

Emergency Management of Malignant Colonic Obstruction: Experience from a Tertiary Care Referral Center.

Dr Vasitha Abeysuriya¹, Dr.Sanjay de Mel², Dr Visula Abeysuriya³,
Mr.Primesh de Mel⁴, Dr.Chandima de Mel⁵, Prof. Lal Chandrasena⁶,
Prof. Suranjith L Seneviratne⁷.

¹Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC, Colombo Sri Lanka.

²Department of Haematology-Oncology National University Cancer Institute National University Health System Singapore

³Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC Colombo Sri Lanka.

⁴Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC, Colombo Sri Lanka

⁵Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC, Colombo Sri Lanka

⁶Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC, Colombo Sri Lanka
Institute of Immunity and Transplantation, Royal Free Hospital and University College London UK.

Corresponding author: Dr Vasitha Abeysuriya

Nawaloka Hospital Research and Education Foundation Nawaloka Hospitals PLC, Colombo Sri Lanka.

Abstract

Introduction: The management of colonic obstruction due to malignant lesions still remains a challenging problem.

Methods: A retrospective study was performed from 2014 to 2020 of 10 consecutive patients (male 06; female 04, range 60 to 89 years) who underwent emergency surgical procedures for acutely obstructing colorectal cancer in our unit. Patient demography, characteristics of the obstructing tumours, type of management and outcome was analyzed by tabulating the post operative mortality risk using Association of Coloproctology of Great Britain and Ireland (ACPGBI) malignant large bowel obstruction (MBO) score.

Results: All patients presented with features of acute intestinal obstruction. Most of the tumours were in Dukes C (5). The majority of patients were in ASA 2 (5). One had left hemi-colectomy; 5 sigmoid colectomy; 2 subtotal colectomy; 2 anterior resections. One had Hartmann's procedure and rest had primary anastomosis with 4 defunctioning ileostomies. Five patients required on table colonic lavage. One patient died (1/10). No anastomotic leaked were recorded. Three patients had superficial surgical site infections. Age over 70 years, higher ASA and Dukes staging and male gender were associated with higher MBO scores. The average ACPGBI- MBO score for Hartmann's procedure was 2.2426 +/- 0.2391 SEM % and mortality score was 2.371 +/- 1.312 SEM. The average ACPGBI- MBO score for primary anastomosis was 1.6246 +/- 0.2444 SEM % and mortality score was 1.8112 +/- 0.995 SEM. There was no significant difference in survival after Hartmann's Operation compared to the primary anastomosis with diversion. (P=0.1)

Conclusion: Obstructing colorectal cancer is associated with a poor prognosis. It appeared that Hartmann's operation did not confer additional survival benefit over primary anastomosis with diversion. However further studies need with large number of patients.

Date of Submission: 08-04-2020

Date of Acceptance: 23-04-2020

I. Introduction

Between 15–20% of patients with colonic cancer present with symptoms of acute obstruction.(1-4) Emergency surgery for acute colonic obstruction carries a significant risk of mortality and morbidity. A large number of patients will have a colostomy which is either temporary or permanent.(1,2,5,6) There are several treatment options which include, simple colostomy, primary resection with end colostomy (Hartmann's operation), one-stage resection anastomosis which could be subtotal colectomy or segmental colectomy, with or without intra-operative colonic irrigation and colonic stenting. However, the emergency management of acute left-sided colonic obstruction remains controversial.(8-11) The Association of coloproctologists of Great Britain and Ireland (ACPGBI) bowel cancer model was developed to provide a risk adjusted estimate of post-operative mortality for patients undergoing surgery for bowel cancer. The probability of a post-operative death within 30 days can be calculated by entering into the model values for the following risk factors; age (years), ASA grade, operative urgency, Dukes' staging and cancer excision. (5) The aim of this retrospective study is to compare the

different surgical approaches in obstructing colorectal cancer in terms of mortality and morbidity and also to tabulate the post operative mortality risk using ACPGBI malignant large bowel obstruction (MBO) score.

II. Methods:

Ten consecutive patients, who presented with acutely obstructed colon due to colorectal cancer to our unit from 2014 to 2020, were retrospectively analyzed. Patient demography, characteristics of the obstructing tumours, type of management and outcome was analyzed. Patients underwent, left hemi-colectomy, sigmoid colectomy, subtotal colectomy, anterior resections or Hartmann's procedures either primary anastomosis or defunctioning ileostomies, accordingly. Further, risk prediction of probability of 30 days post-operative death was calculated for age categories, ASA grading, dukes staging and according to the sex of the patients, using ACPGBI- MBO scoring system.

All surgical procedures were performed under general anaesthesia by a single surgical team, with intermittent positive pressure ventilation. All subjects underwent laparotomy through a midline incision and initially managed in an intensive care unit, with intermittent positive pressure ventilation. Intravenous dose (1.2mg) of co-amoxiclav and intravenous metronidazole 500mg at the time of induction of anaesthesia, followed by three post-operative doses per day of antibiotic for minimum of 5 days.

Statistical analysis: Data are expressed as mean (SEM) and analyzed using a Statistical Package for Social Sciences version 11, (SPSS 11.0, Chicago, Illinois, USA). The mean MBO scores of age categories, ASA grading, dukes staging and according to the sex of the patients were compared using the t-test. Significance was assigned to a p-value of <0.05.

III. Results:

A retrospective study was performed from 2014 to 2020 of 10 consecutive patients (male 06; female 04, range 60 to 89 years) who underwent emergency surgical procedures for acutely obstructing colorectal cancer in our unit. The majority of patients were in ASA 2 (5) whilst ASA 3 (3) and ASA 4 (2). The majority of the patients were in the age of 60 -70years (7). There were 3 Dukes B, 5 Dukes C and 2 Dukes D cancers. Timing of surgery range from 6 to 12 hours of admission. One had left hemi-colectomy; 5 sigmoid colectomy; 2 subtotal colectomy; 2 anterior resections. One had Hartmann's procedure and rest had primary anastomosis with 4 defunctioning ileostomies. Five patients required on table colonic lavage. One patient died (1/10). No anastomotic leaked were recorded. Three patients had superficial surgical site infections. Median length of stay in hospital is 9 days (range 8-12 days).

Significantly higher MBO scores were seen over the age of 70, (71 to 80 years; 1.7444 +/- 0.3445 SEM % and 81 to 90 years 2.0246 +/- 0.2674 SEM %). Whilst, ASA grade 4 had the highest MBO score 2.1178 +/- 0.5247 SEM %. Dukes staging 4 had the highest MBO score 2.1178 +/- 0.5247 SEM %. The males had a significantly a higher cumulative MBO score than the females (1.8367 +/- 0.4325 SEM % vs. 1.3246 +/- 0.3674 SEM %, P-0.02). The average ACPGBI- MBO score for Hartmann's procedure was 2.2426 +/- 0.2391 SEM % and mortality score was 2.371 +/- 1.312 SEM. The average ACPGBI- MBO score for primary anastomosis was 1.6246 +/- 0.2444 SEM % and mortality score was 1.8112 +/- 0.995 SEM. There was no significant difference in survival after Hartmann's Operation compared to the primary anastomosis with diverting ileostomies. (P-0.1)

IV. Discussion:

Primary colonic resection for acute colonic obstruction is considered the standard treatment by most surgeons. Debate exists, however, as to the type of operation. Primary resection with end colostomy, known as Hartmann's procedure, is considered the safest option.(6,10-14) The main advantages are that there is no risk of anastomotic dehiscence and the operation can be performed by less experienced and non-specialist surgeons. The main disadvantages of Hartmann's operation are the need for a second major operation to reverse the colostomy, and the fact that 40–60% of patients do not have their colostomy reversed, thereby significantly affecting their quality of life.(10,11,15-18) The reversal rate for Hartmann's operation done specifically for cancer is actually much lower at less than 20%.(10,11)

Primary resection and anastomosis has an advantage since it is a definite procedure that does not require further surgery. The main disadvantages are that it requires a more experienced surgeon and there is a risk of anastomotic leakage from an unprepared bowel in an already very ill patient. There are no sufficient data to compare the two techniques. (18-21)

According to the literature, it had not been shown that Hartmann's operation to have any benefit in mortality.(5-7, 11-13) Indeed, studies have shown Hartmann's operation to be associated with a poorer prognosis.(11-13) Our study also revealed that the average ACPGBI- MBO score for Hartmann's procedure was 2.2426 +/- 0.2391 SEM % and mortality score was 2.371 +/- 1.312 SEM. The average ACPGBI- MBO score for primary anastomosis was 1.6246 +/- 0.2444 SEM % and mortality score was 1.8112 +/- 0.995 SEM and there

was no significant difference in survival after Hartmann's Operation compared to the primary anastomosis and diversion. (p=0.1)

Although one-stage resection and anastomosis is considered to be a better option than Hartmann's procedure in left-sided colonic obstruction, this is not true for all patients, and other parameters should be examined before choosing the operation. Patients should be stratified according to risk predictors as stated by the Association of Coloproctology of Great Britain and Ireland (ACPGBI).(5,21,22)

As shown by our study that there were significantly higher MBO scores seen over the age of 70, (71 to 80 years; 1.7444 +/- 0.3445 SEM % and 81 to 90 years 2.0246 +/- 0.2674 SEM %), ASA grade 4 (MBO score 2.1178 +/- 0.5247 SEM %), Dukes staging 4 (MBO score 2.1178 +/- 0.5247 SEM %) and the males had a significantly a higher cumulative MBO score than the females (1.8367 +/- 0.4325 SEM % vs. 1.3246 +/- 0.3674 SEM %, p=0.02). Similar results were shown by other studies.(13,23-24) Therefore, it would be considered appropriate to choose a simpler and safer procedure such as Hartmann's operation or even a diverting colostomy for patients deemed to be at high risk after patients have stratified according to risk predictors as stated by the Association of Coloproctology of Great Britain and Ireland (ACPGBI).

V. Conclusions:

Obstructing colorectal cancer is associated with a high operative mortality and a worse prognosis. Hartmann's operation is indicated in cases of metastatic disease, technically difficult anastomosis or when there is simultaneous colonic perforation. As Hartmann's operation did not confer additional survival benefit over primary anastomosis and diversion, the later may consider as an option. However this need further studies with large number of patients.

Declarations

Ethics approval and consent to participate

Informed written consent was obtained to write the case report and the approval of Nawaloka Hospital Ethical Review Committee was obtained.

Consent for publication

Informed written consent was obtained for publication.

Availability of data and material

Laboratory reports and necessary clinical data were obtained from Bed Head Ticket.

Competing interests

No conflict of interest

Funding

No funding was received.

Authors' contributions

Study design was carried out by VA. Clinical assessment was carried out by CM and VA. Surgical interventions were carried out by VA. Data collection and manuscript writing was carried out by VA, CDM, CL, SDM, SS, PM and VA. All authors had equally contributed to the paper and review the manuscript with needful corrections.

Acknowledgements

We would like to thank Nawaloka Hospitals PLC medical staff, record room and surgical team for their contribution towards this study. Furthermore, would like to thank Nawaloka Hospitals PLC management for providing ethical approval. Finally, would like to thank patient who had provide consent for publication.

References:

- [1]. Phillips RK, Hittinger R, Fry JS, Fielding LP. Malignant large bowel obstruction. *Br J Surg.* 1985;72:296–302.
- [2]. Mella J, Biffin A, Radcliffe AG, Stamatakis JD, Steele RJC. Population-based audit of colorectal cancer management in two UK health regions. *Br J Surg.* 1997;84:1731–6.
- [3]. Serpell JW, McDermott FT, Katrivessis H, Hughes ESR. Obstructing carcinomas of the colon. *Br J Surg.* 1989;76:965–9.
- [4]. Umpleby HC, Williamson RCN. Survival in acute obstructing colorectal carcinoma. *Dis Colon Rectum.* 1984;27:299–304.
- [5]. Tekkis PP, Kinsman R, Thompson MR, Stamatakis JD. The Association of Coloproctology of Great Britain and Ireland study of large bowel obstruction caused by colorectal cancer. *Ann Surg.* 2004;204:76–81.
- [6]. Meyer F, Marusch F, Coch A, Meyer L, Fuhrer S, Kockerling F. German Study Group 'Colorectal Carcinoma (Primary Tumor)' Emergency operation in carcinomas of the left colon: Value of Hartmann's procedure. *Tech Coloproctol.* 2004;8:S226–9.
- [7]. Kronborg O. Acute obstruction from tumour in the left colon without spread. A randomised trial of emergency colostomy versus resection. *Int J Colorectal Dis.* 1995;10:1–5.
- [8]. Fielding LP, Stewart-Brown S, Blesovsky L. Large bowel obstruction caused by cancer: A prospective study. *BMJ.* 1979;2:517–9.
- [9]. De Salvo GL, Gava C, Lise M, Pucciarelli S. Curative surgery for obstruction from primary left colorectal carcinoma: Primary or staged resection? *Cochrane Database Syst Rev.* 2004;2 .

- [10]. Desai DC, Brennan EJ, Reilly JF, Smink RD. The utility of the Hartmann procedure. *Am J Surg.* 1998;175:152–4.
- [11]. Zorcolo L, Covotta L, Carlomagno N, Bartolo DC. Safety of primary anastomosis in emergency colo-rectal surgery. *Colorectal Dis.* 2003;5:262–9.
- [12]. Villar JM, Martinez AP, Villegas MT, Muffak K, Mansilla A, Garrote D. Surgical options for malignant left-sided colonic obstruction. *Surg Today.* 2005;35:275–81.
- [13]. Biondo S, Pares D, Frago R, Marti-Rague J, Kreisler E, De Oca J. Large bowel obstruction: predictive factors for postoperative mortality. *Dis Colon Rectum.* 2004;47:1889–97.
- [14]. Hennekinne-Mucci S, Tuech JJ, Brehant O, Lermite E, Bergamaschi R, Pessaux P. Emergency subtotal/total colectomy in the management of obstructed left colon carcinoma. *Int J Colorectal Dis.* 2006;21:538–41.
- [15]. The SCOTIA Study Group. Single-stage treatment for malignant left-sided colonic obstruction: A prospective randomized clinical trial comparing subtotal colectomy with segmental resection following intraoperative irrigation. *Br J Surg.* 1995;82:1622–7.
- [16]. Torralba JA, Robles R, Parrilla P, Lujan JA, Liron R, Pinero A. Subtotal colectomy vs. intraoperative colonic irrigation in the management of obstructed left colon carcinoma. *Dis Colon Rectum.* 1998;41:18–22.
- [17]. Naraynsigh V, Rampaul R, Maharaj D, Kuruvilla T, Ramcharan K, Pouchet B. Prospective study of primary anastomosis without colonic lavage for patients with an obstructed left colon. *Br J Surg.* 1999;86:1341–4.
- [18]. Turan M, Ok E, Sen M, Koyuncu A, Aydin C, Erdem M. A simplified operative technique for single-staged resection of left sided colon obstructions: report of a 9-year experience. *Surg Today.* 2002;32:959–64.
- [19]. Patriti A, Contine A, Carbone E, Gulla N, Donini A. One-stage resection without colonic lavage in emergency surgery of the left colon. *Colorectal Dis.* 2005;7:332–8.
- [20]. Lim JF, Tang CL, Seow-Choen F, Heah SM. Prospective, randomized trial comparing intraoperative colonic irrigation with manual decompression only for obstructed left-sided colorectal cancer. *Dis Colon Rectum.* 2005;48:205–9.
- [21]. Guenaga K, Atallah AN, Castro AA, Matos DDM, Wille-Jorgensen P. Mechanical bowel preparation for elective colorectal surgery. *Cochrane Database Syst Rev.* 2005;1 .
- [22]. Slim K, Vicaut E, Panis Y, Chipponi J. Meta-analysis of randomized clinical trials of colorectal surgery with or without mechanical bowel preparation. *Br J Surg.* 2004;91:1125–30.
- [23]. Zorcolo L, Covotta L, Carlomagno N, Bartolo DC. Toward lowering morbidity, mortality and stoma formation in emergency colorectal surgery: the role of specialization. *Dis Colon Rectum.* 2003;46:1461–8.
- [24]. Hsu TC. Comparison of one-stage resection and anastomosis of acute complete obstruction of left and right colon. *Am J Surg.* 2005;189:384–7.

Dr Vasitha Abeysuriya, et al. “Emergency Management of Malignant Colonic Obstruction: Experience from a Tertiary Care Referral Center.” *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(4), 2020, pp. 51-54.