

---

## ORIGINAL ARTICLE

# Adhesions in Non-Operated abdomen: A Review of 150 Cases At A Private Hospital

USMAN ISMAT BUTT, WASIM HAYAT KHAN, AHSAN ULLAH GHILZAI, SHAHZAD BASHIR, MAHMOOD AYYAZ, ASIF SAJID, SAID UMER, ANILA CHUGHTAI

*Department of Surgery, National Hospital and Medical Centre, DHA Lahore.*

*Correspondence to: Dr. Ahsan Ullah Ghilzai, Email: ahsankhan73@yahoo.com, Cell: 0300-4359316*

## ABSTRACT

**Objective:** To observe the presence of intra-abdominal adhesion in previously non-operated abdomen.

**Design:** A prospective observational study.

**Setting:** The National Hospital and Medical Centre, Lahore.

**Patients:** 150 patients were included in this study.

**Main outcome measures:** Intra-abdominal adhesions were noted with the help of laparoscope.

**Results:** There were 48 males and 102 females. Out of the 150 patients adhesions were seen to be present in 53 patients, the majority of whom were females.

**Conclusion:** On the basis of our study we conclude that adhesions are present in a significant number of patients even with previously non-operated abdomen.

**Key words:** Non-operated abdomen, Adhesions, laparoscopic.

## INTRODUCTION

Abdominal adhesions are an important clinical challenge in gastro-intestinal surgery. Injury to the normal peritoneal tissue is the usual prelude to the formation of adhesions. Injury may result from surgery, trauma, inflammation, infection or foreign body. Adhesions maybe considered as the pathological part of healing following any peritoneal injury. The balance between fibrin deposition and degradation is critical in determining normal peritoneal healing or adhesion formation.

The formation of intra-abdominal adhesions is a known and common complication of intra-abdominal surgery. Up to 94% of patients undergoing laparotomy may develop adhesions.<sup>1,2</sup> A large number of studies have been done which show the formation of adhesions after surgery.<sup>3,4,5,6,7.</sup> The type, site, amount and problems associated with adhesions varies with the type of surgery. But the formation of adhesions has been shown to occur in almost all types of surgery including the laparoscopic surgery.<sup>8</sup>

Earliest mention of adhesion was almost 1500 years ago. In the Babylonian history pleural adhesion were described in 440 AD. Ancient Egyptians are believed to have described pelvic adhesion even centuries before. With the advent and widespread use of anesthesia in mid-1800s more invasive abdominal procedures were

performed and therefore adhesion became more common.<sup>9</sup>

A number of problems are associated with adhesion formation. Intestinal obstruction is a common and serious complication associated with adhesions.<sup>10,11,12,13,14</sup> It leads to both increased patient morbidity and cost to healthcare because of repeated patient admissions and often need for operative intervention.<sup>15</sup> Infertility after pelvic surgery is well known in females.<sup>16,17,18,19,20.</sup> Adhesions have also been documented to result in chronic abdominal pain in patients which require frequent medications.<sup>3,21,22,23</sup> The assessment of the financial impact of adhesion-lysis on the American health care costs in 1994 revealed an estimated annual price tag of \$ 1.3 Billion just in the United States Alone. Medicare doled out more than \$ 3.2 Billion for complications related to adhesions in 1996.<sup>24</sup>

Abdominal adhesions are truly the nemesis of the abdominal surgeon and troublesome from many aspects. Adhesive small bowel obstruction, inadvertent enterotomy at reoperation, prolonged operative times, increased clinical workload, and high financial costs are important adhesion-related problems that need to be addressed. Keeping in view the complications associated with adhesion numerous attempts have been made to eliminate or minimize adhesion formation. First reports regarding use of adjuvants to minimize adhesions started appearing in 1880s. Several measures

have been used with mixed results. These measures include un-powdered gloves, microsurgical techniques, extensive irrigations, specialized equipment, adhesion-reducing agents such as anti-inflammatory agents, peritoneal instillates, and surgical barriers.

Although the adhesion formation after intervention is well documented we were mainly interested in the formation of adhesions in previously un-operated abdomen.

## MATERIAL AND METHODS

This was a prospective observational study.

A total of 150 patients were included in this study. All previously non-operated patients presenting for laparoscopic surgery at National Hospital and Medical Centre, Lahore from October, 2014 to March 2015 were included in the study.

Data of all patients were entered into the Performa. Informed consent was taken from all the patients.

After induction of anesthesia, Pneumo-peritoneum was created by closed method. After insertion of ports general survey of the abdomen was done with the laparoscope. The presence of any adhesions and their site was noted. Following this the procedure was continued as routine.

## RESULTS

We carried out laparoscopic examination of the abdominal and pelvic cavity in 150 patients undergoing various laparoscopic procedures at our institute. There were 48 males and 102 females. Out of the 150 patients adhesions were seen to be present in 53 patients, the majority of whom were females.

Results are shown in table 1, 2 and 3.

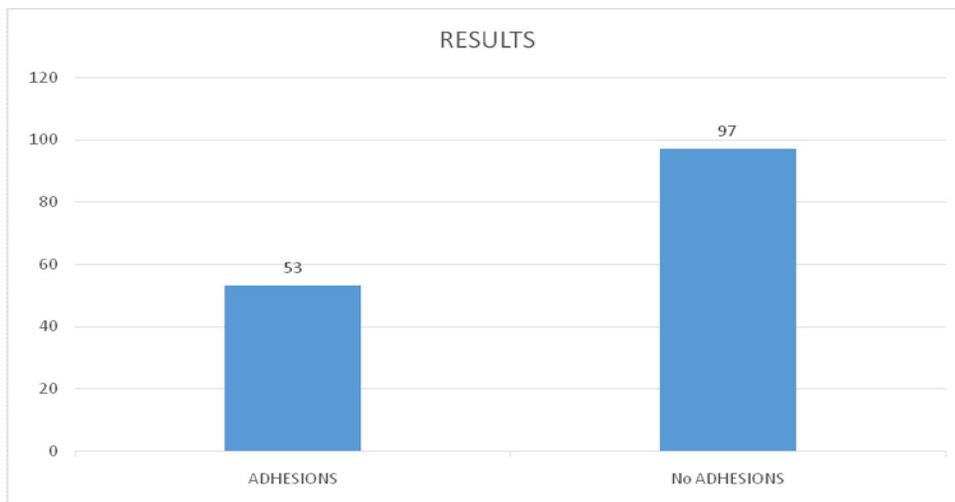


Chart 1: Summary of Results

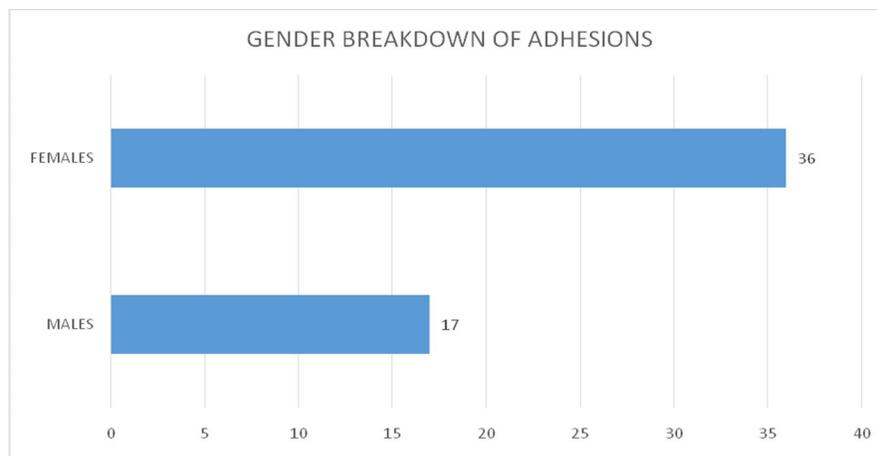
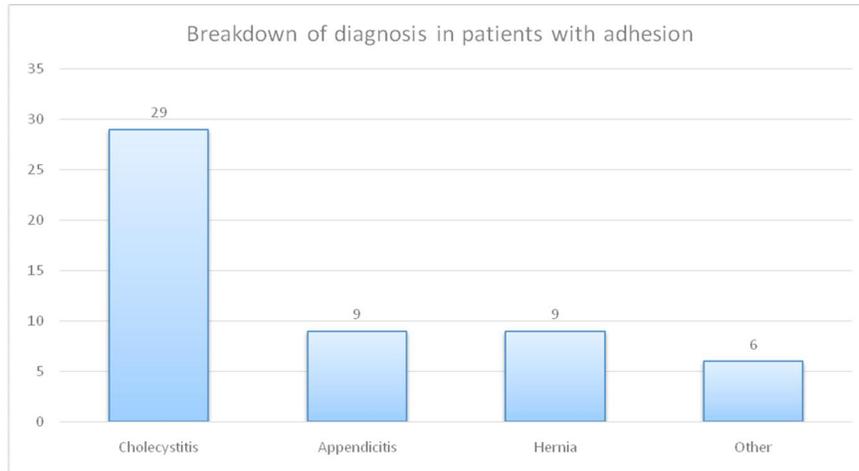


Chart 2: Breakdown by Gender

## Adhesions in Non-Operated abdomen: A Review of 150 Cases At A Private Hospital



**Chart 3:** Breakdown by Diagnosis

### DISCUSSION

Formation of adhesion after intervention is unfortunately an unwelcome consequence. Intra-abdominal adhesions are a known complication of surgery. A plethora of studies are available on this subject. Adhesions may also occur after radiation.<sup>2</sup>

Considering the fact that inflammatory conditions of the gastro-intestinal tract such as cholecystitis, appendicitis, typhoid, cholera, tuberculosis and diverticulitis etc are now becoming common ailments of our society, it would therefore suggest that there would be an increase in the formation of non-interventional adhesions. We therefore want to document the presence of adhesions in such patients who present to us for laparoscopic surgery. We have selected laparoscope as the tool of choice since it allows direct visualization of the adhesion and causes minimal damage to the abdomen.

Our results reflect that almost one-third (35%) of the patients who presented to us had some form of adhesions. In a series of post-mortem examination of patients who had not undergone surgery, adhesions were identified in 28% of case.<sup>7</sup> Is this high number due to sub-clinical inflammation or some other reason? In the majority of cases these adhesions were at the site of infection and inflammation. Majority of patients were female. This could either show some increased tendency of adhesion formation in the female gender or it could simply be because of increased number of infective and inflammatory process (cholecystitis, appendicitis) in the females. Majority of the patients belonged to the upper and middle class, which leads to the worrisome

question regarding the adhesion formation in the lower classes who are much more prone to the infective conditions. These aspects need further investigations.

Abdominal pain was often reported by patients but it is unclear whether it was due to the primary pathology or as a result of adhesion formation. Hospital admissions also happened in a few patients prior to the laparoscopy study but were most likely due to the primary pathology rather than the adhesions themselves. Whether the obstructive symptoms experienced by the patients during attack of acute cholecystitis were just due to inflammation or due to adhesion remains unclear.

### CONCLUSION

Formation of adhesion is present in a significant number of patients who have had no prior intervention done. Females are more likely to have such adhesions. These adhesions appear to be related to inflammatory process. Morbidity posed by such adhesion is unclear. Since majority of patients belonged to the upper and middle class, adhesion formation in lower class is likely to be much more.

Further studies are needed to elaborate the various queries which have thus presented.

### REFERENCES

1. Becker JM, Dayton MT, Fazio VW, et al. Prevention of postoperative abdominal adhesions by a sodium hyaluronate-based bioresorbable membrane: a prospective, randomized, double-blind multicenter study. *J Am Coll Surg.* 1996;183:297–306.

2. Menzies D. Peritoneal adhesions. Incidence, cause, and prevention. *Surg Ann.* 1992;24:27–45.
3. Fevang B-TS, Fevang J, Lie SA, et al. Long-term prognosis after operation for adhesive small bowel obstruction. *Ann Surg.* 2004;240.
4. Beck DE, Opelka FG, Bailey HR, et al. Incidence of small-bowel obstruction and adhesiolysis after open colorectal and general surgery. *Dis Colon Rectum.* 1999;42:241–248.
5. Menzies D, Ellis H. Intestinal obstruction from adhesions: how big is the problem? *Ann R Coll Surg Engl.* 1990;72:60–63.
6. Nieuwenhuijzen M, Reijnen MM, Kuijpers JH, et al. Small bowel obstruction after total or subtotal colectomy: a 10-year retrospective review. *Br J Surg.* 1998;85:1242–1245.
7. Weibel M-A, Majno G. Peritoneal adhesions and their relation to abdominal surgery. A postmortem study. *Am J Surg.* 1973;126:345–353.
8. Kavac SM and Kavac SM. Adhesions and Adhesiolysis: The Role of Laparoscopy. *JLS.* 2002 Apr-Jun; 6(2): 99–109.
9. Becker JM and Stucchi AF. Intra-abdominal Adhesion Prevention: Are We Getting Any Closer? *Ann Surg.* 2004 Aug; 240(2): 202–204.
10. Ten Broek RP, Strik C, Issa Y, Bleichrodt RP, van Goor H. Adhesiolysis-related morbidity in abdominal surgery. *Ann Surg*2013;258:98-106
11. Parikh JA, Ko CY, Maggard MA, Zingmond DS. What is the rate of small bowel obstruction after colectomy? *Am Surg*2008;74:1001-5
12. Ng SS, Leung KL, Lee JF, Yiu RY, Li JC, Hon SS. Long-term morbidity and oncologic outcomes of laparoscopic-assisted anterior resection for upper rectal cancer: ten-year results of a prospective, randomized trial. *Dis Colon Rectum*2009;52:558-66.
13. Leung TT, Dixon E, Gill M, Mador BD, Moulton KM, Kaplan GG, et al. Bowel obstruction following appendectomy: what is the true incidence? *Ann Surg*2009;250:51-3.
14. Parker MC, Ellis H, Moran BJ, Thompson JN, Wilson MS, Menzies D, et al. Postoperative adhesions: ten-year follow-up of 12,584 patients undergoing lower abdominal surgery. *Dis Colon Rectum*2001;44:822-9.
15. Lower AM, Hawthorn RJ, Clark D, Boyd JH, Finlayson AR, Knight AD, et al. Adhesion-related readmissions following gynaecological laparoscopy or laparotomy in Scotland: an epidemiological study of 24 046 patients. *Hum Reprod*2004;19:1877-85.
16. Ording Olsen K, Juul S, Berndtsson I, Oresland T, Laurberg S. Ulcerative colitis: female fecundity before diagnosis, during disease, and after surgery compared with a population sample. *Gastroenterology*2002;122:15-9.
17. Tulandi T. Salpingo-ovariolysis: a comparison between laser surgery and electrosurgery. *Fertil Steril* 1986;45(4):489–491
18. Frantzen C, Schlösser HW. Microsurgery and postinfectious tubal infertility. *Fertil Steril* 1982;38(4):397–420.
19. Caspi E, Halperin Y, Bukovsky I. The importance of periadnexal adhesions in tubal reconstructive surgery for infertility. *Fertil Steril* 1979;31(3):296–300.
20. Diamond E. Lysis of postoperative pelvic adhesions in infertility. *Fertil Steril* 1979;31(3):287–295.
21. Howard FM. The role of laparoscopy as a diagnostic tool in chronic pelvic pain. *Baillieres Best Pract Res Clin Obstet Gynaecol.* 2000;14:467–494. [PubMed]
22. DiZerega GS. Biochemical events in peritoneal tissue repair. *Eur J Surg Suppl.* 1997;577:10–16. [PubMed]
23. Keltz MD, Gera PS, Olive DL. Prospective randomized trial of right-sided paracolic adhesiolysis for chronic pelvic pain. *JLS.* 2006;10:443–446
24. Ray NF, Denton WG, Thamer M, et al. Abdominal adhesiolysis: inpatient care and expenditures in the United States in 1994. *J Am Coll Surg.* 1998;186:1–9.