Laparoscopic colorectal surgery in Baghdad teaching hospital A review of 12 patients

Ahmed S. Ahmed* **CABS, FACS, EBS (SO)**

Abstract:

Background: colonic resections by laparoscopy are being performed with increasing frequency worldwide.
Objective: The aim of this study is to evaluate our experience in the laparoscopic management of colorectal disease and to compare our results with other institutes.
Patients and Methods: This is a prospective study conducted during the period from 1st of January 2017 till the 15th of November 2017, 12 patients underwent laparoscopic colectomy in in Baghdad Teaching Hospital and followed up for 30 days postoperatively.
Results: 12 patients were included in this study, 83.3% of them were male, majority of patients (41.7%) were between 60 – 69 years, most of the patients (33.3%) have a body mass index of 23 -25, 83.3% of operations took 240 – 360 minutes and malignant diseases was the most common indication for surgery with (58.3%), while Abdominoperineal Resection was the most common indication for laparoscopic intervention (25%). Half of the patients discharged from hospital in 96-120 hours postoperatively, furthermore in majority of cases (66.7%) bowel sounds return to normal in 48-72 hours postoperatively. Conversion to open procedure occurred in 16.7% of patients, while complications occurred in 16.7% of patients.
Conclusion: Although laparoscopic colorectal surgery is a not popular in our institute, our results are promising.
Keywords: Laparoscopic, colorectal, conversion to open

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Introduction:

The first laparoscopic colectomy was performed in 1991; a great deal of controversy has surrounded its use, particularly in the management of colorectal cancer. (1)Laparoscopic colon resections increasing gradually in frequency all over world, though the use of minimal access surgery in colorectal surgery has lagged behind its application in other surgical fields. First reports of laparoscopic colon surgery for both benign and malignant disease initially appeared in 1991. Since then, laparoscopic colon resection has been successfully performed for the treatment of a wide spectrum of disease processes of the large bowel. These indications include invasive malignancies, colorectal cancer, inflammatory bowel disease, polyps, other inflammatory lesions, and even patients presenting with acute volvulus. Selection of patient who is suitable is important. There are both absolute and relative contraindications to the laparoscopic approach to colectomy. The relative contraindications to laparoscopy depend on each clinical condition of the patient and the Surgeon preference, including:

- Tumor larger than 8 cm
- Dilated bowel or paralytic ileus
- Tumor invading adjacent structures
- Emergency surgery
- Previous surgery (3)

Absolute contraindications include: Suspension of extensive adhesions from previous surgery

- Hemodynamiclly unstable patient

Generally speaking Laparoscopic colorectal surgeries has been shown in many studies to be associated with better outcomes in operative and post-operative period when compared to open surgery with reported advantages including less analgesic requirements, earlier return of bowel function, as well as shorter hospital stay. (4) With trained surgeons, long-term outcomes such as cancer survival is either equivalent or better (incisional hernia and postoperative small bowel obstruction rates) than with open colectomies. Currently, laparoscopic method has not been regarded as the gold standard in colorectal surgery yet. Nevertheless, it has been suggested as an alternative to the open surgery in numerous researches although some surgeons have described it as "hand-help" surgery because of the incision made to remove the specimen. The aim of this study is to evaluate our experience in the laparoscopic management of colorectal disease and to compare our results with other institutes worldwide.

Patient and method:

This is a prospective study conducted during the period from 1st of January 2017 till the 15th of November 2017, 12 patients underwent laparoscopic colectomy in in Baghdad Teaching Hospital and followed up for 30 days postoperatively, patients were grouped and analyzed according to their age, sex, , body mass index, indication for surgery, type of laparoscopic procedure, procedure duration,

**Baghdad Teaching Hospital*
Email:ehabrafaa@gmail.com

postoperative course (mobility, return of bowel sounds and length of hospital stay), conversion to open approach, and operative complications. Laparoscopic appendectomy, patients with body mass index more than 35 and patients with prior major abdominal surgeries excluded from our study. The surgical procedures with their complications (together with the possibility of conversion to open procedure) explained to patients and an informed consent taken.

Surgical procedure: Preoperative: mechanical bowel preparation was undertaken for all patients using Coloclean^{R} for 2 days. Preoperative antibiotics (oral metronidazole tablet 500 mg three times daily and oral Cefuxime capsule 400 mg once daily) was given for 2 days.

A- Perioperative: mechanical thromboprophylaxis was performed with elastic stocking with enoxaparine 4000 units subcutaneous 30 minutes perioperatively.

B- Laparoscopic procedure was performed with the use of 3 to 4 ports placed according to the type of operation. procedures have several common principles: mobilization of the colon using medial to lateral approach, devascularization of the bowel by controlling the major vessels using vascular staplers and Harmonic^{R} vessel sealing system , dividing the bowel using staplers, protection of the wound during specimen retrieval (the bowel extracted by enlarging one of the port sites), and completion of the anastomosis (either intra- or extracorporeal) using either linear or circular staplers. Diverting stoma was not routinely performed, intraabdominal drains was routinely used.

C- Postoperative: close follow up of the patients, encouraging early mobilization with removal of urinary catheter when the patient became fully mobilized, oral intake was resumed and intravenous fluid withdrawn when the bowel sounds return to normal, antibiotics continued in an intravenous route for 3 postoperative days and enoxaparine prophylaxis for 7 days postoperatively.

D- Discharge: patients discharged when fully mobilized, resume full oral diet, free of pain, pass flatus and motion with normal vital signs. Patients followed up in an outpatient clinic in the 10th and 30th postoperative days.

Results:

Table 1: Age Distribution

Age	No.	Percentage %
< 40 years	1	8.3
40 – 49 years	2	16.7
50 – 59 years	3	25
60 – 69 years	5	41.7
>70 years	1	8.3
Total	12	100

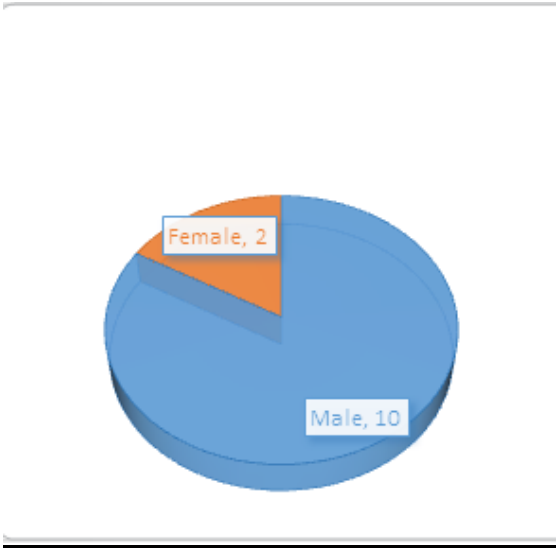

Figure 1: Gender Distribution

During the period of study, 12 patients underwent laparoscopic colectomy; 10 (83.3%) of patients were male, while the remaining two (16.7%) patients were female as shown in figure 1.

Table 2 shows that majority of patients 5 (41.7%) were between 60 – 69 years, while 3 (25%) patients were between 50 – 59 years, only one case is seen in patients below 40 years and above 70 years as shown in table 1.

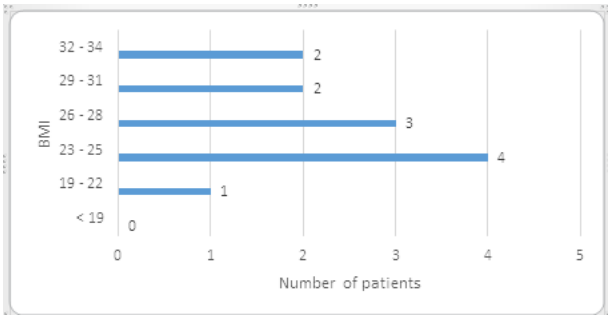

Figure 2: Body Mass Index

Figure 2 shows that most of the patients in our study [4 (33.3%)] have Body Mass Index 23 – 25, while only 1 (8.3%) patient have Body Mass Index 19 – 22.

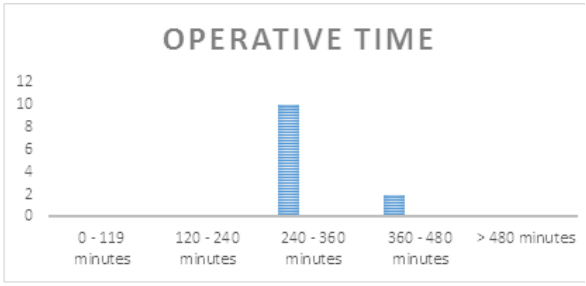

Figure 3

Figure 3 shows that procedures in our study [10 (83.3%)] took about 240 - 360 minutes to complete, while only 2 (16.7%) operation took 360 – 480 minutes.

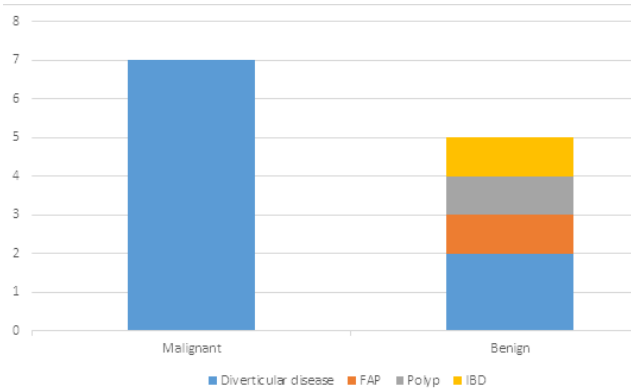

Figure 4: Indication for surgery

Figure 4 clarifies that malignant diseases was the most common indication for surgery with 7 (58.3%) out of 12 patients, while benign disease constitute only 5 (41.7%) out of 12 patients. Diverticular disease represented the most common indication for benign disease with two (40%) patients out of five.

Table 2: Types of laparoscopic procedure

Surgery	No.	Percentage%
Right hemicolectomy	2	16.7
Left hemicolectomy	2	16.7
Sigmoidectomy	2	16.7
Anterior resection	1	8.3
Abdominoperineal Resection	3	25
Total colectomy	2	16.7
Total Cases	12	100

Table 2 shows that Abdominoperineal Resection represented the most common laparoscopic procedure performed with 3 (25%) patients out of 12, while anterior resection was the least indication with only 1 (8.3%) patients out of 12.

Table 3: Postoperative course

Postoperative	0 -24 hours	24-48 hours	48-72 hours	72-96 hours	96-120 hours	>121 hours
Mobilization	12	0	0	0	0	0
Bowel sound	1	3	8	0	0	0
Hospital stay	0	0	0	1	6	5

Table 5 shows, that all the patients started mobility in the first 24 hours, in most patients [8 out of 12 (66.7%)] bowel sounds returned in 48-72 postoperative hours, while only 1 patient the bowel sounds returned within first 24 hours postoperatively, furthermore half of patients [6 out of 12 (50%)] discharged from hospital in 96-120 hours postoperatively.

Table 4: Operative complications

	No.	Percentage%
Conversion to open	2	16.7%
Surgical site infection	1	8.3%
Postoperative bleeding	1	8.3%
Anastomotic leak	0	0%
Readmission to hospital	0	0%
Mortality	0	0%

Table 6 demonstrated that conversion to open procedure occurred in 16.7% of patients, while complications were occurred in 16.7% of patients, which includes infection and postoperative bleeding with only one case for each, while no patient developed leak or readmitted to the hospital. No mortality observed in our study.

Discussion:

Colorectal resections are one from the common surgical procedures all over the world. Laparoscopic colorectal surgery is applicable in a considerable amount of patients under elective conditions. (7) Most of cases in our study were male (83.3%), and that agreed with Yantao Cai etal and Gustavo Rossi etal, who found that male have the higher incidence of laparoscopic colonic procedures (64.1% and 53.1% of patients respectively). (8)(10) When it comes to age, sixties represent the majority of cases in our paper (41.7%), and that agreed with Paolo Del Rio etal, who published nearly similar results. (11) Malignant disease of the large bowel represented the most common indication for laparoscopic surgery (58.3%) and that cope with Croce E etal, who mentioned that malignant disease was the most common indication for laparoscopic bowel operations (93.5%). (9) The most common laparoscopic operation in our paper was abdominoperineal resection (25%) of cases while the least common procedure was anterior resection with only (8.3%) of case, this figures disagree with Gustavo Rossi etal who found that the most frequent operations performed were right hemicolectomy [228 out of 882 (25.8%) patients] while the least frequent procedures were abdominoperineal resection [11 out of 882 (1.2%) patients], (10) this is related to the small sample size in our study. Regarding the rate of conversion from laparoscopic approach to open procedure, our study demonstrates that 16.7% of surgeries had been converted to open and that agree with Masoomi H etal who founded that 16.6% of laparoscopic procedures were converted to open. (12) There were no anastomotic leak following laparoscopic surgery in our study, and this disagree with Murray AC etal, who found that leak rate following laparoscopic colectomy was 2.8 %,(13) also there was no mortality in our study, in contrast to Zhobin Moghadamyeghaneh etal who found that laparoscopic colorectal procedures carried a 0.6% mortality rate, (14) in addition to that, there was no hospital readmission within 30 days

following surgery and that disagree with Francis NK etal, who discovered that 12.7% of patients were readmitted to the hospital within 30 days following laparoscopic procedures. this is due to the small number of patients in our study. Regarding postoperative surgical site infection, it occurred in 8.3% in our study, that figure also disagreed with Kyle G.Cologne etal who found that 9.8% of patients have infection. (16) Furthermore, postoperative bleeding occurred in 8.2% of our patients and that disagree with Romain Besson etal who found that only 6.4% of cases have a postoperative bleeding. The above range difference attributed to the small sample size in our study. Most of the patients in our study (10 [83.3%]) required about 300 +/- 60 minutes to complete their surgeries and this disagree with Abdulkadir Bedirli etal who found that operative time was about 216 +/- 53 minutes. (18) This difference is related to the surgeon's experience and learning curve in laparoscopic colorectal surgeries. The median length of hospital stay in our study was 96-120 hours, and that agreed with Martin P. Alvarez, who reached nearly same results. While bowel sounds returned in 24-72 hours in majority of cases (66.7%) in our study and that agree with Wai Lun Law etal who reached same results.

Conclusion:

Although laparoscopic colorectal surgery is a not popular in our institute, our results are promising, with low conversion and complications rates, which are accepted when compared to worldwide laparoscopic centers results, despite their long experience in this field and the availability of most of the required facilities to achieve these procedures.

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