

Endoscopic Diagnosis of a Perforated Duodenal Ulcer; - A Case Report

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ABSTRACT

Introduction: Duodenal perforations have been a pathology of significant global health concern with significant morbidity and mortality resulting in significant burden to the health expenditure in many countries. Across sub-Saharan Africa, peptic ulcer disease is associated with significant mortality and morbidity. Acute perforations in the duodenum are estimated to occur in 2 to 10% of patients with duodenal ulcers. As access to diagnostic endoscopy services has increased in many parts of sub-Saharan Africa, many patients with complications of peptic ulcer disease will have access to a diagnostic Esophagogastroduodenoscopy.

Methods: We document a case report of a patient who presented in the emergency unit with acute abdominal pain, was subsequently investigated with an Esophagogastroduodenoscopy done.

Results: Esophagogastroduodenoscopy found a duodenal cap perforation, patient was resuscitated and had an emergency laparotomy done with repair and omentopexy.

Learning point: Access to endoscopy has increased in many parts of Africa, therefore, it is important to be aware of the endoscopic features of a duodenal perforation to be aware of this presentation within the sub-Saharan African region.

Keywords: Case Report, Duodenal Perforation, Endoscopic Diagnosis, Sub-Saharan Africa

INTRODUCTION

Duodenal perforations have been a pathology of significant global health concern with significant morbidity and mortality with resultant significant burden to the health expenditure in many countries across the world [1-3].

Perforations have been mainly documented to occur in the stomach and the first part of the duodenum.

Across sub-Saharan Africa, peptic ulcer disease is associated with significant mortality and morbidity [2]

Acute perforations in the duodenum are estimated to occur in 2 to 10% of patients with duodenal ulcers [4-6].

Current guidelines for diagnosis of perforation involve clinical examination coupled with Radiological investigations with Esophagogastroduodenoscopy not playing any role [2,3].

As access to diagnostic endoscopy services is increasing in many parts of sub-Saharan Africa, these has meant that many of these patients presenting with complications of peptic ulcer disease will have access to a diagnostic Esophagogastroduodenoscopy in the course of management and therefore, it is important to review the endoscopic signs in these patients [4,5].

We highlighted a case of a patient with an epigastric pain who presented for a routine endoscopy at the gastrointestinal endoscopy unit and was diagnosed with a perforation of a duodenal ulcer. We emphasise the role of endoscopy in early presentation and highlight the need for a diagnostic algorithm that includes esophagogastroduodenoscopy.

With this, we hope to create awareness of the role of endoscopy in diagnosis of duodenal ulcer perforations, and further contribute to considerations in the diagnostic algorithm of duodenal perforations.

This case was reported using the guidelines highlighted in heart views [7,8].

CASE

53-year-old male with history of epigastric pain and vomiting for 2 days, accompanied by nausea, non-bilious vomiting and anorexia for a similar period.

He reported a 2 months history of dyspepsia and had been on proton pump inhibitor follows positive faecal *Helicobacter pylori* antigen tests done but with no follow-up esophagogastroduodenoscopy.

epigastric pain that was colicky in nature NRS (Numeric Rating Scale) 4/10, relieved by intravenous analgesia. The cardiovascular and respiratory systems where unremarkable.

The physical examination revealed an alert and well-nourished individual with a pulse rate of 83 beats per minute and a blood pressure of 117/89mmHg.

Initial laboratory tests included a complete blood count (CBC), which showed a total white blood cell count (WBC) of 7000/ml with a neutrophil count of 86%, other blood parameters where within normal limits.

Patient was scheduled for an Esophagogastroduodenoscopy in 4 hours following the initial assessment.

Esophagogastroduodenoscopy revealed normal oesophagus and cardia, severe hyperaemia with oedema of the fundus, body and antrum (Figure 1), minimal intragastric contents. Had a visible duodenal cap perforation of >0.5cm with active bi-directional flow of contents between the duodenal cap lumen and the peritoneum (Figure 1). Erect abdominal Xray showed multiple air fluid levels and, faecal mottling, however there was no air under the hemidiaphragms (Figure 2).

Following resuscitation with 2 litres of normal saline, laparotomy was performed. Intraoperative findings revealed 500mls of purulent fluid in the peritoneal cavity mainly in the upper abdomen, anterior duodenal cap perforation measuring about 0.5*0.5cm with active bi-directional flow (Figure 3), saponification of part of the omentum, we did a biopsy of the edge of the duodenal perforation, repaired the perforation with omentum (Figure 4), lavaged of the peritoneal cavity with copious amounts of warm saline Closed the abdomen enmass, Rectus with Nylon 2, Fat layer Vicryl 2/0, Skin with Nylon 2/0. No peritoneal tube drain was left in the abdomen. The nasogastric tube (NGT) was removed after 24 hours and patient was allowed to take oral sips after 48 hours.

Estimated blood loss < 100mls, patient received *helicobacter pylori* eradication therapy. Patient was doing well at follow-up. Histology revealed chronic inflammation consistent with no malignancy.

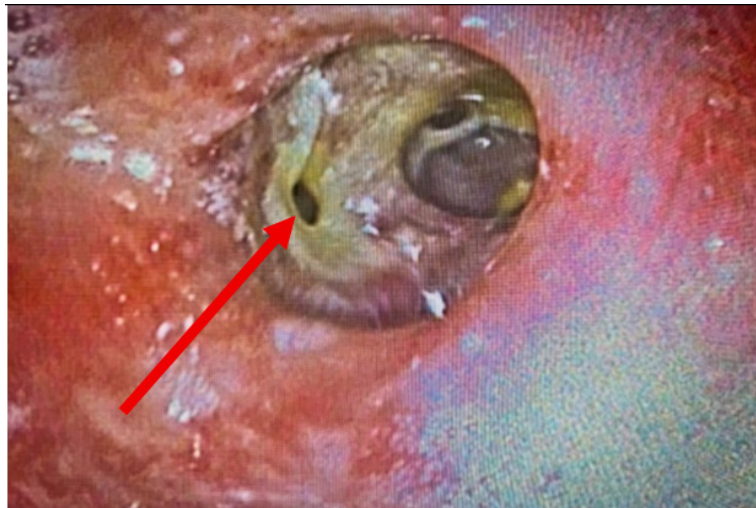


Figure 1: Endoscopic appearance of a duodenal cap perforation (Arrow shows the location of the perforation)

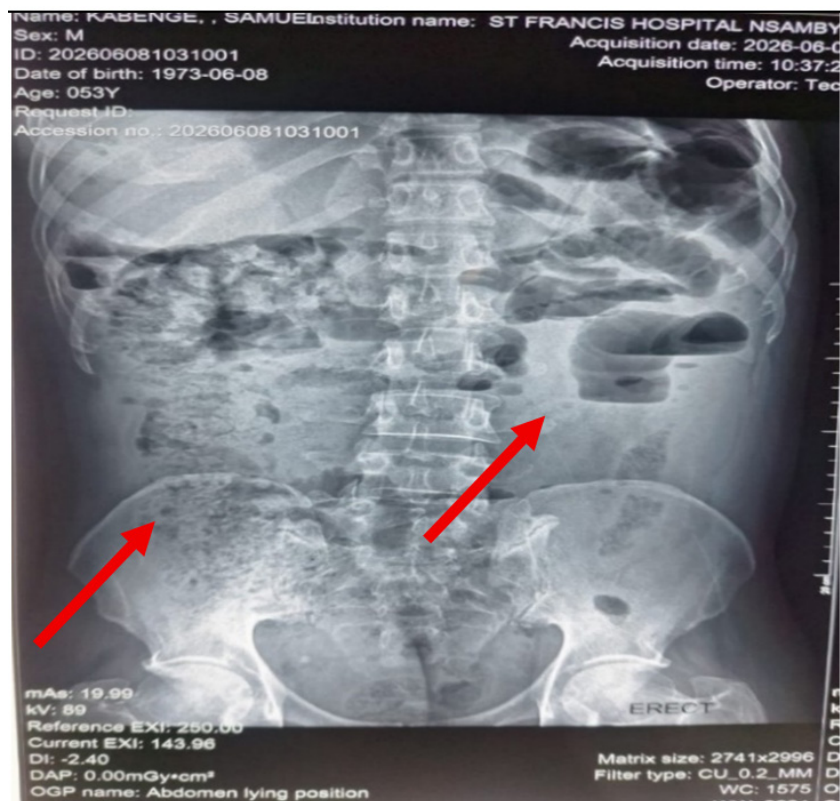


Figure 2: An Erect Abdominal X-ray indicating faecal mottling in the ascending colon (**right arrow**) and air fluid levels (**left arrow**)

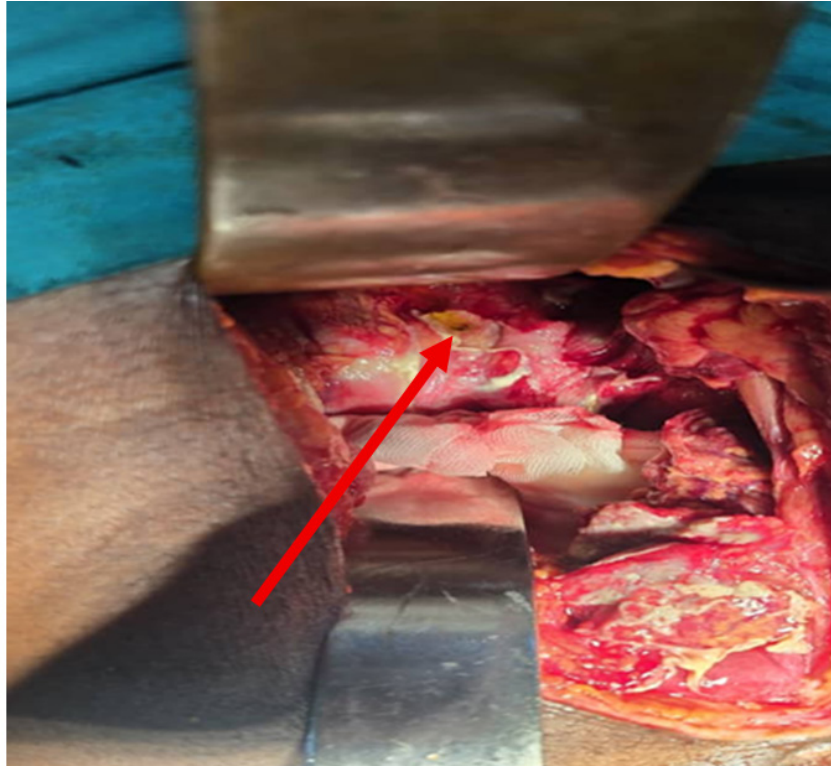


Figure 3: Duodenal perforation at Laparotomy (Arrow shows site of perforation 1st part Duodenum)

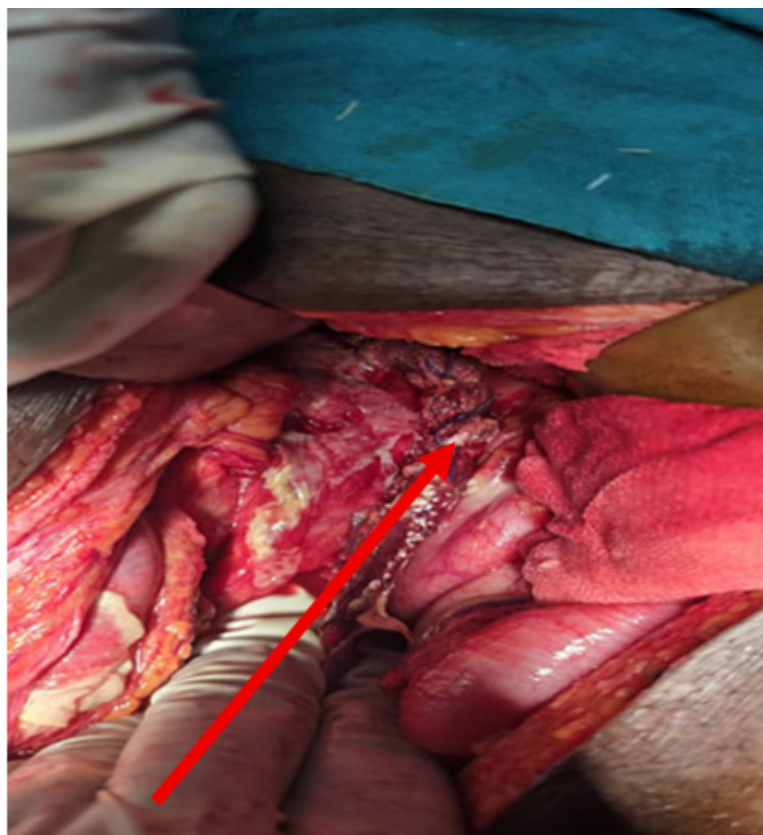


Figure 4: Perforation repaired with an overlaying omental strand (Arrow shows site after repair)

DISCUSSION

Peptic ulcer disease complications have resulted into significant mortality and morbidity across many parts of sub-Saharan Africa [3]. Surgery is the main stay of management of duodenal perforations [3].

Clinical history and examination as well as radiological investigations like plain erect abdominal radiographs have been the cornerstone for making a diagnosis [3].

In many settings, many of these patients present with acute abdominal symptoms to the accident and emergency unit in many hospitals where resuscitation and exploratory laparotomy with modified graham omentopexy is performed.

However, in many parts of sub-Saharan Africa, esophagogastro duodenoscopy has increasingly become available [4].

As a result, some of these patients may present earlier before these peptic ulcer perforations have peritoneal signs that are seen in many patients with perforations that present to the emergency unit.

Having the ability to suspect and diagnose these perforations earlier may significantly reduce the associated morbidity and mortality associated with duodenal perforations and may as well lead in exploration of non-surgical techniques as well as minimally invasive techniques of management.

With increasing access to endoscopy, it is important to consider development of diagnostic and treatment algorithms that highlight the role of endoscopy in diagnosis and treatment of some of these patients who present early with duodenal perforations.

Surgical management of duodenal ulcers remains the mainstay of treatment of many parts of sub-Saharan Africa [3], it is important to have these techniques of repair as part of surgical training within the region to improve overall surgical care and management of these patients.

The management of small duodenal cap perforations (<0.5cm) often involves surgery, the classic use of an omental tongue as described by Cellan-Jones in 1929 was the technique used in this patient as seen in Figure 3 [7]. The technique involved obtaining a strand of omentum and securing it with full thickness sutures places proximal, within and distal to the perforation (Figure 4). This technique has become the gold standard for the treatment of small duodenal perforation.

CONCLUSION

Access to endoscopy has increased in many parts of Africa, therefore, it is important to be aware of the endoscopic features of a duodenal perforation in order to improve patient care within the sub-Saharan region.

DECLARATIONS

Consent to Participate

Patient consented to the procedure and subsequent publication.

Consent for Publication

Written informed consent was obtained from the patient for publication of the images

Declaration of Use of Generative AI.

No generative AI was used in this article.

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Declaration of Conflict of interest

We declare no conflict of interest.

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Authors contribution

F.B. Wrote and edited the manuscript, S.S reviewed the manuscript, H.D.I reviewed the manuscript.

Data Availability

Not applicable.

REFERENCES

1. Xie X, Ren K, Zhou Z, Dang C, Zhang H. (2022). The global, regional and national burden of peptic ulcer disease from 1990 to 2019: a population-based study. *BMC Gastroenterol.* 22(1):58.
2. Rickard J. Surgery for Peptic Ulcer Disease in sub-Saharan Africa: Systematic Review of Published Data. *Journal of*

- Gastrointestinal Surgery. 20(4):840-850.
- Geographical Medicine. (1-2):209-214.
3. Soreide K, Thorsen K, Soreide JA. (2014). Strategies to improve the outcome of emergency surgery for perforated peptic ulcer. *The British journal of Surgery*. 101(1):e51-64.
 4. Archampong TN, Asmah RH, Richards CJ, Martin VJ, Bayliss CD, Botão E, et al. (2019). Gastro-duodenal disease in Africa: Literature review and clinical data from Accra, Ghana. *World J Gastroenterol*. 25(26):3344-3358.
 5. Holcombe C, Omotara BA, Padonu MK, Bassi AP. (1991). The prevalence of symptoms of dyspepsia in north eastern Nigeria. A random community-based survey. *Tropical and*
 6. Liang MK, Marks JL, Berman RS, Carter J. (2005). Management of complicated peptic ulcer disease. *Arch Surg*. 140(9):914-915.
 7. Cellan-Jones CJ. (2019). A rapid method of treatment in perforated duodenal ulcer. *British Medical Journal*. 1(3571):1076-1077.
 8. (2017). Guidelines To Writing A Clinical Case Report. *Heart Views*. 18(3):104-105.