



## CASE REPORT- RECURRENT DUODENAL ULCER PERFORATION

**Sharon Merlin Cherian\***

Post Graduate Resident, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry. \*Corresponding Author

**Saravana Kumar S**

Professor, Department of General Surgery, Mahatma Gandhi Medical College and Research Institute, Pondicherry.

**ABSTRACT**

Peptic ulcer disease remains one of the most common outpatient diagnosis in GI clinical practice. A large majority of cases are contributed to H.pylori infection and/or NSAID use. Other less common causes are Zollinger Ellison syndrome, antral G-cell hyperfunction, trauma, burns, smoking and psychologic stress. The three most common complications are bleeding, perforation and obstruction. Perforated peptic ulcers presents as acute abdomen to the emergency department usually. Ulcer recurrence is often related to H.pylori and/or NSAIDs. It can also be due to gastrin secreting tumors or even smoking. Recurrence of peptic ulcer perforation has limited documentation and has no standardized method of management. With an unknown incidence, it's a surgeon's dilemma and has to be managed specific to each presentation. Here, I would like to discuss a case of a 70 year old man, who presented with recurrent episodes of duodenal perforation in an interval of 2 years.

**KEYWORDS :** elderly male, peritonitis, smoking, recurrent perforation, duodenal ulcer perforation

**INTRODUCTION**

Peptic ulcer disease remains one of the most common<sup>1</sup> outpatient diagnosis in GI clinical practice. Peptic ulcers are focal deficits in the gastric or duodenal mucosa that extend into the submucosa or deeper. They can be acute or chronic and are because of an imbalance between mucosal defenses and acid/peptic injury. A large majority of cases are contributed to H.pylori infection and/or NSAID use. H.pylori<sup>2</sup> acts by both acid hypersecretion and compromise of the mucosal defenses, whereas NSAIDs<sup>3</sup> act on only the mucosal barriers. Other less common causes are Zollinger Ellison syndrome, antral G-cell hyperfunction, trauma, burns, smoking<sup>4</sup> and psychologic stress to name a few. The three most common complications<sup>5</sup> are bleeding, perforation and obstruction.

Perforated peptic ulcers presents as acute abdomen to the emergency department usually. The patient comes in distress with abdominal examination showing signs of peritonitis; marked voluntary guarding and rebound tenderness on gentle palpation. On abdominal erect x-ray<sup>6</sup>, free air is noted in 80% of the patients. They are treated with analgesics, antibiotics, fluid resuscitation and taken to the operation theatre. Sometimes, the perforation seals spontaneously and surgery<sup>7</sup> can be avoided. Non-operative management<sup>8</sup> is appropriate only if radiological evidence of leak being sealed and absence of clinical peritonitis.

Recurrence of peptic ulcer perforation has limited documentation and has no standardized method of management. With an unknown incidence, it's a surgeon's dilemma and has to be managed specific to each presentation.

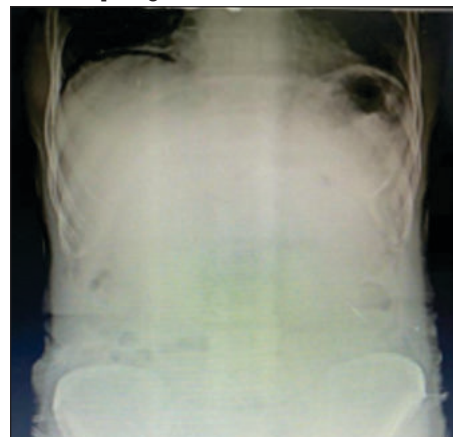
**Case Report**

On the January of 2019, a 70-year-old man, with no known comorbidities and no history of chronic drug intake presented to the emergency department, with a one-week history of abdominal pain initially in the epigastric region and the pain aggravated for one day and now diffusely present. No history of nausea or vomiting or any abdominal distension. No other complaints. He was a known smoker and alcoholic. On examination, he was afebrile with tachycardia and tachypnea but normotensive. On abdominal examination, guarding was present in the epigastric region with tenderness limited to the upper abdomen. On chest x-ray free air<sup>9</sup> was noted below the right dome of the diaphragm. He was diagnosed as hollow

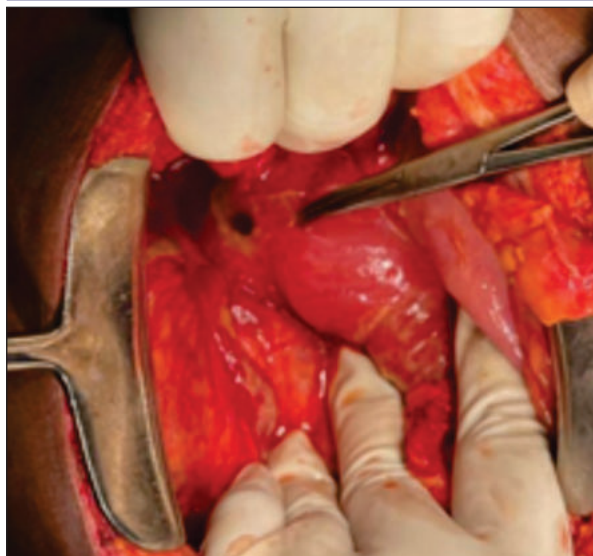
viscus perforation and immediately taken for emergency laparotomy, where intra-operatively a perforation was noted at the first part of the duodenum and was sealed with omentum using the Graham's omentoplasty technique<sup>10</sup>. Thorough wash was given, an abdominal drain was placed and abdomen was closed in layers. Post-operatively antibiotics were continued, and once patient was symptomatically better, tolerating orally was discharged with long term PPI therapy<sup>11</sup> but was lost to follow-up.



**Figure 1:** X-ray Abdomen Erect Showing Air Under The Right Dome Of The Diaphragm (2019)



**Figure 2:** X-ray Abdomen Erect Showing Air Under The Right Dome Of Diaphragm (2020)



**Figure 3:** Intra-operative Picture Showing Duodenal Perforation

On the December of 2020, the then 72-year-old, now reformed smoker, presented to us again with a one-day history of abdominal pain in the periumbilical, epigastric and right hypochondrial region; associated with nausea and obstipation with no history of long-term drug intake. He was vitally stable with tenderness limited to the upper abdomen with guarding, with multiple abdominal wall hernias with absent bowel sounds. Xray abdomen done showed free air. CECT abdomen was done which showed D1-D2 junctional perforation with pneumoperitoneum and mild to moderate ascites. He was initially managed conservatively by Taylor's technique<sup>12</sup>. In view of positive CRP status, he was taken up for emergency laparotomy with graham's omentoplasty. Post-operatively, patient improved well and was discharged with Clarithromycin triple therapy for H.pylori infection.

On one month follow-up, upper gastroscopy was done and found to be normal with no reincident ulcers.

## DISCUSSION

Ulcer recurrence<sup>13</sup> is often related to H.pylori and/or NSAIDs. It was also be due to gastrin secreting tumours or even smoking. H.pylori infection is a major cause of peptic ulceration<sup>14</sup>. Upto 90% of patients with duodenal ulcers have H.pylori infection. From multiple prospective studies it is clear that curing H.pylori alters the natural history of PUD, decreasing the recurrence rate from more than 75% to less than 20% in patients treated with antibacterial therapy. Non-invasive tests for diagnosis of H.pylori infection include urea breath test, serology or detection of stool antigen. Histological evaluation of gastric biopsies and/or rapid urease test on fresh biopsies can also be done. If initial H.pylori testing is negative and ulcer symptoms persist, an empirical trial of anti-H.pylori therapy is reasonable.

Chronic use of NSAIDs<sup>3</sup> increases risk of PUD by 5 times and upper GI bleed by 2 times. Complications of PUD are more common with patients taking NSAIDs. Factors that have shown to put patients at a higher risk are age >60, prior GI event, high NSAID dose, concurrent steroid intake and concurrent anticoagulant intake. Any patient taking NSAIDs or aspirin who has one or more of these risk factors should receive concomitant acid suppressive medications.

Another cause for recurrent ulcers is smoking<sup>4</sup>, with smoking being twice as likely to cause PUD than non-smokers. Smoking causes the increase of gastric acid secretion and

duodeno-gastric reflux. It also decreases gastroduodenal prostaglandin production and pancreaticoduodenal bicarbonate production.

Use of crack cocaine<sup>15</sup> has been linked to juxta-pyloric peptic ulcers with a propensity to perforate.

Gastrinoma should be a differential diagnosis for recurrent or refractory peptic ulcer. Zollinger Ellison syndrome<sup>16</sup> is caused by hypersecretion of gastrin. A diagnosis of ZES is confirmed by secretin stimulation test. Patients with gastrinoma should have MEN1 ruled out. All patients with sporadic gastrinoma is considered for surgical exploration.

## CONCLUSION

Acute perforated peptic ulcer is still one of the most common causes of generalized peritonitis. Surgical management is performed to resolve the complications. It includes fixing the problem, leaving the origin of the problem; therein lies the short-coming of this case. With all the information we have on hand, regarding causes and its various managements, its up to us to make sure a patient like this does not visit us a third time.

## REFERENCES

1. Lanas A, Chan FKL. Peptic ulcer disease. *Lancet Lond Engl*. 2017;390(10094):613-624. doi:10.1016/S0140-6736(16)32404-7
2. Crespo A, Suh B. Helicobacter pylori infection: epidemiology, pathophysiology, and therapy. *Arch Pharm Res*. 2001;24(6):485-498. doi:10.1007/BF02975151
3. Goldstein JL, Cryer B. Gastrointestinal injury associated with NSAID use: a case study and review of risk factors and preventative strategies. *Drug Healthc Patient Saf*. 2015;7:31-41. doi:10.2147/DHPS.S71976
4. Hull DH, Beale PJ. Cigarette smoking and duodenal ulcer. *Gut*. 1985;26(12):1333-1337.
5. Milosavljevic T, Kostić-Milosavljević M, Jovanović I, Krstić M. Complications of peptic ulcer disease. *Dig Dis Basel Switz*. 2011;29(5):491-493. doi:10.1159/000331517
6. Ma V, Ea E. [Clinical and radiation diagnosis of circumscribed peritonitis complicating duodenal perforation]. *Vestn Rentgenol Radiol*. 2011;(3). Accessed July 10, 2021. <https://pubmed.ncbi.nlm.nih.gov/22288132/>
7. Nuhu A, Madziga AG, Gali BM. Acute perforated duodenal ulcer in Maiduguri: experience with simple closure and Helicobacter pylori eradication. *West Afr J Med*. 2009;28(6):384-387. doi:10.4314/wajm.v28i6.55032
8. Zil-E-Ali A, Bin Shafique M, Assad S, Ali H, Ghani U. A Non-invasive 24 Hours Stabilization of Duodenal Ulcer Perforation by a Combination Regimen. *Cureus*. 8(12):e908. doi:10.7759/cureus.908
9. Ramachar Sreevathsa M, Melanta K. R gas under diaphragm. *Int J Surg Case Rep*. 2016;28:314-316. doi:10.1016/j.ijscr.2016.10.016
10. Omental (Graham) Patch Technique: Standard Approach, Variations on Standard Approach, Laparoscopic Approach. Accessed July 10, 2021. <https://emedicine.medscape.com/article/1892935-technique>
11. Proton Pump Inhibitors (PPIs) - About GERD. Accessed July 10, 2021. <https://aboutgerd.org/treatment/medications/proton-pump-inhibitors-ppis/>
12. Dascalescu C, Andriescu L, Bulat C, et al. Taylor's method: a therapeutic alternative for perforated gastroduodenal ulcer. *Hepatogastroenterology*. 2006;53(70):543-546.
13. NA, KA. Is ulcer recurrence after simple closure of perforated duodenal ulcer predictable? *Indian J Gastroenterol Off J Indian Soc Gastroenterol*. 1993;12(3). Accessed July 10, 2021. <https://pubmed.ncbi.nlm.nih.gov/8354533/>
14. Tarasconi A, Coccolini F, Biffl WL, et al. Perforated and bleeding peptic ulcer: WSES guidelines. *World J Emerg Surg*. 2020;15(1):3. doi:10.1186/s13017-019-0283-9
15. Gaduputi V, Tariq H, Ihimoyan A. Atypical Gastric Ulcer in an Elderly Cocaine User. *Case Rep Gastrointest Med*. 2013;2013:e795258. doi:10.1155/2013/795258
16. De Angelis C, Cortegoso Valdivia P, Venezia L, Bruno M, Pellicano R. Diagnosis and management of Zollinger-Ellison syndrome in 2018. *Minerva Endocrinol*. 2018;43(2):212-220. doi:10.23736/S0391-1977.17.02745-6