



Perforated Gastric Ulcer Repair in the COVID-19 Pandemic Era; A Case Report and Literature Review

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Abstract

Perforated gastric ulcer (PGU) is a relatively common cause of peritonitis in elderly on long-term NSAIDs. Treatment algorithm however differs from center to center on managing this condition. Plenty of recommendations available on the literature at the moment to guide young surgeons in how to best manage patient in such situations. We are sharing our experience in managing case of a 76-years-old lady with perforated gastric ulcer who presented in septic shock during COVID-19 pandemic. We aim to highlight the process in decision making on timing of the surgical exploration and intervention and the factors that guide clinicians on the decision making.

Keyword: Peptic Ulcer Disease; Covid-19 Pandemic

Introduction

Complex peptic ulcer disease in the form of perforated gastric ulcer (PGU) is a life-threatening condition that needs to be suspected in a patient who came to Emergency Department (ED) complaining of severe abdominal pain [1,2]. The incidence of PGU is getting less and less with the widespread used of proton-pump inhibitors (PPI). This is probably one of the reasons why we are seeing less of such conditions. However, with the breakthrough and new understandings in human physiology and pathophysiology, newer recommendations have come into place in guiding young surgeons on how to best manage PGU's, especially in deciding when to best operate in this COVID-19 pandemic era [3].

As it is today, we are seeing a variety of ways on how to deal with such patients; some recommends that patient with PGU should be operated immediately while the other school of thought will recommend physiological optimization prior to embarking into surgery especially involving laparotomies [1,4].

As a surgeon, decision to cut is a gift. However, decision on when to cut requires experience and wisdom [5]. It is easy to decide on exploratory laparotomy to find the root of the problem but how to best deal with the problem requires years and years of training to achieve the optimal clinical acumen and judgement. One may even be able to rightfully decide for a surgery but the ideal timing is not as straight forward to decide [4,6].

In this article, we aim to discuss a case of an elderly with perforated gastric ulcer based on current literatures and recommendations.

Case Scenario

A 76-years-old lady presented to Emergency Department (ED) with sudden onset of abdominal pain which started in the past 2-days. It was progressively worsening in nature. Upon review in the emergency unit, severity of pain score was 8 out of 10, and associated with nausea and vomiting. Patient also had a pre-syncopal attack few hours prior presentation to emergency and noticed by

family members who then only decided to seek medical attention. She denies having fever at home. Of note, patient had been taking over the counter oral non-steroidal anti-inflammatory drugs (NSAIDs) for her bilateral knee osteo-arthritis. She is also a known diabetic and hypertensive but never on proper follow-up.

Clinically, she appears lethargic and tachycardic. The abdomen was rigid and peritonitis while bowel sound was absent. Bedside ultrasound showed free fluid at splenorenal space. Erect chest x ray shows air under diaphragm which is diagnostic of a perforated viscous. Her biochemical parameters however revealed that she is septic with metabolic acidosis. Her serum lactate was 8 mmol/L which indicates oxygen deprivation from inadequate tissue perfusion. Urine was concentrated with low output.

Peptic ulcer prognostic (PULP) score showed she has > 25% mortality (high risk) with physiological stratification using National Emergency Laparotomy Audit (NELA) score showed higher risk for mortality > 6% if operated immediately and only 3.5% if operated between 6-18 hours of optimal resuscitation.

Surgical team went in the same day for exploratory laparotomy immediately (< 2 hours) and noted intra-operatively a single 1.5 x 1.5 cm perforated gastric ulcer over the anterior surface of the with gross contamination with food particles throughout the peritoneal cavity. The ulcer edge was well delineated and benign-looking. Ulcerectomy was performed to clear unhealthy tissues surrounding the ulcer and perforation was repaired with Cellan-jones technique. Ryles tube was placed for decompression and subhepatic drain was placed.

Post op recovery was stormy with multi-organ failure, prolonged kidney injury and surgical site infection. She was only discharged after a long process of rehabilitation.

Discussion

Perforated peptic ulcer disease is a relatively common incidence worldwide [1,5]. The risk factor in developing this condition is multifactorial and most of the time are beyond control [2]. The COVID-19 pandemic is changing the approach and broadening the understanding of some topics in medical science [3]. In this pandemic era, the management of such condition has become more complex in view of the fear of contracting the COVID-19 virus versus best optimal treatment for the patient.

Peptic ulcer disease tends to occur in the elderly; co-morbid contributing to the condition and certain lifestyle dietary pattern. Considering the presence of these health conditions, treatment needs to be individualized to make the maximal disease outcome following intervention [7].

Co-morbid often will require patient to be on certain medications which interferes with the normal physiological defense against development of peptic ulcers [2,6,8]. For example, elderly tend to be on anti-platelets either for therapeutic reasons or prophylaxis against acute cardiac events [6]. Aspirin is one of the commonest anti-platelets used worldwide with a relatively good therapeutic index. However, when combined with other factors, such as poor dietary intake and patten and even worse so in some patients who are chronic smokers; peptic ulcer incidence rises into multiple folds [9].

Peptic ulcer can present in various states upon arrival to the emergency. Currently, few validated systems are available to stratify patients based on its severity, and the one we are using is the Perforated Ulcer Prognosis (PULP) score [2,4,6]. This classification will help clinicians in risk stratifying the severity of the of sepsis as a consequence from the perforated viscous [2,7]. This scoring system will relate the disease factor associated with perforated peptic ulcers to the survival in terms of rate of mortality [6].

In tangent to the PULP score, physiological parameters should also be taken into consideration and therefore we advocate the use of National Emergency Laparotomy Audit (NELA) score which was developed by National health Services (NHS) UK to help determine the risk of the surgery and help predict the possible outcome of such intervention [4,8]. NELA score can guide surgeons in determining the best possible timing on when to perform the surgical intervention; suggesting the optimal pre-operative preparation prior to surgery [4,6]. Physiological readiness to undergo such invasive procedure is now recognized as a major contributor in patients overall outcome following surgery [1,8,10]. Decision for surgery should be made based on the patient's best interest and following evidence base. Fully optimizing the patients physiological status might potentially avoid the unnecessary systemic complication caused by under-resuscitation [4,6].

In this pandemic era, timing is at paramount for the best interest of both parties, clinical teams' safety and the best clinical outcome

for the patient [3,10]. In-hospital protocols have changed dramatically since the worldwide outbreak of COVID-19. Patient screening for COVID-19 is done comprehensively to contain in hospital outbreaks and for the hospital to be able to take appropriate counter measures in an event of an outbreak [3]. World Health Organisation (WHO) and local health authorities have been updating the protocols numerous times to adapt to the latest evidence in how to best manage COVID-19 [3]. Timing is crucial.

As we are heading towards this new norm, patients' overall outcome should not be second priority as clinical outcome should be our most concern [3,4]. Common pathway for patients in general will require pre-admission COVID-19 testing and the results may sometimes take ages to be ready [3]. Therefore, emergencies protocols should not blindly follow the general protocol for in-hospital covid management as this delay may eventually affect the patients overall outcome and survival [3].

The process in reaching a decision for emergency intervention should also have changed to adapt to this new environment, especially in this era of Evidence Based Medicine (EBM) [4]. The days of when a decision for surgery was based on gut feeling and wits are supposed to be well behind and more of objective decisions based on evidence should be implemented for a better healthcare services [10]. Decisions based on personal judgement may sometimes cause rushing in providing therapy and occasionally also cause unnecessary delay in intervention [6].

However, clinical experience is also a major determinant in how to best manage patients. EBM may sometimes not represent a demography and geography accordingly as certain studies are done in urban areas may not completely consider factors in countryside situation or environment. Clinicians' ability to have good clinical judgement through experience with a combination of knowledge in the latest evidence is an ideal and this is the aim for the medical services moving forward.

Conclusion

COVID-19 pandemic is around and is meant to stay around for the next few years. Our clinical practice needs change to adapt to this new norm and must be based on collective experience from other clinicians. Scoring systems such as PULP and NELA score is helpful to guide young clinicians to best decide for treatment. This can be achieved by continuously updating our knowledge through latest evidence in literatures. However, clinical judgement need not

be put aside as clinical experience is also another major determinant on patients' outcome for peptic ulcer disease.

Conflict of Interest

None.

Source of Funding

None.

Appendix

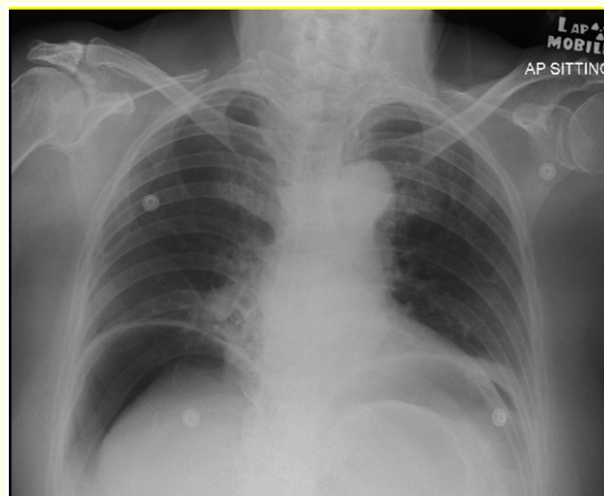


Figure 1: (Erect chest x ray) Arrow showing extensive air under diaphragm on erect chest radiograph.

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