Hartmann’s Procedure And Its Outcome - An Analysis Of 78 Consecutive Cases

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Keywords
Hartmann’s, outcome, reversal, complications

Abstract

Background: To analyse the outcome of patients who had Hartmann’s procedure (HP) performed in a single institution.

Methods and findings: We retrospectively analysed 78 consecutive patients who had HP performed in our Hospital from 1st January 2010 to 31st December 2013 over a four year period. We analysed age, sex, indications, emergency or elective stoma formation, complications, reversal rate and complications of reversal. Mean age of these 78 patients with HP was 69 years (Range 34-92 years). Thirty five patients were females and 43 were males. In 61 (76.2%) patients HP was done as an emergency and in 17(23.8%) it was done on an elective basis. Out of these 78 patients, 40 (47.2%) had complicated diverticular disease and 25 (34.7%) had locally advanced or obstructed rectosigmoid carcinoma. Out of 78 patients who had HP, 12 died in the postoperative period. Nine (12.5%) patients developed parastomal hernia. One each had ischaemia, prolapse and stenosis. Only 18 (23.07%) patients had their Hartmann’s reversal (HR) done, all of these were by open method. Commonest complication following Hartmann’s reversal was hernia at the stoma site which was seen in three patients.

Conclusion: HP has a high mortality due to the primary disease process. It has a high rate of long term complications like parastomal hernia. In our series only 23.07 % patients had their Hartmann’s reversed.

Introduction

HP is a common operation in management of colorectal emergencies particularly in left colonic pathologies. It is also performed electively.
in selected cases. HP is relatively easy to perform and is used for prevention of an intestinal anastomosis in patients with intra-abdominal sepsis. From patient’s point of view it is a major responsibility and a change in their social, working and religious lives.

Methods
We retrospectively reviewed 78 consecutive patients with HP that were done in the period from 01/01/2010 to 31/12/2013. We included all patients who had either emergency or elective HP performed in this period. We noted their age, sex, indication for which they had HP done. We recorded number of patients who developed complications like ischaemia, stenosis, prolapse and parastomal hernia. We also recorded those patients who had HP performed, whether they were subsequently reversed or not. We recorded complications of Hartmann’s reversal (HR) like leakage, intestinal obstruction, wound infection and incisional hernia at stoma site in patients who had HR done.

Results
Of the 78 patients who had HP done, 15 patients died within 30 days of their surgery from their presenting illness. All of these patients presented with acute intra abdominal sepsis. Mean age of 78 patients with HP was 69 years (Range 34-92 years). Thirty five (44.8%) of these 78 patients were females and 43(55.2%) were males. 61(76.2%) were done as an emergency and 17(23.85%) were done on an elective basis. Out of the total 78 patients, 40 (51.2%) had complicated diverticular disease and 25 (32.05%) had locally advanced or obstructed recto sigmoid carcinoma. Three (3.8%) patients each had ovarian carcinoma and colovesical fistula. Two patients each had colovaginal fistula, and stercoral perforation. One patient each had sigmoid volvulus, strangulated left inguinal hernia and splenic flexure carcinoma. (Table-1)

<table>
<thead>
<tr>
<th>Indications</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverticular disease</td>
<td>40</td>
</tr>
<tr>
<td>Recto sigmoid Carcinoma</td>
<td>25</td>
</tr>
<tr>
<td>Ovarian Carcinoma</td>
<td>03</td>
</tr>
<tr>
<td>Colovesical fistula</td>
<td>03</td>
</tr>
<tr>
<td>Colovaginal fistula</td>
<td>02</td>
</tr>
<tr>
<td>Stercoral Perforation</td>
<td>02</td>
</tr>
<tr>
<td>Strangulated left inguinal hernia</td>
<td>01</td>
</tr>
<tr>
<td>Sigmoid Volvulus</td>
<td>01</td>
</tr>
<tr>
<td>Splenic flexure Carcinoma</td>
<td>01</td>
</tr>
</tbody>
</table>

Table 1. Indications of Hartmann’s Procedure.

Nine (12.5%) patients developed parastomal hernia. One each had ischaemia, prolapse and stenosis. (Table-2)

<table>
<thead>
<tr>
<th>Indications</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parastomal Hernia</td>
<td>09</td>
</tr>
<tr>
<td>Ischaemia</td>
<td>01</td>
</tr>
<tr>
<td>Prolapse</td>
<td>01</td>
</tr>
<tr>
<td>Stenosis</td>
<td>01</td>
</tr>
</tbody>
</table>

Table 2. Complications of Hartmann’s Procedure.

Average time for Hartmann’s reversal (HR) was 352 days with a range of 105 to 2190 days. Out of 63 patients who were discharged from hospital after HP, 18 were subsequently reversed. Most common reason for non-reversal of stoma was one or more co morbid factors like stroke, myocardial infarction and angina in sixteen (20.5%) patients. Nine (11.5%) patients were considered fit for HR but they were happy with their stoma and did not want to have reversal. Only eighteen (23.07%) out of 78 patients had their Hartmann’s reversed. Remaining twenty patients, who did not have reversal, cause for non- reversal was not clear from their notes. Most common complication following Hartmann’s reversal was hernia at the stoma site in four patients. One patient developed minor postoperative leak that settled conservatively and one had colovesical fistula after HR.
Discussion

HP is a good option for surgical treatment in complicated recto sigmoid pathologies, particularly diverticular disease or obstructed cancers. The morbidity and mortality of this operation is highly dependent on the degree of preoperative sepsis and the patient’s preexisting condition [1]. Complications after HP are common and can be early complications like ischaemia or late complications like stenosis, prolapse and parastomal hernia. Up to 30% of patients with a stoma have been shown to need surgical re-intervention in first 10 years [2]. Studies have shown that 88% of patients with diverticular disease had primary anastomosis after resection of sigmoid colon though 86% in this series were done electively. [3]. Some studies have quoted a HR rate of 46% though in our study only 18 (23.07%) patients had reversal out of 78. [4]. Another retrospective study, very similar to ours, showed that 63% of HP was done as an emergency and 37% as elective procedures. In our study this percentage was 76.2% and 23.8% respectively. The overall postoperative mortality in this study was 10%, with no significant difference between the emergency and the elective group. Patients who were suitable for reversal, only 70% had it done with no postoperative death or anastomotic leakage after reversal. [5] This multicentre study showed that 35.2% patients who had undergone reversal after HP were younger and had a low American Society of Anaesthetists (ASA) score. Complications occurred in 45.2% of these patients and were associated with age, diabetes mellitus, arteriosclerosis, obesity, smoking, chemotherapy and COPD. [6] This study attempted to quantify the risk of non-closure by deriving a predictive scoring system for Hartmann’s reversal and 88% with scores greater than 18 did not have it reversed. [7] 72.5% of emergency Hartmann’s were performed for benign diseases whereas 68.9% of the elective Hartmann’s were performed for cancer in this series. 23.3% of these patients underwent reversal with a median time interval of 284.5 days. [8] In our series time of reversal of Hartmann’s varied from 105 days to 2190 days with a mean of 352 days. Emergency HP showed that mortality and morbidity rates were 19% and 65%, respectively. Age and respiratory disease affected mortality rates whilst hypertension and cardiac disease affected morbidity rates. 40% of these patients had reversal after a median of 9 months. (p=0.011). [9] Patients >60 years old who had HR had significantly longer length of hospital stay compared to rest of the group. There were no differences in outcomes between groups based on ASA score or the presence of multiple preoperative comorbidities. An albumin level of <3.5 was the only significant predictor of postoperative complications. [10] Of all the patients who underwent HP, reversal was performed in 25.9% with a mean time of 13.3 months. There were no deaths but 54.8% suffered complications. Male sex, non-neoplastic disorder, younger age and lower anaesthetic risk were factors favouring a reversal. [11]

Retrospective analysis from a single centre assessing the outcome of HR showed that patients who underwent reversal were mostly ASA 2 (60%), with very few being ASA 4 (4.6%). There was a significant influence of hypertension, smoking and ASA grade on complications after HR. [12] A single-center study of a prospective colorectal surgery database showed that in the open HR group mean operative time, the estimated blood loss and complication rate at one and twelve months were significantly higher compared to laparoscopic HR group. Open HR also had 56% higher costs compared to the laparoscopic HR, when combining the surgery-related costs and the length of hospital stay.[13] A systematic review with eight comparative studies showed that laparoscopic
HR has a significantly reduced complication rate (P < 0.01), intra-operative blood loss (P < 0.001) and hospital stay (P < 0.01) compared with open HR. [14] Hartmann’s procedure for rectal cancer was done in patients who were significantly older, had higher ASA-score, poorer WHO performance score and lower serum albumin levels. Operative time for HP was shorter than after anterior resection and had less bleeding. Few patients developed pelvic complications despite a higher age, more co-morbidities, metastases and functional compromise when compared with the patient who had anterior resection or abdominoperineal excision. HP is a useful alternative procedure in the old and frail patients with rectal cancer. [15]

While HP is the most commonly performed operation for acute diverticulitis, primary anastomosis with (PAPD) or without (PA) proximal diversion are also performed in appropriate patients. Thirty-day mortality was 7.3%, 1.6% and 4.6% for HP, PAPD, and PA respectively while surgical site infections occurred in 19.7%, 13.2% and 17.9% respectively in these patients. After adjusting for age, alcohol consumption, comorbidities, steroid use, preoperative laboratory values, hemorrhage at admission and laparoscopic surgery three groups did not have significantly different risk of infective surgical complications, acute kidney injury, cardiovascular incidents, or venous thromboembolism. [16] A systematic review containing 14 studies was conducted to compare different surgical treatments for Hinchey III or IV diverticulitis. Primary resection with anastomosis had a significant advantage in terms of lower mortality rate with respect to HP and a shorter length of stay. Morbidity and hospital stay were further lower in the laparoscopic peritoneal lavage group compared to the primary resection and anastomosis group. [17] Patients with laparoscopic HP had significantly longer hospital stay compared to LLD (P < 0.01). Though both laparoscopic HP and LLD can be performed safely and effectively for managing severe diverticulitis with generalized peritonitis, LLD showed significantly better short- and long-term clinical outcomes for managing perforated diverticulitis. [18] Hartmann’s procedure for perforated diverticulitis is associated with significant morbidity and mortality. Independent predictors of morbidity were Hinchey IV (P < 0.001) and hypoproteinaemia (P = 0.001) and for mortality were ASA > 3, abnormal creatinine, steroid use, Hinchey IV, low albumin and low body mass index. Efforts should focus on the identification of patient benefiting from early elective surgery and alternative surgical approaches in perforated diverticulitis. [19] Anastomotic leakage after PA was associated with patient co-morbidity rather than with Hinchey category, suggesting that the decision to perform PA should be guided by patient’s general condition rather than on the extent of intra abdominal inflammation. [20] Primary resection and anastomosis with or without proximal diversion and laparoscopic lavage are alternatives to HP. Change in surgical approach needs large multi centered prospective randomized trial to determine the best strategy in emergency management of diverticulitis. [21]

Conclusion
HP has an invaluable role in appropriate cases but has a considerable morbidity and mortality in these patients who are very unwell. They should be reversed where suitable to improve body image and quality of life. The morbidity of stoma closure is appreciable with hernia at stoma site being most common. In a large no. of patients HP is never reversed even though the primary disease is under control.

Conflict of interest
None

Acknowledgement
None
References


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