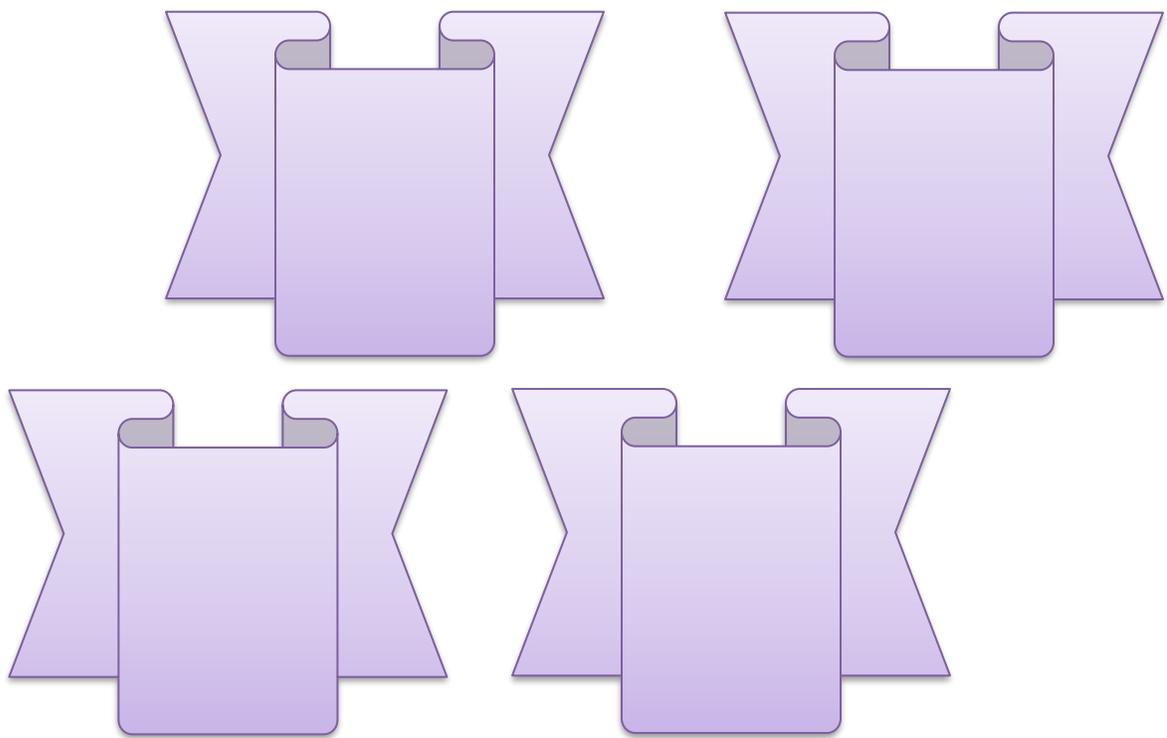


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Original Article

Evaluation of Role of Laparoscopy in Treatment of Acute Adhesive Intestinal Obstruction

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ABSTRACT

Article information

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Background: Adhesive intestinal obstruction one of the common medical cause of admission in emergency. It is a serious problem lead to gut and gynecological pelvic complication. Imbalance between formation of fibrin and biodegradation is critical in adhesion formation. The advantage of laparoscopy over open surgery is that adhesion is by far less prominent and so the recurrence of adhesion is decreased.

Aim of the work: To evaluate the accessibility of using laparoscopy as a safe tool in the management of adhesive intestinal obstruction.

Patients and Methods: This study was done in General Surgery Department, Faculty of Medicine, Al-Azhar University [New Damietta] on 20 patients complaining from adhesive intestinal obstruction all of them were managed laparoscopically for removal of adhesions over of six months.

Results: The mean operative time was 73.4 min and about 95% of cases completed laparoscopically, the rest of the cases converted to open surgery due to severe adhesion or intraoperative complication.

Conclusion: Laparoscopy is safe and effective in management of partial or complete adhesive intestinal obstruction; conversion to open should be considered in severe adhesion.

Keywords: Adhesive Intestinal Obstruction; Laparoscopic Adhesiolysis; Obstruction.



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INTRODUCTION

Intra-abdominal adhesions are the most common cause of intestinal obstruction. Adhesions are formed early or late post-operative for about 75% of patient submitted to abdominopelvic operation [1].

In the pathophysiology of adhesion, different cell types, cytokines and coagulation factors are included in restoring integrity of peritoneum. Inhibiting one of them is essential to prevent adhesion [2].

Transperitoneal incisions, specially surgery in the lower abdomen and pelvis, damage large peritoneal area that lead to sub sequent adhesion [3].

The most common operations in which adhesion is formed include appendectomy, cholecystectomy, caesarian section. The complications of adhesion are not limited to gastrointestinal tract but also include gynecological issues as secondary infertility chronic pelvic pain [4].

The method of prevention of adhesion until now is not known, and there is no preventive measure exists either by surgery or drugs. In most cases and meta-analysis, laparoscopic adhesiolysis have more advantages in comparison to open surgery regarding operative time, morbidity and mortality [5].

The aim of this study is to evaluate the accessibility of using laparoscopy as a safe tool in the management of adhesive intestinal obstruction in New Damietta, Al-Azhar University Hospitals.

PATIENTS AND METHODS

The study was done on 20 patients suffering from adhesive intestinal obstruction. This study was done in General Surgery Department, Damietta Faculty of Medicine, Al-Azhar University from December 2020 to June 2022.

Inclusion criteria

Age group above 20 years, patients with adhesive intestinal obstruction [approved clinically and by investigation].

Exclusion criteria

Query mechanical intestinal obstruction, malignant obstruction, marked abdominal distension, uncontrolled hepatic and cardiopulmonary problems, patients unfit for anesthesia or surgery and patient refusal.

All patients were submitted to the following:

Complete history taking, preoperative anesthesia evaluation and post-operative follow-up. Outpatient clinical data, discharge summary, operative and laboratory data were reviewed, and followed up for a period of 6 months.

Operative procedure

The patient submitted for general anesthesia with insertion of nasogastric tube, Foley's catheter and sterilization of abdomen, then small incision about 1 cm away from the scar enter the abdomen under vision, insufflation of the abdomen was done [14 mmHg], another 2 ports were inserted according to site of adhesion, then adhesion was removed by scissor ligature and meticulous dissection to avoid intestinal perforation. In case of perforation, a trial of repair by laparoscopy if it can be done safely; otherwise, conversion to open surgery was done with repair of bowel and insertion of drain.

Postoperative

We start oral intake after the patient become open bowel, then the patient is discharged and the time of stay in hospital was recorded, together with post-operative complication if occurred. Follow up was done at one week, one month, three months and six months. For recurrent obstruction, also recording other complication as port site hernia if occurred.

RESULTS

Demographic data including age, sex, body mass index is shown in table [1].

The mean operative time was 73.4 min and about 95% of cases completed laparoscopically, the rest of the cases converted to open surgery due to severe adhesion or intraoperative complication [table 2].

Table [1]: Demographic and clinical characteristics of the studied cases

Variables		Patients [n=20]
Age [years]	Mean± SD.	35.24 ± 8.67
	Range	20 – 60.
Sex	Male	10 [50%]
	Female	10 [50%]
BMI [kg/m ²], Mean± SD		27.53 ± 2.94

Table [2]: Surgical outcomes of the studied cases

	Number of patient [n=20]	
	Mean± SD	Range
Operative period [min]	73.42 ± 26.50	70- 120
Hospital admission [days]	2.25 ± 5.56	2 – 10
	Number	%
Hemorrhage	0	%
Paralytic ileus	2	10%
Port site hernia	1	5%
Mortality	0	0%
Intestinal perforation	1	5%
Another organ injury	0	0%
Open surgery	1	5%
Recurrence	0	0%

DISCUSSION

Adhesive intestinal obstruction is a common disorder due to intra-abdominal scar and has no definite time to predict its occurrence. The definite pathology is not understood up till now. It affects both males and females [6, 7].

In our study, the causes of postoperative adhesion were hysterectomy and caesarian section [30%], followed by open appendectomy [20%], colonic surgery [20%], and fibrous band without previous operation [30%].

A study done by **Szomstein et al.** [8] noted that the intra-abdominal adhesion was found in about 95% of patient undergone previous laparotomy. Major causes of adhesion were complicated appendectomy followed by open cholecystectomy, gastrointestinal tumors and gynecological pelvic operation.

In research done by **Konstantin** [9], the mean operative time was 57.3 min, with the hospital stay varied from 4-10 days [average 6.3 days].

While in our study, the mean operative time was 73.42 ± 26.50, with the hospital stay [2.25 ± 5.56].

Ville et al. [10] noted that post-operative hospital stay in open surgery for adhesiolysis was on average 5.5 while in laparoscopic surgery 4.2

days with interpretation that the laparoscopic adhesiolysis has rapid recovery in selected patients with acute small bowel obstruction.

In our study, the patient who needed conversion was one patient [5%], with no mortality over a period of the study with no recurrence rate and this may be due to good selection of the cases.

In a retrospective study done by **Swank et al.** [11], included 157 patients, adhesiolysis was done, with 7 patients needed conversion to open surgery [5.6%], two patients died, and 39 [23%] had incomplete adhesiolysis.

In another study by **Yoshiaki Sato et al.** [12], on 17 patients, the laparoscopy was feasible in 14 patients [82%], conversion to open in 17% due to iatrogenic perforation and recurrence rate was 12% [2 cases].

According to these data, we are able to say that; adhesive intestinal obstruction is safely done by laparoscopy and considered first choice for treatment; also, conversion to open is considered when high rate of success is needed.

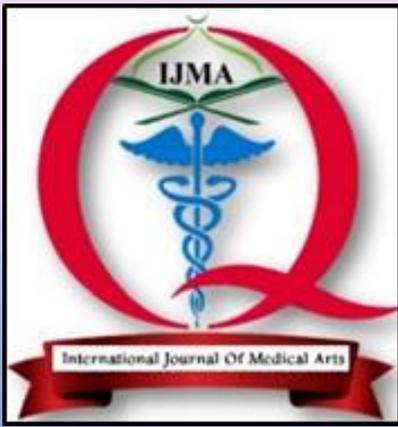
Conclusion

Adhesive intestinal obstruction is safely done by laparoscopy and may be considered as the first choice for treatment; also, conversion to open is considered when needed.

Conflict of Interest and Financial Disclosure: None.

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