



LAPAROSCOPIC COLORECTAL SURGERY; DISTRICT GENERAL HOSPITAL EXPERIENCE

Dr. Zulfiqar Hanif¹, Dr. Muhammad Attique², Dr. Haitham Qandeel³, Dr. Abdul Latif Khan⁴

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Hairmyres Hospital,
NHS Lanarkshire, Glasgow,
United Kingdom

Correspondence Address:

Dr. Rashad Qamar Rao
Vitreous Retinal Fellow,
The James Cook University Hospital,
Middlesbrough, UK
drrashadqr@yahoo.com

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INTRODUCTION

Although laparoscopic colorectal surgery was first introduced in 1991^{1,2}. It was not accepted readily by the surgical community due to concerns about safety and efficacy. Factors mainly included were technical,³ the lack of standardized technique,⁴ and long term oncologic outcome^{5,6,7,8} longer operative times⁹⁻¹⁰ and increased cost¹¹ were also matters of concern for most surgeons.

There are enough data now supporting laparoscopic surgery for management of colorectal cancer. Controversies over oncological safety have been dealt with in numerous randomised control trials (RCTs) showing that laparoscopic resection is not only associated with

ABSTRACT... Objective: The aim of this study was to assess the outcome of laparoscopic colorectal procedures performed in a district general hospital within 5 years period and to compare it with patients who had an open procedure during the same period. **Patients and Methods:** Data were collected retrospectively from patient's case notes retrieved from hospital medical records. One hundred consecutive cases of laparoscopic colonic resection including both benign and malignant diseases between 2005 and 2010 were analysed for perioperative and long term outcome and were compared with consecutive one hundred cases of open colectomies. **Results:** Overall conversion rate was 6% for laparoscopic group. The mean major complication rates in laparoscopic group were 5% (3% in open group) and minor complications occurred in 18% (28% in open group). There was no mortality in either group. The overall morbidity rate was 23% in laparoscopic group as compared to 31% in open colectomy group. In 64 cases, curative laparoscopic resections were performed for colorectal malignancy while 72 patients had resections for cancer in open group. The mean lymph node harvest in laparoscopic group was 13.2 nodes as compared to 12.4 in open group; no port-site recurrence was documented at a mean follow-up of 26 months. Average duration of surgery was 180 minutes as compared to 140 minutes in open group. Mean postoperative hospital stay was reduced from 13 days to 7 days. (Open Vs. Lap). There was no statistically significant difference in major complication rates and mortality. **Conclusions:** Laparoscopic colorectal surgery is safe and feasible in elective colorectal cases and reduces the hospital stay without any added morbidity.

Key words: Laparoscopic Colorectal Surgery, Open Colectomy.

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better short-term outcomes but without oncological compromise^{12,13,14,15}. Updated guidance (2010) from the UK National Institute for Health and Clinical Excellence recommends that all patients deemed suitable must be offered laparoscopic surgery even if this means onward referral to a suitably qualified surgeon. There are very little data available regarding safety and efficacy of laparoscopic colorectal surgery in smaller unit like ours in the UK. The aim of this study was to assess the outcome of laparoscopic colorectal procedures performed in a district general hospital within 5 years and to compare it with patients who had an open procedure during the same period.

PATIENTS AND METHODS

Data were collected retrospectively from patient's case notes retrieved from hospital medical records. One hundred consecutive cases of laparoscopic colonic resection for both benign and malignant diseases between 2005 and 2010 were analysed for perioperative and long term outcome and were compared with consecutive one hundred cases of open colectomies. All laparoscopic procedures were performed by one surgeon.

Statistical analyses were conducted using SPSS. The number of laparoscopic cases performed was quantified. Age was described by mean (SD), and the t test was used to compare the difference between 2 groups. The X^2 test was used to compare laparoscopic surgery with open surgery for sex, pathology, 30-days mortality and conversion rate. The length of hospital stay was described by median and full range. The Mann-Whitney test was used to compare the difference between the 2 groups. Statistical significance was set at a $P < .05$.

RESULTS

Characteristics of the Patients and Tumours
Between 2005 and 2010, one hundred consecutive patients were selected for each group i.e.; open and laparoscopic colectomy group. These resections included benign as well as malignant cases. 64 patients in laparoscopic group and 72 patients in open group had malignant disease. The two study groups were well balanced (Table I Baseline Characteristics of the Patients and Tumours.).

Surgery

All laparoscopic procedures were performed by one surgeon while open colectomies were performed by more than one surgeons. Conversion rate was 6% in laparoscopic group. Operating times were significantly longer in the laparoscopic-surgery group than the open-colectomy group (180 minutes vs. 130 minutes, $P < 0.001$). The extent of resection was similar in both groups. The mean lymph node harvest in laparoscopic group was 13.2 nodes as compared

to 12.4 in open group. The difference in median number of lymph nodes examined in two groups was not statistically significant. ($p = 0.52$)

Characteristics	Laparoscopic group (64)	Open group (72)
Age		
Range	38-78	41-82
Mean	64	68
Sex		
Male	42	40
Female	22	32
ASA Status		
I	4	3
II	38	41
III	22	28
Location of tumor		
Rt. Sided	28	32
Lt. Sided	18	22
Sigmoid	18	18
TNM Stage		
I	13	9
II	39	43
III	12	20

Table-I. Baseline characteristics of cancer patients (Lap 62 vs. Open 72)

Postoperative recovery

Postoperative recovery was faster in the laparoscopic group than in the open-colectomy group, as indicated by a shorter hospital stay ($P < 0.001$). Mean postoperative hospital stay was reduced from 13 days to 7 days. (Open Vs. Lap).

Complications

There were no significant differences between the groups in the rates of intraoperative complications and 30-day postoperative mortality. Similarly rates and severity of postoperative complications like

anastomotic leaks, re operations, readmissions and chest infections were not much different in two groups. Although wound infection was more common among open colectomy group but there was no statistically significant difference in major complication rates and mortality.

Complications	Laparoscopic group	Open group	P-value
Wound infection	3	13	<0.01
Intraabdominal collection	5	7	
Postoperative hemorrhage	1	-	
Anastomotic leak	2	3	
Re-operation	3	2	
Re-admission	5	3	
Chest infection	2	3	
Ureteric injury	2	-	

Table-II. Postoperative complications

Follow up

No port-site recurrence was documented at a mean follow-up of 26 months

DISCUSSION

In spite of the fact that there had been reluctance on the part of surgical community to accept laparoscopic colorectal surgery since its introduction in 1991, it is now becoming increasingly popular. Hospital episode statistics (HES) data show that 22% of colon resections in the United Kingdom were performed through laparoscopic approach by 2008-9^{16,17}. The laparoscopic approach minimises surgical trauma and allows faster recovery from surgery. A number of randomised controlled trials have proven the safety and efficacy of laparoscopic colorectal surgery for malignant disease. Updated guidance (2010) from the UK National Institute for Health and Clinical Excellence recommends that all patients deemed suitable must be offered laparoscopic surgery even if this means onward referral to a suitably qualified surgeon¹⁸.

This retrospective study reviews the effectiveness of laparoscopic colorectal surgery compared with open surgery and the potential adverse effects in a district general hospital setting. This comprises of study period from 2005 to 2010. Our study provides data in support of the safety of laparoscopic colectomy for colon cancer as well as for benign diseases with respect to complications in a district general hospital setting. Hairmyres hospital is a medium size district general hospital with four colorectal surgeons, one of which has been performing these cases since 2004. We also have ERAS (early recovery after surgery) in place since 2004.

Overall conversion rate was 6% for laparoscopic group which is much less than reported in most of the case series^{19, 20}. This probably reflects better patient selection in laparoscopic group. The mean major complication rates in laparoscopic group were 5% (3% in open group) and minor complications occurred in 18% (28% in open group). There were three anastomotic leaks in open group, one of which did not require any surgical intervention. Remaining two anastomotic leaks in each group required re operation. One patient in laparoscopic group had major postoperative haemorrhage from omentum and required laparotomy for haemostasis. Two patients in laparoscopic group had ureteric injury requiring urological intervention post operatively. Wound infection rates were significantly higher in open group as compared to laparoscopic group. There was no mortality in either group.

Approximately two third of patients in each group had curative resection for cancers. Over a mean follow up period of 26 months there was no port site recurrence.

On the whole, these data suggest that laparoscopic surgery is safe and effective in elective colorectal cases and reduces the hospital stay. However this study is limited by its retrospective nature.

CONCLUSIONS

Laparoscopic surgery is safe and effective in

elective colorectal cases and reduces the hospital stay.

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REFERENCES

1. Cooperman AM, Katz V, Zimmon D, Botero G. **Laparoscopic colon resection: a case report.** J Laparoendosc Surg. 1991; 1(4):221-224.
2. Jacobs M, Verdeja JC, Goldstein HS. **Minimally invasive colon resection (laparoscopic colectomy).** Surg Laparosc Endosc. 1991; 1(3):144-150.
3. Wishner JD, Baker JW Jr, Hoffman GC, et al. **Laparoscopic-assisted colectomy. The learning curve.** Surg Endosc. 1995; 9(11):1179-1183.
4. Croce E, Azzola M, Russo R, Golia M, Olmi S. **Laparoscopic colectomy: the absolute need for a standard operative technique.** JSLS. 1997; 1(3):217-224.
5. Ambroze WL Jr, Orangio GR, Armstrong D, Schertzer M, Lucas G. **Laparoscopic surgery for colorectal neoplasms.** Semin Surg Oncol. 1994; 10(6):398-403.
6. Sawyer MA, Sawyer EM. **Controversies in laparoscopic surgery for colorectal cancer.** Curr Surg. 2004; 61(4):334-341.
7. Allardyce RA. **Is the port site really at risk? Biology, mechanisms and prevention: a critical view.** Aust N Z J Surg. 1999; 69(7):479-485.
8. Fodera M, Pello MJ, Atabek U, Spence RK, Alexander JB, Camishion RC. **Trocar site tumor recurrence after laparoscopic-assisted colectomy.** J Laparoendosc Surg. 1995; 5(4):259-262.
9. Alexander RJ, Jaques BC, Mitchell KG. **Laparoscopically assisted colectomy and wound recurrence.** Lancet. 1993; 341(8839):249-250.
10. Scott HJ, Spencer J. **Colectomy: the role of laparoscopy.** Surg Laparosc Endosc. 1995; 5(5):382-386.
11. Wexner SD, Johansen OB, Nogueras JJ, Jagelman DG. **Laparoscopic total abdominal colectomy: a prospective trial.** Dis Colon Rectum. 1992; 35(7):651-655.
12. Guillou PJ, Quirke P, Thorpe H, Walker J, Jayne DG, et al. **MRC CLASICC trial group. Short-term endpoints of conventional versus laparoscopic assisted surgery in patients with colorectal cancer (MRC CLASICC trial): multicentre, randomised controlled trial.** Lancet. 2005; 365:1718-26.
13. Jayne DG, Guillou PJ, Thorpe H, Quirke P, Copeland J, et al. **UK MRC CLASICC Trial Group. Randomized trial of laparoscopic-assisted resection of colorectal carcinoma: 3-year results of the UK MRC CLASICC Trial Group.** J Clin Oncol. 2007; 25:3061-8.
14. Abraham NS, Young JM, Solomon MJ. **Meta-analysis of short-term outcomes after laparoscopic resection for colorectal cancer.** Br J Surg. 2004; 91:1111-24.
15. Lacy AM, Garcia-Valdecasas JC, Delgado S, Castells A, Taura P, Piqué JM, et al. **Laparoscopy-assisted colectomy versus open colectomy for treatment of non-metastatic colon cancer: a randomised trial.** Lancet. 2002; 359:2224-9.
16. National Institute for Health and Clinical Excellence. **NICE implementation uptake report: Laparoscopic surgery for colorectal cancer: laparoscopic surgery for colorectal cancer.** 2010.
17. Jacobs M, Verdeja JC, Goldstein HS. **Minimally invasive colon resection (laparoscopic colectomy).** Surg Laparosc Endosc. 1991; 1:144-50.
18. National Institute for Health and Clinical Excellence. **Laparoscopic surgery for colorectal cancer.** 2006.
19. Larson DW, Davies MM, Dozois EJ, Cima RR, Piotrowicz K, Andersen K, et al. **Sexual function, body image, and quality of life after laparoscopic and open ileal pouch-anal anastomosis.** Dis Colon Rectum. 2008; 51:392-.
20. Adamina M, Kehlet H, Tomlinson GA, Senagore AJ, Delaney CP. **Enhanced recovery pathways optimize health outcomes and resource utilization: a meta-analysis of randomized controlled trials in colorectal surgery.** Surgery. 2011; 149:830-40.