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Gouda Mohamed El Labban*

General Surgery Department, Faculty of Medicine, Suez Canal University, Egypt

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***Corresponding author:** Gouda Mohamed El Labban, General Surgery Department, Faculty of Medicine, Suez Canal University, Egypt;
Email: ellabbang@yahoo.com

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Research Article

Assessment of Laparoscopy in diagnosis and Management of adhesive intestinal obstruction

Abstract

Adhesions are a common sequela after abdominal surgery. Adhesions are an important etiology of acute or chronic intestinal obstruction or even chronic pain, and must be suspected as a leading cause of abdominal pain whenever the patient as undergone previous abdominal surgery.

The aim of this prospective clinical trial study is to evaluate the use of laparoscopy in management of clinically diagnosed adhesive intestinal obstruction admitted to Suez Canal University Hospital and the criteria of selection to get the best results.

Laparoscopy was attempted in 36 patients with intestinal obstruction, and it was successful in 15 cases (the laparoscopic group) with success rate of 41.6 %, and in 21 cases (laparotomy group), it failed to relieve obstruction because of multiple causes.

Although laparoscopic adhesiolysis has many potential advantages and is ahead over conventional in minimizing morbidity and operative time and increasing mobility, the most important aspect to a successful outcome is proper patient selection and surgical judgment.

Introduction & Aim

Adhesions are a common sequela after abdominal surgery. Adhesions are an important etiology of acute or chronic intestinal obstruction or even chronic pain, and must be suspected as a leading cause of abdominal pain whenever the patient as undergone previous abdominal surgery [1]. Following laparotomy, 95% of patients have been found to have adhesions at subsequent operations. Following laparotomy, 95% of patients have been found to have adhesions at subsequent operations [2,3]. If conservative management fails, or if complications such as necrosis or perforation are suspected, traditional treatment has been laparotomy with adhesiolysis and resection of nonviable intestine. The goals of surgical treatment are relief of the obstruction and, if possible, prevention of recurrence. With open surgery, recurrence is relatively frequent, and up to 15% of the patients eventually require a second laparotomy [4,5]. Because laparoscopy is associated with fewer postoperative adhesions than open surgery, it seems particularly suited for the management of SBO, in as much as fewer postoperative adhesions could lead to a lower rate of recurrent obstruction [4,6]. Clearly, the place of laparoscopy in the treatment of acute SBO is yet to be defined, and there is some reluctance concerning its use because of the technical difficulties associated with a distended bowel and a reduced working space [8]. In this study, we will try to define out the role of the laparoscopy in the management of adhesive intestinal obstruction.

Patients and Methods

Study type

This is a descriptive prospective clinical trial study, carried out on patients admitted to Suez Canal University Hospital with adhesive intestinal obstruction during the period Dec 2005 to Dec 2008.

Study location

Emergency and Surgical departments in Suez Canal University Hospital.

Inclusion criteria

- Patient who clinically diagnosed as adhesive intestinal obstruction.
- Both sexes.
- Adult patients (above 18 years old).

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Exclusion criteria

- Patient refused to participate in this study.
- Patients not fit for laparoscopic surgery.
- Past history of intra-abdominal malignancy.
- More than 48 hours after onset of symptoms.

Sample size

Sample size (N) = 36 patients.

Methods

All patients with adhesive intestinal obstruction arriving to the emergency department of the Suez Canal University Hospital will follow this scheme:

Study strategy

The nature of the adhesive intestinal obstruction is based on:

1. Symptoms and signs of intestinal obstruction.
2. History of previous abdominal operations.
3. Scar of previous operations.
4. History of peritonitis.

Patients in this study will be allocated in two groups:

Group (A):

Patients who had successful laparoscopic management

Group (B):

Patients who had failed laparoscopy or laparotomy after the laparoscopy to deal with their pathology.

Conversion conditions to laparotomy

1. Cause of obstruction could not be demonstrated clearly.
2. Difficult adhesiolysis technique due to dilated bowel loops.
3. Iatrogenic intestinal perforation.
4. Bowel gangrene.
5. Presence of intra-abdominal mass or malignancies.

Results

There were a total of 36 patients in this study; 15 in the laparoscopy group included 9 males and 6 females of a mean age 45.6 (range = 15–65) years, and 21 in the laparotomy group included 12 males and 9 females of a mean age 56 (range= 22–75) years.

All the 36 patients had been diagnosed as adhesive intestinal obstruction related to previous operations. In the laparoscopy group the 66.6% had single previous operation on the other hand the laparotomy group 85.7% had more than one previous operation. The difference between both groups was statistically difference (Table 1) (P= 0.005).

Previous abdominal operations were varying from abdominal exploration to simple McBurney incision. In laparoscopy group 40% of patient had lower abdominal operation, but in the laparotomy group 57% had exploratory incision (Table 2).

There are several intraoperative findings that are associated with a high risk of laparoscopic surgery. Early conversion will decrease operative time and potentially decrease patient morbidity and overcome technical difficulties. Bowel gangrene was prominent cause of conversion to laparotomy with 52% of conversion to laparotomy. Over all conversion rate was 58.4% of cases, and success rate of 41.6% (n=36) (Table 3).

Laparoscopic surgery is ahead over conventional minimize morbidity and increase mobility and in operative time. This

Table 1: Shows number of previous operation in both laparoscopic and laparotomy groups.

No. of Previous operations	laparoscopy group		laparotomy group	
	No.	%	No.	%
1	10	66.60%	3	14.30%
02-Mar	3	20%	11	52.40%
>3	2	13.40%	7	33.30%
Total	15	100%	21	100%

Table 2: Shows location of previous operation in both laparoscopic and laparotomy groups.

Location of previous incisions	laparoscopy group		laparotomy group	
	No.	%	No.	%
Medline	2	13.30%	7	33.30%
Paramedian	4	26.70%	5	23.80%
McBurney's	6	40.00%	2	9.50%
Transverse	1	6.70%	4	19.00%
Subcostal	2	13.30%	3	14.30%
Total	15	100%	21	100%

Table 3: Shows distribution of causes of conversion in laparoscopic group.

Cause of conversion to laparotomy	No.	%
Difficult adhesiolysis technique	3	14.29%
Unable to visualize the site of obstruction	2	9.52%
Iatrogenic intestinal perforation	3	14.29%
Bowel necrosis or perforation or gangrene	9	42.86%

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was clear in laparoscopic group with mean of hospital stay and return of intestinal movement time which was 3.5 day and 30 hours respectively. On the other had laparotomy group the mean of hospital stay and return of intestinal movement time which was 5.5 day and 45 hours respectively. The difference between the two groups in intestinal movement return and hospital stay were statistically significant (P< 0.05) (Table 4).

Discussion

Laparoscopic surgery continues to grow in popularity as a technique for approaching a variety of clinical problems. For many years, previous abdominal surgery and intestinal obstruction have been regarded as contraindications to laparoscopy because there is an increased risk of iatrogenic bowel perforation. Laparoscopic management of intestinal obstruction is not a common technique because of the reduced working space, the fragility of the dilated intestinal loops, and the occasional difficulty in finding the cause of obstruction [5] In this study, laparoscopy was attempted in 36 patient with intestinal obstruction, and it was successful in 15 cases (the laparoscopic group) with success rate of 41.6 %. In 21 cases, it failed to relieve obstruction because of multiple adhesions or inconvenient adhesiolysis, gangrenous bowel, and inadequate laparoscopic visualization resulting from intestinal distention or iatrogenic injury. In these cases, prompt conversion was adopted to avoid intestinal perforation and to deal with the pathology. Suter M et al. (2000) [4], stated that the success rate of laparoscopic management of intestinal obstruction varies from 36% to 85.7%, in our study the success rate was 41.6%. However, Navez et al. 2006 [9], found a tendency for higher probability of success with a previous isolated McBurney incision or single incision. They added that obstruction caused by multiple adhesions could be relieved by laparoscopy in 20% of their cases. However, when the cause of obstruction was only an adhesion between the small intestine and anterior abdominal wall at the site of previous scar, adhesiolysis could be performed successfully by laparoscopy. What Navez et al. 2006 [9], had found is going with our results, since about 66.6% of our laparoscopic group had single previous operation and 20% had 2- 3 previous operation. On the other hand the laparotomy group 52.4% had 2-3 previous operations and 33.3% had more than 3 previous operations. This is going with what Levard et al. 2001 [8], found in his series, as multiple adhesions were a cause of failure because extended dissection is difficult to perform laparoscopically. The difference between the two groups was statistically significant (P=0.005) (Table 1) Borzellino G et al. 2004 [7], mentioned a review of literature showing a correlation between selection criteria and conversion rate (range 17–63.4%). The highest conversion rates are reported when no selection of patients is adopted, while the best results are reached with most severe exclusion criteria. Also Shalaby, Rafik, et al. (2001) [5], in 30 laparoscopic attempts on patient with intestinal obstruction, 20 (66.7%) have been performed successfully, whereas in 10 patients (33.3%), a conversion to open surgery was necessary. The causes of conversion were inadequate laparoscopic visualization in 6 cases, gangrenous bowel in two cases, and inability to relieve the obstruction laparoscopically in two cases. In our results 9 of 21(42.8%) patients were converted to laparotomy (Table 3), due to perforation or necrosis or gangrene which needed resection and anastomosis. This high rate 42.8% of conversion is mainly due to delayed presentations of patient, and some technical difficulties in visualization and adhesiolysis. In the current study (Table 4), the mean operative time for successful laparoscopic adhesiolysis (111.3±16.5 min), the mean time of return of bowel function (30.4 ±10.9 hr), and the mean hospital stay (3.5 ±0.6day) were shorter than in the laparotomy group (130.8±18.2 min), (45±13 hr), (5.5±0.9 day) respectively, and the results were comparable with those in previous studies [6,7] and with statistically significant differences (P = 0.0001). This difference in hospital stay is easily explain the variation in complication rates of wound infection, which were 33.3% and 57.1% in laparoscopic and laparotomy groups respectively (Table 4).

Table 4: The difference between the two groups in intestinal movement return and hospital stay were statistically significant (P< 0.05).

Parameter	laparoscopy group	
	mean	Sd
Operation time (minute)	111.3	±16.5
Intestinal movement return time (hours)	30.4	±10.9
Hospital stay (days)	3.5	±0.6

Conclusion

A quicker recovery in terms of hospital stay, bowel movement, and lower postoperative complications had also been observed and reported. However, a laparoscopic approach for intestinal obstruction is known to be more technically demanding because of the difficult access and limited working space when using this approach. No clear predictor of success or failure of laparoscopic treatment for bowel obstruction has yet been identified. Laparoscopy can assist in making the diagnosis and for pinpointing the pathology. But although laparoscopic adhesiolysis has many potential advantages, the most important aspect to a successful outcome is proper patient selection and surgical judgment. When reviewing the literature, there are no clear guidelines that state which patients are best suited for laparoscopic adhesiolysis.

References

1. Milsom JW, Böhm B, Nakajima K (2006) Outcomes after Laparoscopic Adhesiolysis: In: Book Laparoscopic Colorectal Surgery. Edition Second Edition, Springer New York. 342-349. Link: https://goo.gl/i99xBT
2. Sato Y, Ido K, Kumagai M Isoda N, Hozumi M, et al. (2002) Laparoscopic adhesiolysis for recurrent small bowel obstruction: long-term follow up. Gastrointest Endosc Volume 54: 476: 479. Link: https://goo.gl/qvL9XQ
3. Nagle A, Ujiki M, Denham W, Murayama K (2004) Laparoscopic adhesiolysis for small bowel obstruction. Am J Surg 187: 464–470. Link: https://goo.gl/m2c9RE
4. Suter M, Zermatten P, Halkic N, Martinet O, Bettschart V (2000) Laparoscopic management of mechanical small bowel obstruction: are there predictors of success or failure? Surg Endosc 14: 478–483 Link: https://goo.gl/1kqRXP
5. Shalaby, Rafik , Desoky (2001) Ahmed Surg Laparosc Endosc Percutan Tech 11: 301-305.

Citation: El Labban GM (2018) Assessment of Laparoscopy in diagnosis and Management of adhesive intestinal obstruction. Arch Urol Res 2(1): 001-004. DOI: http://dx.doi.org/10.17352/aur.000002

6. Grafen FC, Neuhaus V, Schöb O, Turina M (2010) Management of acute small bowel obstruction from intestina adhesions: indications for laparoscopic surgery in a community teaching hospital. Langenbecks Arch Surg 395: 57–63. Link: https://goo.gl/PibAfE

7. Borzellino G, Tasselli S, Zerman G, Pedrazzani C, Manzoni G (2004) Laparoscopic approach to postoperative adhesive obstruction. Surg Endosc 18: 686-690. Link: https://goo.gl/7Bi9mk

8. Levard H, Boudet MJ, Msika S, Molkhou JM, Hay JM, et al. (2001) Laparoscopic treatment of acute small bowel obstruction: A multicentre retrospective study. ANZ J Surg 71: 641–646. Link: https://goo.gl/S81tqw

9. Navez B, Arimont JM, Guiot P (1998) Laparoscopic approach in acute small bowel obstruction. A review of 68 patients. Hepatogastroenterology 45: 2146-2150. Link: https://goo.gl/tt78L8

Citation: El Labban GM (2018) Assessment of Laparoscopy in diagnosis and Management of adhesive intestinal obstruction. Arch Urol Res 2(1): 001-004. DOI: http://dx.doi.org/10.17352/aur.000002