

Graham's Patch Repair for Peptic Perforation: A Review

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ABSTRACT

Introduction: Frequently monitored, occurrences of peptic perforation due to a variety of etiologies are still frequently discovered. The surgical Graham Patch Repair technique is still regarded as having a respectable level of accuracy and profitability.

Methods: The PubMed literature search engine's advanced search feature was utilized to find literature review papers for this journal. Selected periodicals from which writing was based were collected.

Result: Peptic perforation can occur under a variety of circumstances, and both the Graham technique and the Modified Graham Patch repair are recommended. The benefit of using the best Graham approach is that it promotes quick wound healing while lowering morbidity and mortality.

Conclusion: Peptic perforation can occur in a variety of medical conditions, yet in these cases the Graham technique can still be recommended. Different surgical treatments regularly have unanticipated consequences, necessitating their modification or even combination in order to preserve the patient's life while also reducing prospective problems in the future.

KEYWORDS: gastric perforation, modified Graham patch repair, operative surgery, peptic ulcer

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INTRODUCTION

A significant complication that affects 2-10% of people with peptic ulcers is peptic ulcer perforation. Despite varying reports from authors, peptic ulcer perforation has an overall mortality of 10% and an incidence between 1.3% and 20%. Although fatalities are to be kept under control, this life-threatening consequence of peptic ulcer disease requires special attention, early resuscitation, and proper surgical management^{1,2,3,4} When an ulcer erodes through the entire thickness of the stomach or duodenum, a perforation results. The most frequent side effect of a stomach ulcer is perforation. Perforated peptic ulcer disease (PUD), particularly in the elderly, has an unbreakable link to bleeding ulcer and usage of non-steroidal anti-inflammatory medicines (NSAID) and/or aspirin. Only at time of perforation, NSAID use is prevalent in more than 20% of people above the age of 60 who have perforated ulcers.⁵ Graham patch repair is the most widely used technique for surgically closing the perforation. This approach was explained by Roscoe Graham in 1937. Through an open incision, the perforated ulcer can be seen. Following a laparotomy, packs are put all around perforation to catch any more spills whilst sutures are being

inserted, and the omental tongue is then pulled into place. The use of three or four sutures, ideally made of non-absorbable material. ⁶ On the other hand, among individuals with perforated peptic ulcers, omental patch repair is currently the gold standard. Data on the safe ulcer size for omental patch leak (OPL) repair are limited. ⁷ This surgical procedure still has a number of potential side effects, including the potential for gastric organ leakage. In a study with 422 PPU patients who underwent omental patch surgery, Maghsoudi and Ghaffari documented a 4% (n=17) leakage rate with both a 29.4% death rate in those who had a breach.⁸ A few of the aforementioned facts lead to the Graham patch repair technique maintaining its high levels of security and effectiveness.

METHODS

The goal of this review was to bring together various types of literature on Graham's patch repair techniques and peptic ulcers. The Graham method for treating peptic ulcers was related, according to the PubMed database. In order to find relevant articles, the following keywords were used: ((Graham's patch) OR (Modified Graham's repair)) AND

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(peptic perforation). The material used for this study was all written in English. The author did not limit the years published or the study design because the review of knowledge is still relatively limited. Each article's title and abstract served as the reviewers' basis for evaluation. Those who didn't meet the requirements were ejected out.

DISCUSSION

Gastric perforation is among the most major disorders that primarily affect people in Asia. Despite extensive research into the etiology of this condition, no single etiological agent can be held responsible for its occurrence, particularly in our portion of the state.⁹ Given that stress is the single most significant factor in the development of gastric perforation due to ulcers and that modern life is characterized by constant stress and strain, this condition is on the ascent. Perforations caused by gastric carcinoma were more common in stages III and IV, which are typically advantageous stages. Excessive consumption of alkalis mainly impacts the oesophagus, whereas intake of acidic solution generally includes the distal part of the stomach.² Trichobizzares infrequently perforates including during endoscopy procedures, which would be rare in nature. The perforation and subsequent peritonitis are life-threatening conditions. The therapeutic priorities are thus peritonitis treatment and securing perforation closure, which can be accomplished surgically.¹⁰

Considering of its relationship to a number of potential issues in the future, addressing cases of peptic perforation requires extreme accuracy, precision, and prompt action. Researchers contend that an exploratory laparotomy must be performed if there are any indicators of peritonitis.⁴ For avoid a disastrous outcome, this ought to be performed within 12 hours.¹¹ There are several surgical options, and the choice is based on the length of the peritonitis, the extent of the perforation, any prior clinical peptic ulcer disease, and co-morbid diseases.¹² The Graham technique is one of the surgical techniques that has been employed. Graham's technique includes several procedures, prior to the sutures being tied, the adjacent omentum is brought up to the perforation while the untied sutures are laid out over the anterior surface of the duodenum. The sutures are then tied one at a time from the superior to inferior side in order to tampon the laceration with the vascularized omental pedicle graft. While maintain the omentum in place, care should be taken to tie the sutures securely enough, but the stress that the tied sutures exert on the omentum ought to be and therefore the blood circulation to the omentum is not compromised. The omentum ought not be strangled, and the patch needs to be a functional omental patch. This is possible to employ the traditional Graham patch method that Grahams published in 1937.¹³ The term "Modified Graham patch repair" (MGPR) refers to a later modification of this procedure in which the 3 or 4 sutures are put as previously mentioned and are then tied to seal the ulcer. A second set of knots are tied to secure the omentum over

through the duodenal perforated closure after the omental patch is placed on the suture.

There are worries that the omentum won't be administered to the duodenal perforation as closely and might not provide as excellent of a seal as it does when it's placed directly on the open ulcer bed.¹⁴ Graham's procedure is modified by using pedicled omentum or omentoplasty to cover the sutured peptic hole. The use of vascularized pedicled omentum aids in perforation closing and lowers the chance that the sutures used to close the breach will come undone; neovascularization speeds healing of wounds and prevents relapse.¹⁵ Graham's came to the conclusion that a ruptured duodenal ulcer might be closed with an omental patch rather than a normal gastroenterostomy. The ruptured duodenal ulcer should be properly closed and the production of acid should be controlled. The traditional methods for controlling acid production include vagotomy, drainage procedures like gastrojejunostomy/pyloroplasty, and extremely selective vagotomy.¹⁶ Fallat ME et al examined 67 patients who had undergone perforated peptic ulcer surgery, including vagotomy and pyloroplasty in 32 patients, vagotomy and antrectomy in 8 patients, and Graham closure, which is plication with omentum in 27 individuals. Only patients with long durations or co-morbidities experienced increased mortality with simple closure. Rebleeding, perforation, and blockage are connected to Graham's closure. This process is risk-free and yields fantastic long-term outcomes.¹⁷ The surgical treatment of peptic perforation in elderly patients was investigated by Tsugawa K et al. They came to the conclusion that simple closure and vagotomy is advised due to the low mortality, with the exception of instances with enormous perforation of more than 20mm.¹⁸

In conclusion, pedicled omentum and a modified Graham's repair are ideal surgical techniques for treating perforated peptic ulcers because they reduce morbidity and mortality while also promoting rapid wound healing.¹⁹

Due to less pain, lower morbidity, and shorter hospital stays, minimally invasive surgery or laparoscopic correction of peptic perforation is becoming more and more common. However, because this requires more time during surgery and not all locations have access to skilled professionals, laparoscopic surgical repair of ruptured peptic ulcer is still not the preferred treatment in most hospitals. As the inflammatory tissue surrounding the peptic perforation is extremely friable, laparoscopic suturing techniques need a lot more time than open surgical approaches.²⁰ While still in the experimental stage, pedicled omentoplasty and stitching are being replaced by the use of a biodegradable patch that is bonded to the outside of the peptic perforation. By using this patch, the friable borders of the peptic perforation are not sutured, saving important surgical time.²¹ However, there will undoubtedly be issues with the Graham Technique in the field. Unexpected complications frequently occur with different surgical techniques, necessitating their modification or even their combination in order to save the patient's life

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while simultaneously minimizing potential issues in the future

CONCLUSION

Peptic perforation can develop in a variety of medical states, however the Graham approach can still be advised in these situations. Considering comparison to other surgical procedures as a whole, this method is examined in terms of its benefits and few potential risks. Given the numerous difficulties that might accompany cases of peptic perforation, however, the use of this approach must of course be handled carefully by taking into account the varied cases and complications that occur both intraoperatively and prior to surgery.

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