLUID IN A YOUNG ADULT : A CASE REPORT

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### ABSTRAK

Esofagitis korosif adalah kondisi yang dapat terjadi akibat konsumsi zat berbahaya secara tidak sengaja, khususnya zat alkali yang kuat. Zat-zat ini dapat merusak saluran gastrointestinal bagian atas secara parah, yang menyebabkan komplikasi seperti jaringan parut, penyempitan esofagus, perforasi, dan hasil lain yang berpotensi mengancam jiwa. Laporan kasus ini membahas seorang wanita berusia 21 tahun yang secara tidak sengaja mengonsumsi cairan pembersih kamar mandi, mengira itu minuman karena warnanya yang biru dan penyimpanannya dalam botol plastik. Awalnya, ia mengalami sensasi terbakar di tenggorokan, dada, dan perutnya, disertai dengan sinkop, kelemahan, dan muntah berwarna biru. Kemudian, ia mengalami gejala yang lebih parah termasuk nyeri tenggorokan, hematemesis, disfagia, dan melena. Pemeriksaan fisik menunjukkan luka bakar orofaring dan nyeri tekan perut, sementara pencitraan menunjukkan penyempitan esofagus, gastritis, dan kemungkinan perforasi lambung. Ia didiagnosis dengan esofagitis korosif akibat konsumsi alkali, yang diperumit oleh dugaan perforasi. Penanganannya meliputi status nihil per oral (NPO), cairan intravena, dan obat-obatan, diikuti dengan rujukan untuk perawatan bedah setelah tiga hari stabilisasi. Kasus ini menyoroti kebutuhan kritis untuk tindakan diagnostik dini, seperti endoskopi, dan pemantauan berkelanjutan dalam kasus konsumsi korosif, karena komplikasi yang tertunda dapat muncul meskipun ada perbaikan awal. Penyimpanan dan pelabelan zat berbahaya yang tepat merupakan strategi pencegahan utama untuk menghindari konsumsi yang tidak disengaja.

**Kata kunci** : esofagitis korosif, keracunan yang tidak disengaja, konsumsi alkali, laporan kasus, perforasi lambung

### ABSTRACT

*Corrosive esophagitis is a condition that can result from the accidental ingestion of harmful substances, particularly strong alkaline agents. These substances can severely damage the upper gastrointestinal tract, leading to complications such as tissue scarring, esophageal strictures, perforations, and other potentially life-threatening outcomes. This case report discusses a 21-year-old woman who inadvertently consumed bathroom cleaning fluid, mistaking it for a drink due to its blue color and storage in a plastic bottle. Initially, she experienced a burning sensation in her throat, chest, and abdomen, accompanied by syncope, weakness, and blue-colored vomiting. Later, she developed more severe symptoms including throat pain, hematemesis, dysphagia, and melena. Physical examination revealed oropharyngeal burns and abdominal tenderness, while imaging indicated esophageal narrowing, gastritis, and possible gastric perforation. She was diagnosed with corrosive esophagitis from alkaline ingestion, complicated by a suspected perforation. Treatment involved nil per oral (NPO) status, intravenous fluids, and medications, followed by referral for surgical care after three days of stabilization. This case highlights the critical need for early diagnostic measures, such as endoscopy, and continued monitoring in corrosive ingestion cases, as delayed complications may arise despite initial improvement. Proper storage and labeling of hazardous substances are key preventive strategies to avoid accidental ingestion.*

**Keywords** : corrosive esophagitis, alkaline ingestion, gastric perforation, case report, accidental poisoning

## INTRODUCTION

Accidental ingestion of corrosive substances, particularly strong alkaline agents, can cause severe injuries to the upper gastrointestinal tract, including strictures, perforations, and life-threatening complications. While most cases occur in children, this report details the rare case of a 21-year-old female who ingested bathroom cleaning fluid, mistaking it for a beverage due to its blue color and storage in a drink bottle. This case highlights the dangers of improper storage of hazardous substances and emphasizes the need for preventive measures to avoid potentially fatal outcomes (Fakıoğlu, et al., 2023) (Khan, et al., 2019) (Dall'oglio, et al., 2016).

The patient initially experienced syncope, weakness, and vomiting after ingestion. Despite initial improvement after treatment at another hospital, she later developed severe delayed symptoms, including throat pain, hematemesis, dysphagia, and melena. Upon readmission, diagnostic tests revealed esophageal narrowing, gastritis, and suspected gastric perforation, reflecting the deep tissue damage caused by alkaline substances. These complications, emerging after initial treatment, illustrate the complexity of managing corrosive ingestion and the importance of ongoing monitoring (Seo, et al., 2015) (Civan, et al., 2016) (Yamada, et al., 2020).

While corrosive esophagitis due to alkaline ingestion is less common than acid-related injuries, this case underscores the potential severity of such incidents. The delayed onset of symptoms and extent of damage highlight the need for careful long-term follow-up. Preventive strategies, including proper labeling and storage of hazardous substances, are crucial in reducing accidental ingestions and their severe consequences (Civan, et al., 2016) (Lim, et al., 2017) (Majors, et al., 2016).

## CASE REPORT

A 21-year-old female presented to the Emergency Department (ED) with complaints of a burning sensation in her throat radiating to the chest and abdomen. The symptoms had persisted for approximately two weeks. The patient accidentally ingested bathroom cleaning fluid, mistaking it for a beverage due to its blue color and its storage in a plastic drinking bottle. The estimated quantity consumed was approximately 100 ml (1/6 of a 600 ml bottle). Following ingestion, the patient experienced syncope and general weakness, prompting immediate transfer to another hospital. During transport, the patient vomited a blue substance resembling the ingested fluid. The patient was hospitalized for one week, receiving treatment that led to clinical improvement, after which she was discharged. However, two days post-discharge, the patient reported recurrent throat pain and burning sensation, leading to admission to the current hospital. The patient also experienced daily hematemesis starting two days post-ingestion, vomiting two to three times per day, causing difficulty in eating and swallowing. As a result, the patient could only consume milk and fruit juice. Additionally, the patient reported blackish-brown stools (melena) since ingestion. This was the first occurrence of such symptoms for the patient. The patient and her family denied any history of psychiatric illness or similar familial conditions.

Upon physical examination, vital signs were within normal limits. Oropharyngeal examination revealed pale oropharyngeal mucosa and oropharyngeal burns. Abdominal examination indicated superficial tenderness in the epigastrium and right upper quadrant. Muscular guarding was difficult to assess due to severe pain reported by the patient. Laboratory findings revealed leukocytosis (12,400 u/L) with neutrophilia (84.3%), anemia (Hb 8.2 g/dL) suspected to be secondary to bleeding (hematocrit 25.5%; MCV 83.9; MCH 27). Blood urea and creatinine levels were within normal ranges (urea 33.1 g/dL, creatinine 0.65 g/dL). Radiological imaging with contrast indicated esophageal narrowing, gastritis, and contrast

leakage suggestive of gastric perforation. The patient underwent a series of diagnostic evaluations, including physical examination, laboratory tests, and radiological imaging with contrast. The primary challenges were related to assessing the extent of esophageal and gastric damage. Laboratory findings indicated leukocytosis with neutrophilia, anemia suspected due to gastrointestinal bleeding, and normal renal function. Imaging results showed esophageal narrowing, signs of gastritis, and suspected gastric perforation.

The diagnosis established was corrosive esophagitis due to strong alkaline ingestion, complicated by suspected gastric perforation. The patient was placed on nil per oral (NPO) and was initiated on intravenous maintenance fluids, specifically Ringer's lactate and 10% dextrose (D10%). Pharmacological interventions included omeprazole, ondansetron, methylprednisolone, and tranexamic acid. The patient remained hospitalized for three days for stabilization before being referred to the Digestive Surgery Department for management of the suspected gastric perforation. Following initial stabilization, the patient was referred for surgical evaluation and further management. The outcomes of the surgical intervention and any follow-up diagnostic assessments are pending. No adverse or unanticipated events were reported during the initial phase of treatment.



Figure 1. X-ray Results Show Gastric Ulceration with Signs of Perforation and Narrowing of the Esophagus

## DISCUSSION

The approach to managing this case of accidental ingestion of an alkaline cleaning fluid demonstrated several strengths, including timely diagnosis, appropriate initial stabilization, and swift referral for specialized surgical intervention. Upon the patient's second admission, her symptoms of hematemesis and severe epigastric pain prompted immediate diagnostic imaging, revealing significant esophageal and gastric damage. The decision to initiate nil per oral (NPO) status, intravenous fluid support, and pharmacological management (including omeprazole, ondansetron, methylprednisolone, and tranexamic acid) aligned with standard protocols for managing corrosive ingestion (Badiu Tisa, et., 2023)

However, one limitation was the lack of more aggressive early intervention or endoscopic evaluation during the patient's initial hospital stay, which might have detected the esophageal and gastric injury sooner, possibly preventing further complications. Early endoscopy within

the first 24 hours of ingestion is recommended in such cases to assess the extent of mucosal injury and guide future treatment. Despite these limitations, the management approach provided essential stabilization and timely referral for definitive surgical treatment (Khan, et al., 2019) (Chang, et al., 2016) (Shaprynskyi, 2020)

The case is highly relevant to medical literature on corrosive esophagitis caused by strong alkaline agents. Alkaline substances, such as those found in cleaning fluids, cause liquefactive necrosis, allowing deep tissue penetration and resulting in more severe injuries than acidic substances. According to existing literature, complications like esophageal strictures, perforations, and gastric injuries are commonly associated with the ingestion of strong alkali. This patient's symptoms of hematemesis, melena, and dysphagia, along with radiological findings of esophageal narrowing and gastric perforation, are consistent with known presentations of corrosive esophagitis. Moreover, while gastric perforation is a rare but documented complication, the delayed onset of severe symptoms in this case is an important feature worth noting. Most studies emphasize the importance of early endoscopy and the potential for delayed complications, which underscores the necessity of long-term follow-up, as demonstrated in this case ((Shaprynskyi, 2022) (Yoon, et al., 2018) (Mastracci, et al., 2020).

The rationale behind the clinical management in this case was grounded in the need to prevent further damage to the gastrointestinal tract and address the risk of perforation. The patient's initial treatment at another hospital might have focused on symptomatic relief and clinical stabilization, explaining the early discharge after initial improvement. However, the recurrence of symptoms and development of complications like hematemesis and melena indicate that the corrosive injury was more extensive than initially recognized. The second hospital admission provided an opportunity for more comprehensive diagnostics, including imaging with contrast, which confirmed the suspected gastric perforation. The decision to refer the patient for surgical intervention was crucial, as surgical repair is often necessary in cases of severe gastric injury (Seo, et al., 2015) (Montoro-Huguet, 2022) (Mitra, et al., 2020).

The primary takeaway from this case is the importance of early and thorough diagnostic evaluation following corrosive substance ingestion, particularly when strong alkaline agents are involved. Although patients may initially appear clinically stable, delayed complications such as esophageal strictures and gastric perforation can arise, as observed in this case. Clinicians must maintain a high level of vigilance and consider early endoscopy to assess the extent of injury. Furthermore, the case emphasizes the critical role of long-term follow-up and interdisciplinary management, involving gastroenterologists, surgeons, and primary care providers to ensure comprehensive care. Preventive measures, including public education on the proper labeling and storage of hazardous household substances, are also essential to reduce the risk of accidental ingestion and its potentially severe consequences (Jun, et al., 2020) (Oba, et al., 2018) (Maruhashi, et al., 2018).

## CONCLUSION

This case highlights the severe and delayed complications that can arise following accidental ingestion of a strong alkaline cleaning fluid. Early symptoms may not fully reflect the extent of gastrointestinal injury, emphasizing the importance of thorough initial evaluation and long-term follow-up. Prompt diagnostic imaging and multidisciplinary management, including surgical consultation, are crucial for addressing potential complications like gastric perforation. This case underscores the need for early endoscopic evaluation in corrosive ingestion cases to assess mucosal damage. Furthermore, public education on proper storage and labeling of hazardous substances is essential to prevent accidental ingestion. Clinicians must be aware of the potential for delayed symptoms and complications, even in patients who initially present with mild or improving symptoms.

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