

Use of Laparoscope to Evaluate Abdominal Adhesions

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ABSTRACT

- Objective** To compare the frequency of presence of adhesions in operated and non-operated patients by means of laparoscope.
- Study design** Case series.
- Place & Duration of study** Surgery Services, National Hospital and Medical Centre Lahore, from February 2015 to July 2015.
- Methodology** All patients undergoing laparoscopic surgery were included in this study. Laparoscope was used to note the presence of intra-abdominal adhesions in patients during surgery. Data was collected and analyzed, using descriptive statistics.
- Results** Out of 179 patients, 19 (11%) were previously operated while 160 (89%) were non-operated. Adhesions were present in 33% of non-operated and 90% of previously operated patients which were mostly at site of operation.
- Conclusion** Adhesions were more common in operated patients as compared to previously non-operated abdomen.
- Key words** Intra abdominal adhesions, Laparoscopy, Bowel adhesions.

INTRODUCTION:

Following abdominal surgery adhesions are common. They can lead to different clinical conditions, most important being the intestinal obstruction. These usually develop as a result of injury to the peritoneum. Up to 94 % patients undergoing laparotomy later present with some form of adhesions.^{1,2} The type of surgery influences the adhesions. The introduction of anesthesia led to more invasive abdominal procedures and therefore the presentation with adhesions has increased.³ Adhesions lead to number of complications like intestinal obstruction,⁴⁻⁸ infertility,⁹⁻¹¹ and chronic non-specific abdominal pain. There are other long-term sequel of adhesions as well.^{12,13}

Financial impact of adhesion-lysis in America alone has been calculated to be in billions.¹⁴ Prolonged

hospital stay, increased cost of treatment because of additional procedure due to difficult and long subsequent operation and increased risk of iatrogenic injury are some of the important issues in dealing with such adhesive clinical conditions. Multiple steps are proposed to minimize adhesions formation so as to avoid complications occurring later.

In 2012, a European consensus conference formulated clinical practice guidelines for laparoscopic adhesion-lysis, including recommendations for diagnostic assessment, operative timing, patient selection, conversion criteria, equipment, adjunctive agents, and other concerns.¹⁵ A review of local literature showed that although laparoscopy is an established diagnostic aid, its use for adhesion evaluation seems to be confined mostly in workup for infertility.¹⁶ The aim of this study was to compare frequency of presence of adhesions in operated and non-operated patients by means of visual inspection with laparoscope.

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METHODOLOGY:

This was a case series conducted at National Hospital and Medical Centre Lahore. All patients presenting for laparoscopic surgery from February 2015 to July 2015 were included. Data of all the patients were

entered into the pre designed form. Ethical permission from Review board was taken. Informed consent was obtained from all the patients.

After induction of anesthesia, pneumo-peritoneum was created by closed method. Ports were inserted. General survey of the abdomen was done with the laparoscope. The presence of any adhesions and their site were noted. Following this the surgical procedure was continued as routine for which patients were admitted.

RESULTS:

A total of 179 patients underwent laparoscopic examination of the abdominal and pelvic cavity. These patients underwent surgery for various surgical conditions. Only 19 (11%) patients had previous surgery done while others (n=160 - 89%) underwent surgery for the first time. Out of 19 previously operated patients adhesions were found in 17 (89%) patients. Out of these 17 patients 9 were males and 8 females. Breakdown of previous operations and site of adhesions are given in table I.

DISCUSSION:

Adhesion formation after abdominal intervention is a common problem which is often overlooked.^{17,18} The use of laparoscope was chosen in this study since it allowed direct visualization of the adhesions and causes minimal damage to the abdomen. Similar recommendations have also been made by Wang.¹⁷ We divided adhesions into two types: fibrinous and fibrous. Fibrinous adhesions represented flimsy adhesions which were less likely to cause complications whereas fibrous adhesions were firm adhesions which were more likely to lead to complications.

Almost one-third (33%) of previously un-operated patients who presented to us had some form of adhesions which were mostly fibrinous. The reason for this is unclear. In majority of cases these

adhesions were at the site of infection and inflammation. These were present mostly in females. This may show an increased propensity for adhesion formation in females or it could be because of increase number of infective and inflammatory conditions (cholecystitis, appendicitis, pelvic inflammatory disease) in the females. Most of the patients belonged to the upper and middle class. In a series of post-mortem examination of patients who had not undergone surgery, adhesions were identified in 28% of cases.⁷ Among the causes, following are believed to be responsible: intra-abdominal inflammation, endometriosis, peritonitis, radiotherapy, or long-term peritoneal dialysis.¹⁹⁻²¹

In our study patients who were operated previously, almost 90% had adhesions. Furthermore these were fibrous adhesions. The location of adhesion was mostly related to the previous surgery. Gender seems to play no role since adhesion formation seems to be equal in both genders. In a study carried out to use laparoscope to determine the presence of adhesions in patients who had undergone previous C-section, significantly increased adhesions were present in previously operated patients.²² Symptomatic adhesions have been calculated to be from 2.5% to 11.7% in previously operated patients.²³

Most of the patients in this study were from upper and middle class. This may be a reason that no patient with tuberculosis was found. Since tuberculosis and other infective diseases of the intestine are common in our society especially in lower income classes, it is hypothesized that frequency of preoperative adhesion may be more, thus a study on this socioeconomic group is warranted.

The limitations of our study were it being descriptive case series to visually document the presence of adhesions. The sample size was small. Most of the patients had undergone previous operations at other institutes and complete operative details were

Table I: Breakdown of Previous Operation and Site of Adhesions

Operation	Number (n)	Site of Adhesions
Appendectomy	7	Right iliac fossa
C-section	3	Pelvis
Inguinal hernia	3	Inguinal region
Open cholecystectomy	2	Right hypochondrium
Laparotomy	2	Generalized
Total	17	

not available.

CONCLUSION:

Laparoscope was a safe and effective tool for the assessment of postoperative adhesions. Increased frequency adhesion formations was noted in previously operated patients and these were mostly at the site of surgery.

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