

A Study on Post Operative Adhesions

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Background

Post operative adhesions account for more than 90% of the total intra-abdominal adhesions. The aim of the study is to study the incidence, sex ratio, prevalence, symptomatology of post-operative adhesions following various abdominal incisions and surgeries and analyze modalities of management.

Place of Study

Rajah Muthiah Medical College Hospital, Annamalai Nagar.

Materials and Methods

100 patients with previous history of abdominal surgery who presented to Department of Surgery, RMMCH with complaints of Chronic Abdominal Pain, Intestinal Obstruction, Infertility were put into two groups whether previous surgery was an elective or emergency. All patients were put on standard conservative treatment – NPO, IVF, Spasmolytics for 48 hrs. If symptoms not relieved, taken up for elective surgery.

Results

Post-op adhesions more common in females with emergency procedures following midline incisions, usually presents with chronic abdominal / pelvic pain with H/O Appendectomy/pelvic surgeries involving Anterior Abdominal Wall.

Conclusion

Post op Adhesions is difficult to diagnose by blood tests or by imaging modalities, and produce a staggering financial loss by means of hospitalization, re-surgery & work hours.

Keywords: Adhesions, Post-op, Obstruction, Infertility, Appendectomy.

I. Introduction

Adhesions are fibrous bands that connect anatomic sites at locations where there should not be connections. It can be Congenital, Inflammatory, Post-Traumatic/Post-operative.

Post-operative adhesions account for more than 90% of the total intra-abdominal adhesions. They represent a disorder of the normal healing process of the peritoneum after an operation.

Post-operative adhesions usually form within the immediate 3-5 days following the surgical procedures. The most important surgeries from the adhesion point of view are the cholecystectomy, appendectomy, colon surgeries and pelvic surgeries in addition to the infected surgeries.

Adhesions can result in host of problems including Chronic Abdominal Pain, Infertility, Intestine Obstruction. The difficulty in management stems from the inability on diagnosing this pathology either by blood tests or by imaging modalities like X-rays, Ultrasound, CT (or) MRI Scans. Adhesions may also complicate and delay entry into the abdominal cavity during subsequent surgeries.

Adhesions also produce a staggering financial loss by means of hospitalization, resurgeries, work hours & productivity loss, etc., Adhesions are treated either through laparotomy or laparoscopy wherein the adhesions are detached meticulously. The prevention methods of post-operative adhesions also discussed.

II. Materials And Methods

This is a randomized prospective clinical study of Post-op Adhesions for patients admitted in Rajah Muthiah Medical College, Annamalai University, Chidambaram. The study include 100 patients with previous history of surgery (Abdominal Surgery) who presented to Department of General Surgery, RMMCH with complaints of

- i) Chronic Abdominal Pain
- ii) Intestine Obstruction
- iii) Infertility

Patients should have undergone an abdominal surgery prior to presentation, Normal intra-abdominal organs and no signs of any abdominal pathology in Ultrasonogram, normal upper gastrointestinal endoscopy at presentation, normal amylase and Liver Function test. The patients were put into two groups depending on whether the previous surgery was an elective one or an emergency one. They are further subdivided into various

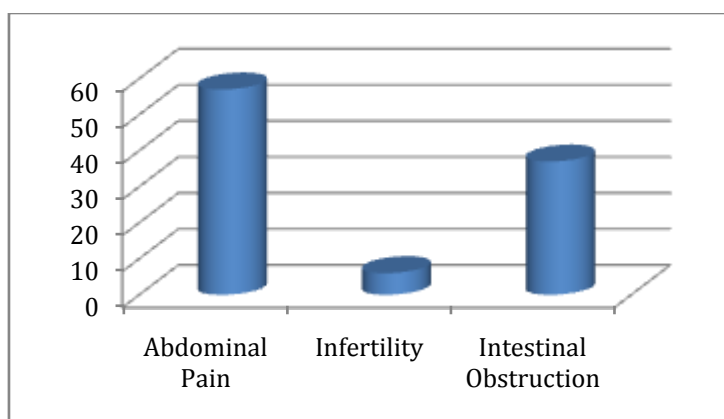
sub-groups based on the previous surgery performed, type of incision and the structure involved in adhesions and are analyzed.

All patients were put on conservative management in Nil Per Oral. Intravenous fluid with spasmolytic given for 48 hours. If not relieved, taken up for elective surgery.

III. Results

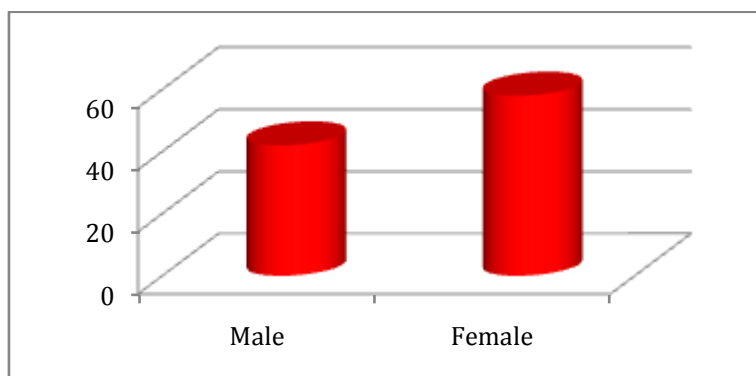
Observation – 1

Out of 100 patients, 57 patients presented with chronic abdominal pain as their dominant symptom followed by features of Intestine obstruction, namely vomiting, abdominal distension, etc., in 37 individuals. Only 6 patients presented with features of infertility.



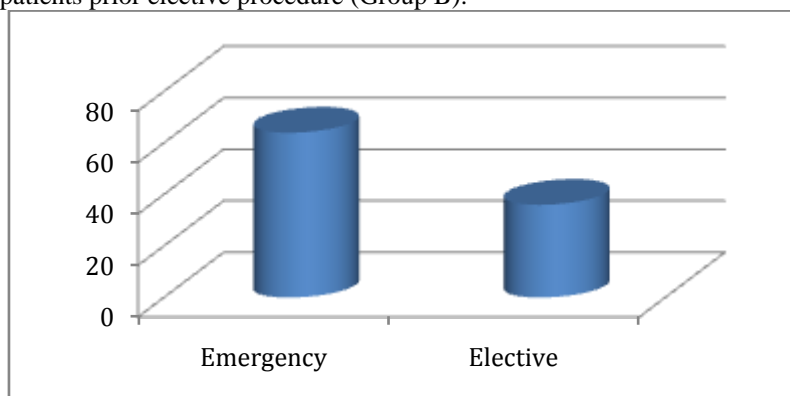
Observation – 2

Among the 100 individuals, 58 were females and 42 were males. The male: female ratio being 1:1.38.



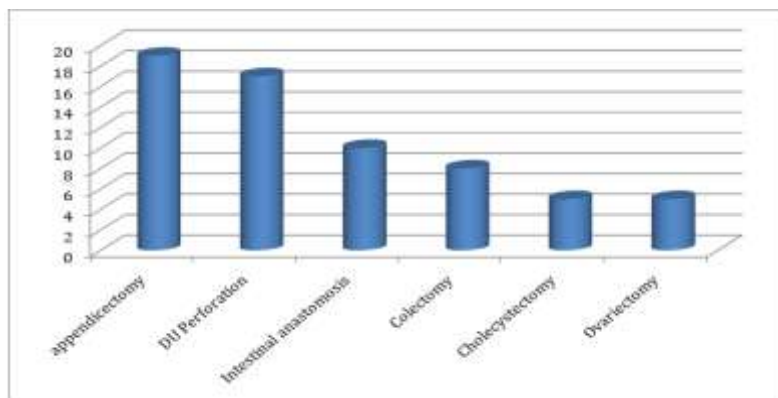
Observation – 3

Out of 100 patients who presented, 64 patients presented following a prior emergency procedure (Group A) and 36 patients prior elective procedure (Group B).



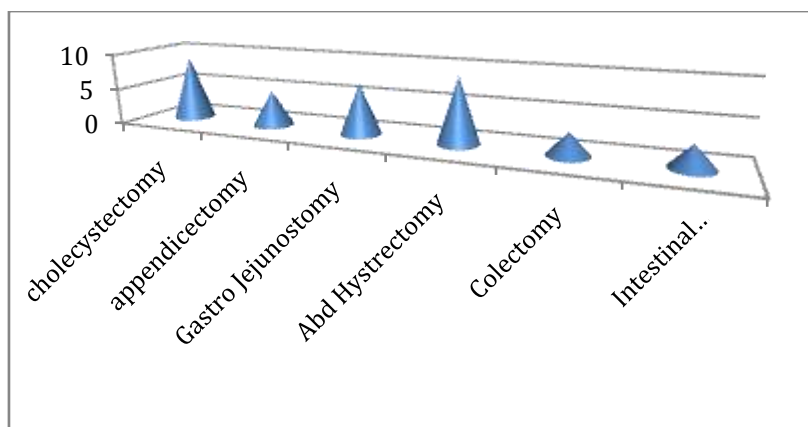
Observation – 4

In Group A, 19 patients presented following appendicectomy while 17 followed duodenal perforation closure and 10 followed intestinal resection and anastomosis. At the lower half 8 presentations following colectomies while 5 each followed cholecystectomy and ovariectomy respectively.



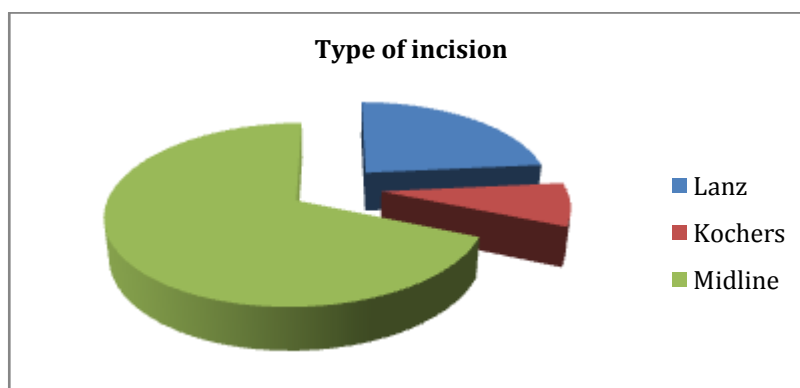
Observation – 5

In Group B, 9 patients followed a prior cholecystectomy and an equal number followed abdominal hysterectomy. 7 presentations followed a gastro-jejunostomy while 5 presentations were preceded by an appendicectomy. At the bottom end, 3 each followed colectomy and intestinal resection and anastomosis respectively.



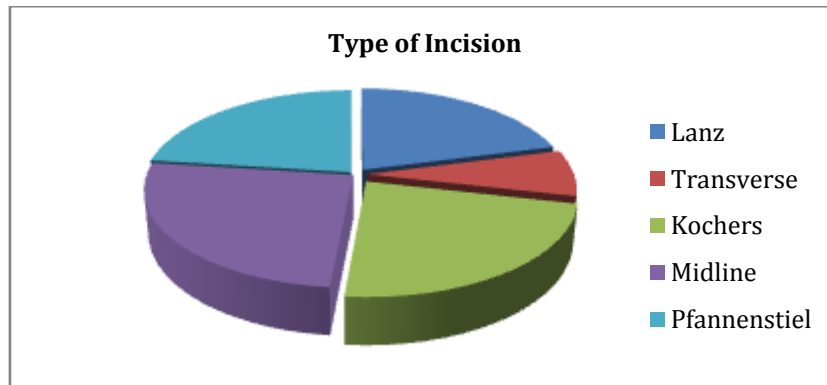
Observation – 6

In Group A, 44 had a midline incision , 15 had a lanz incision while 5 had Kocher’s Incision.



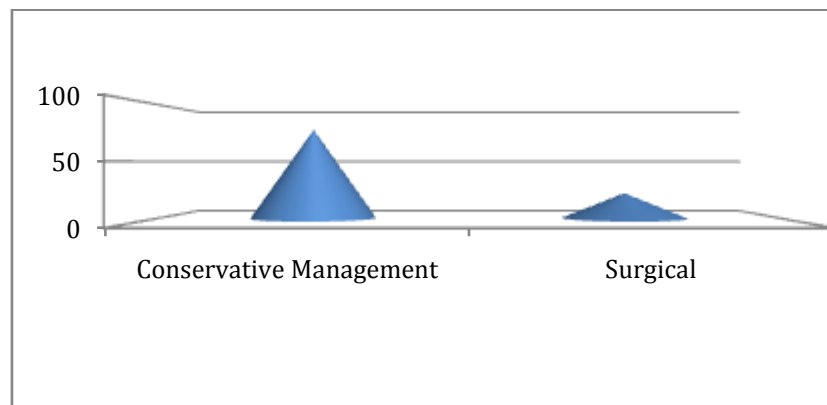
Observation – 7

In Group B, out of 36 patients, 10 had a midline incision, 9 each had Pfannenstiel and Kocher’s incisions respectively. 5 had a Lanz incision while 3 had a transverse incision.



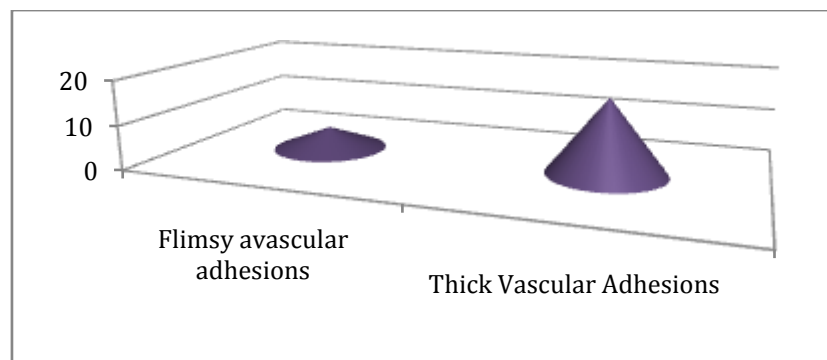
Observation – 8

Out of the 100 patients, conservative management relieved 78 patients, while 22 patients went in for adhesiolysis surgery.



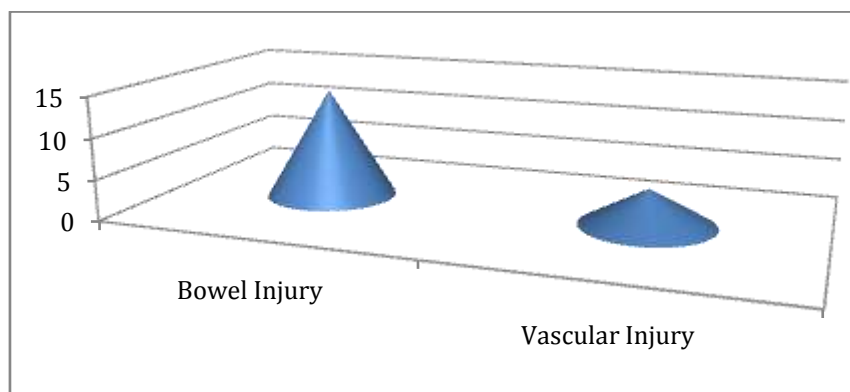
Observation- 9

Out of 22 patients who went in for surgery. 5 had filmy, avascular adhesions while 17 had thick, vascular adhesions.



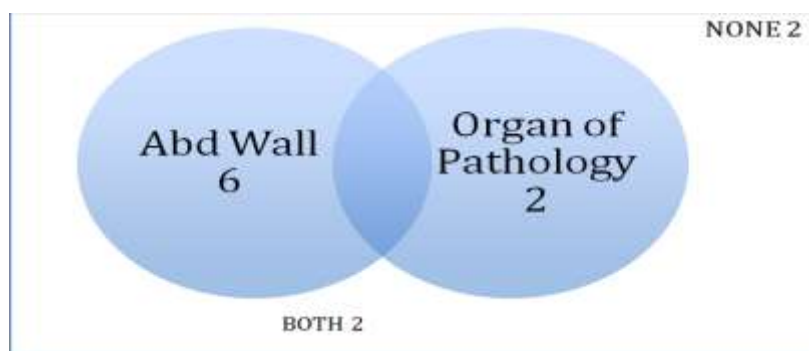
Observation – 10

Out of 22 adhesiolysis surgeries, 10 were done through re-laparotomies while 12 were done laparoscopically. Out of these 22, 5 subjects went in for complications. 3-bowel injuries and 1-vascular injury from re-laparotomies and 1-bowel injury from laparoscopy.



Observation – 11

Out of these 22 patients, 12 patients had adhesions involving the anterior abdominal wall, while 8 involved the organ of pathology for which the prior procedure was done. In 2 patients, adhesions involved an adventitious site.



IV. Discussion

The observations derived from this analysis of 100 cases of intra-abdominal adhesions are compared with the other available series are as follows

1. Nature of the procedure and adhesions

STUDY	Nature of Procedure	
	Elective	Emergency
Sanjeevan Nair <i>et al</i>	40%	60%
Suman V. Gupta <i>et al</i>	33%	67%
Present Study	36%	64%

The above table shows 60-70% of symptomatic adhesions occur following emergency procedures.

2. Sex and Adhesions

STUDY	SEX	
	MALES	FEMALES
Sanjeevan Nair <i>et al</i>	46%	54%
Suman V. Gupta <i>et al</i>	43%	57%
Di Zerega GS <i>et al</i>	47%	53%
Colemann MG <i>et al</i>	46%	54%
Present Study	42%	58%

The above table shows that symptomatic adhesions occur more in Females.

3. Symptomatology and Adhesions

STUDY	Symptoms	
	Chr. Pain	Intestinal Obstruction
Sanjeevan Nair <i>et al</i>	52	38
Suman Gupta <i>et al</i>	54	39
Di Zerega <i>et al</i>	60	36
Colemann <i>et al</i>	59	33
Present Study	57	37

The above table shows that chronic Abdominal/Pelvic pain and features of intestinal obstruction are the two most common symptoms produced by adhesions.

4. Type of Surgery and Adhesions

STUDY	SURGERY	
	1 st	2 nd
Sanjeevan Nair <i>et al</i>	Appendectomy- 28 %	Pelvic Surgeries – 23%
Suman V.Gupta <i>et al</i>	Pelvic Surgeries – 26%	Appendectomy – 22%
Di Zerega <i>et al</i>	Pelvic Surgeries – 20%	Colectomies – 17%
Present Study	Appendectomy – 27.90%	Pelvic Surgeries – 24.13%

The above table shows that appendectomy and pelvic surgeries produce the most number of adhesions- related problems.

5. Incisions & Adhesions

STUDY	INCISION	
	1 st	2 nd
Sanjeevan Nair <i>et al</i>	Midline	Lanz
Di Zerega GS <i>et al</i>	Midline	Pfannenstiel
Beck <i>et al</i>	Midline	Pfannenstiel
Present Study	Midline	Lanz

The above table shows that adhesions are more common following midline incisions.

6. Adhesions and Management

STUDY	ADHESIONS	
	Conservative	Surgical
Colemann <i>et al</i>	83	17
Beck <i>et al</i>	82	18
Present Study	78	22

This study shows that most of the adhesions are managed conservatively and only few cases go in for surgical management.

7. Adhesiolysis and Bowel Injuries

STUDY	BOWEL INJURIES
Van der Krabben <i>et al</i>	20%
Beck <i>et al</i>	21%
Present Study	18% (4/22)

The above table shows that bowel injuries occur in about 1 in 5 cases of adhesiolysis.

V. Conclusion

Post-Operative Adhesions are common in females with MALE: FEMALERATIO OF 1:1.38 , more commonly following EMERGENCY procedures than elective surgeries. APPENDICECTOMY & PELVIC SURGERIES are two most common surgeries producing symptomatic post-operative adhesions commonly CHRONIC ABDOMINAL PAIN/PELVIC PAIN. Adhesions most commonly follow MIDLINE INCISIONS, involving ANTERIOR ABDOMINAL WALL. BOWEL INJURIES occur in around 20% of Adhesiolysis procedures.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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