“USE OF TROCARS AND PORTS DIPPED IN 10% POVIDONE IODINE SOLUTION VERSUS CONVENTIONAL TECHNIQUE TO PREVENT PORT SITE INFECTION IN LAPAROSCOPIC SURGERIES: A HOSPITAL BASED RANDOMIZED CONTROL TRIAL STUDY”

BY

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Dissertation

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Endorsement

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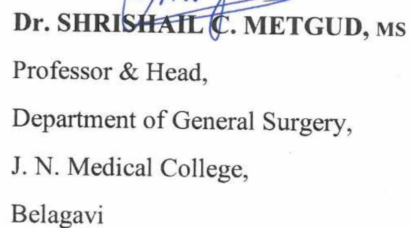

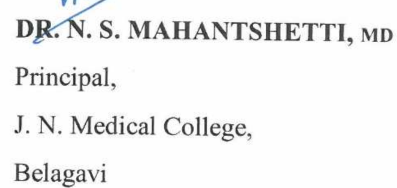

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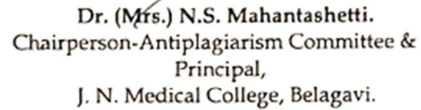

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ABBREVIATIONS

PSI	–	Port site infection
PI	–	Povidone Iodine
SSI	–	Surgical Site Infection
CDC	–	Centre for disease control and prevention
JNMC	–	Jawaharlal Nehru Medical College
KLES	–	Karnataka Lingayat Education Society
DM	-	Diabetes Mellitus
GRP	-	Group
HTN	-	Hypertension
HB	-	Haemoglobin
ALB	-	Albumin

ABSTRACT

Introduction

Laparoscopic surgery is the new normal in general surgery. It helps decrease hospital stay, faster recovery and decreased expenditures. Port site complications (infection) which are reported in up to 6% patients can negate these advantages. Topical application of povidone iodine on the incision site has long been advocated to decrease incidence of infection.

Aims and Objectives

The aim of the study was to evaluate the impact of povidone iodine dipped ports on port site infection and compare it to non-povidone iodine dipped ports.

Methods

A total of 164 patients undergoing elective laparoscopic surgery were enrolled in the study. Al patient underwent routine pre-operative workup. They were randomized into control and intervention groups. For patients in intervention group ports were dipped in 10% povidone iodine solution 5 mins prior to usage. In control group conventional techniques were used. Patients were evaluated at day 1, 3, 7 and 30 for infection using the Southampton Scoring system and at 12 hours, 24 hours, 1 day, 3 day, 7 day and 30 day time point for pain using visual analogue scale.

Result

The two groups were equally matched with respect to demographic and laboratory factors with no statistically significant difference between the two. Port sites were evaluated at day 1, 3, 7 and 30 using Southampton scoring system. In the intervention group, infection was found to be 3.6% on day 1, 6.1% on day 3 and 1.2%

on day 7 to 30. No statistically significant difference was found when compared to the infection rate in control group (3.6%, 2.4% and 1.2%). Pain was found to decrease significantly in both groups on subsequent time points. Pain score in control group was significantly less as compared to intervention group.

Conclusion

Ports dipped in povidone iodine have no significant impact on the incidence of port site infection in elective laparoscopic surgeries.

Keywords: Laparoscopic Surgery; Povidone Iodine; Port Site Infection

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INTRODUCTION

The advent of laparoscopic surgery has revolutionised the field of surgery, with benefits ranging from decreased postoperative pain and quicker return to regular activity and fewer postoperative complications. However, even with minimally invasive surgery, port site complications are reported in as high as 6.8% of the patients[1].

These complications include wound infection (port site infection), bleeding, incisional hernia, omental injuries, port site metastasis, and port site pain[2]. Port site infections (PSI) are reported in some of the patients. Studies have reported the incidence of port site infection between 1.8% to 6.7%[2,3].

This incidence is less than that of open surgeries but still makes up a significant portion of patients. SSI predisposes the patient to many other complications like septicaemia, wound dehiscence, and herniation.

Port site infection can easily negate the advantages of laparoscopic surgery by increasing the length of hospital stay, delayed recovery, increased hospital expenditure and severe pain. The umbilical port is found to be more commonly affected than other ports with respect to infection[2].

Povidone iodine (Betadine©) is a frequently used antiseptic in surgeries, commonly used as a skin disinfectant before surgeries. It is available in 7.5% and 10% concentrations. 7.5% PI is used for surgical scrubbing while 10% is used as an antiseptic agent.

Intra-operative irrigation of the wound with 10% PI before closure has been shown to reduce the incidence of SSI[4] and hence is commonly employed.

A Study conducted by Rajneesh et al. has shown that dipping trocars and ports in 10% Povidone-Iodine solution before insertion into the abdomen can reduce the incidence of port site infection[5].

The drawback of the study was that the duration for which the trocars and ports were dipped in the PI solution was not mentioned. And it was limited to only laparoscopic cholecystectomies.

The aim of our study is to determine whether trocars and ports dipped in Povidone-Iodine solution, reduce the incidence of port site infection in laparoscopic surgeries

OBJECTIVES

1. To compare the postoperative port site infection in patients undergoing elective Laparoscopic Surgeries when trocars and ports were dipped in 10% povidone-iodine solution before introduction into the abdomen and when they were introduced directly.
2. To compare the postoperative pain in patients undergoing laparoscopic surgeries

REVIEW OF LITERATURE

Laparoscopic surgery

Introduction

Laparoscopic surgery is a procedure where a fibreoptic scope is introduced through the abdominal wall into the cavity. It is a type of minimal access surgery. It has revolutionised abdominal surgeries as they are no longer painful or debilitating[(6)].

History

Minimally invasive surgery is the most recent phenomenon to revolutionise the field of medicine. An endoscope is the centrepiece of minimal access surgery. It can be introduced either through a natural orifice or an artificial opening in the wall of the cavity or potential cavity. Endoscopy is a common term used for all such procedures. 'Laparoscopy' term is reserved only for procedures involving the peritoneal cavity.

Hans Christian Jacobaeus, a Swedish surgeon coined the term laparoscopy in 1910 after he performed the procedure on 20 patients[(7)].

Phillip Bozzini, an obstetrician, was the first person to use a primitive device to visualise the internal system. In 1805 he visualised the human urethra and bladder. He was shunned for his curiosity[(8)].

Laparoscopy was first attempted by George Kelling, in 1901 and he called it "celioscopy". He used oxygen to insufflate the abdominal cavity[(6)] and use a cystoscope to examine it. Carbon dioxide was first used for pneumoperitoneum in 1924 by Zollikofer.

In 1929, German physician Kalk developed the 135° viewing scope. He published more than 21 papers on laparoscopic surgeries in his career. He is considered by many as the father of modern laparoscopy.

Picture 1: Kalk with an initial laparoscope

In 1938 Janos Veress developed the Veress needle which allowed safe insufflation of the peritoneal cavity(6). In 1952 the cold fibre optic light source was created, completely changing the avenue of endoscopic surgeries(9). This enabled laparoscopic surgeries to be longer and thus began the era of therapeutic laparoscopic surgeries.

Picture 2: Veress Needle

Mouret Philippe performed the first laparoscopic cholecystectomy in 1985, almost a hundred years after the first documented open cholecystectomy. This opened the avenues for laparoscopic surgeries all around the world. The next 20 years were leaps as laparoscopic surgeries went from simple cholecystectomies to complex Whipple's procedures(10).

Laparoscopic Surgery in India

Dr. F.P. Antia performed the first diagnostic scopy at KEM hospital, Mumbai almost 50 yrs after Kelling. He performed the scopy on a patient with cirrhosis and used a sigmoidoscope pump as an insufflator.

Laparoscopy was met with scepticism from surgeons in big cities but was embraced by small-city surgeons who had access to a laparoscope due to family planning initiatives.

Picture 3: Dr. Tehemton Udwadia

The first laparoscopic cholecystectomy was performed by Dr. Tehemton Udwadia in 1990 at JJ hospital, Mumbai(11). Dr. Abhay Dalvi and Dr. J. B. Agarwal conducted the first laparoscopic workshop at KEM hospital.

India is at the forefront of minimal access surgery with widespread acceptance, high-quality equipment, technical expertise and cost-effectiveness.

Ports/Cannula and Trocars

A trocar is wrongly used to refer to the whole assembly of cannula and stylet. It is just the stylet. They have various types of tips:

Cutting tip

- Three-edged pyramid
- Two-edged blade

Conical – they are less traumatic(12).

Picture 4: various types of ports

Laparoscopic ports are the cannula through which instruments are passed into the peritoneal cavity. Various types of ports are available.

Metallic/reusable ports – these are made of stainless steel and can be used again and again after a proper sterilization process

Disposable ports – these are made of plastic and are used only for one surgery. The advantage of these ports is that they are convenient to use without the hassles of sterilization(13).

Surgical Site Infection (SSI)

Introduction

SSI is defined as infection occurring at the site of surgery within 30 days(14). This duration is increased to 1 year in cases where a prosthesis/implant is insitu. SSIs account for nearly 20% of all hospital infections(15). SSI's are responsible for a 2 – 11 fold increase in mortality.

Mechanism Of SSI

1. The inflammatory process begins as soon as the knife touches the skin with protein coagulation, platelet aggregation, mast cell activity, and the release of complements and bradykinins. This is followed by the mobilization of phagocytes before bacterial contamination helping control the infection.
2. If bacterial contamination is not controlled, proinflammatory cells release TNF-α to stimulate neutrophils. The release of interleukins and peroxidases evokes acute inflammation.

Classification Of Surgical wounds

Centre for Disease Control and Prevention, classifies surgical wounds(16) as follows:

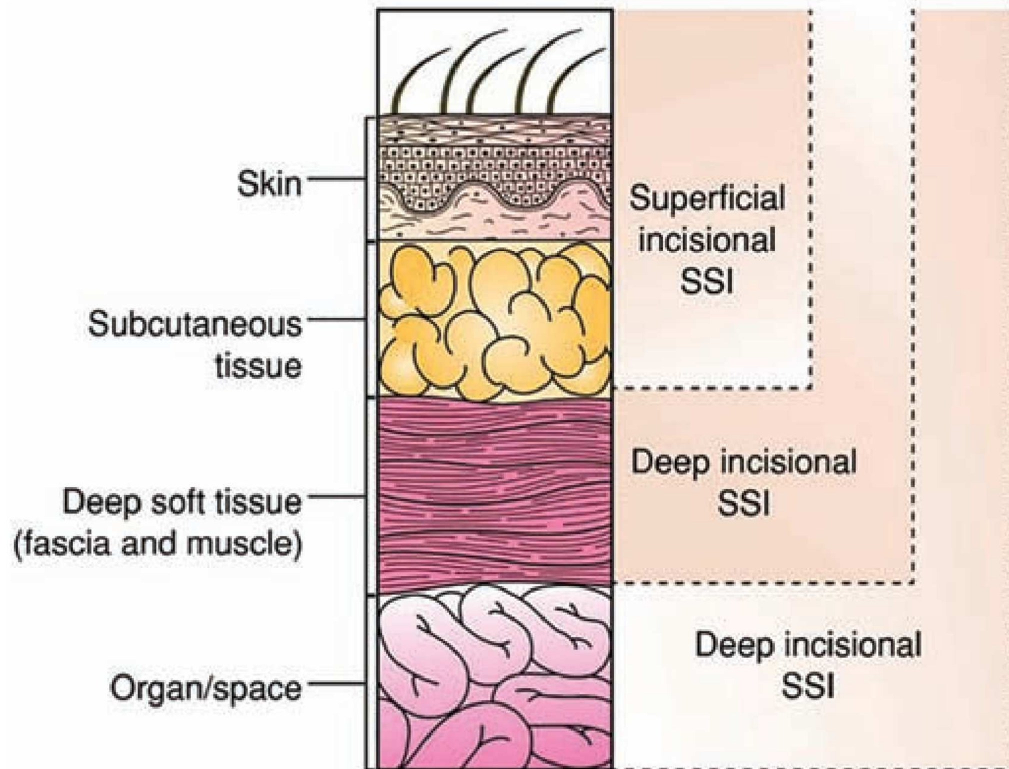
Class	Details
Class I/Clean	Uninfected operative wound with no inflammation
Class II/ Clean – Contaminated	Controlled entry into the GI/genitourinary tract
Class III/ Contaminated	Surgeries with a breach in asepsis
Class IV/ Dirty – infected	Traumatic wounds/perforated viscera

Table 1 – CDC Classification of wounds

Laparoscopic surgeries such as hernia surgeries fall under class I while those for the appendix and gall bladder fall under class II.

Classification/Grading of SSIs

Depending on the layers infected CDC has classified wound infections as



Picture 5: Surgical Site Infection

Superficial Incisional: involving skin and subcutaneous tissue

Must also include (any 1)

- Purulent discharge
- Identified organisms in culture
- An opened incision with pain or tenderness or swelling
- Diagnosis of superficial SSI by a surgeon

Deep incisional

Infection involving muscle and fascial layers

Must have (any 1)

- Purulent discharge
- Deep incision dehiscence
- Abscess or infection involving the deep incision

Organ space infection:

Infection involving any part deeper to the fascial/muscular layer

The patient should have either

- Purulent discharge from the drain
- Organisms are found in tissue fluid
- Abscess in the organ space(18)

Southampton score was designed in 1992 to make grading of SSI uniform and hence uniform the treatment of SSI(19)

Grade	Appearance
0	Normal Healing
I	Normal healing with mild bruising
Ia	Some bruising
Ib	Considerable bruising
Ic	Mild erythema
II	Erythema with signs of inflammation
IIa	At one point
IIb	Around sutures
IIc	Along wound
IId	Around wound
III	Clear/serous/sanguineous discharge
IIIa	At one point (≤2 cm)
IIIb	Along wound (>2cm)
IIIc	Large volume
IIId	Prolonged (>3 days)
IV	Pus
IVa	At one point(≤2 cm)
IVb	Along wound (>2cm)
V	Deep or severe wound infection

Table 2 – Southampton Scoring

Risk Factors for the development of SSI

The development of SSI can be attributed to a plethora of factors, some modifiable others non-modifiable. Patient factors include age, sex, immunity, co-morbidities (diabetes, hypertension), nutrition status, smoking, carrier state (eg. Staphylococcus carriage) etc.

Hospital or local factors include the type of procedure, skin preparation, instrument sterilization, antibiotic prophylaxis, length of procedure etc. (20) Skin preparation includes not just hair clipping but also the painting of the parts immediately before the procedure. Antiseptic solutions are usually used for the same.

Povidone Iodine

PI is a broad-spectrum skin disinfectant. It acts against gram-positive and gram-negative bacteria along with fungi, viruses and protozoans(21). PI causes the release of free molecular iodine (I_2). This free iodine has excellent penetration as it reacts poorly with proteins(22). The most commonly used preparation is 10% concentration which provides a 1% available iodine.

PI is the most commonly used substance for pre-operative skin preparation. Normally part painting is undertaken by the assistants while the surgeons are donning gowns and gloves. PI takes 5 to 10 minutes to act and hence should be applied when the surgeon starts hand scrubbing and should be allowed to dry on the skin for optimal action (23).

A drawback of PI is that commercially produced products have been found to be contaminated with *Pseudomonas cepacia.* This contamination can lead to local and systemic infection. This drawback is pushing surgeons to consider other disinfectants like chlorhexidine alcohol combination(24).

Some studies have been conducted to evaluate the efficacy of PI irrigation on SSI. Some studies did not find any advantage while others showed significant efficacy in preventing SSIs(25).

Port site complications

The selling point of laparoscopic surgery is the overall decreased surgical site complications allowing for faster recovery of the patients. However laparoscopic surgeries are associated with port site complications which can easily negate the advantages of laparoscopic surgery.

The complications that have been most commonly reported are port site infection, port site bleeding, port site hernia, port site metastasis etc.(2)

Port Site Infection

PSI is defined as a SSI at the laparoscopic port sites. PSIs are amongst the most common port site complications encountered in laparoscopic surgeries. Superficial infections are more common than deep/organ space infections(2). PSI can lead to complications like poor cosmesis, port site herniations etc.

SSI is highly dependent on the type of wound with dirty wounds almost always getting infected and clean ones being the rarest to be infected. Laparoscopic wounds are usually classified under the clean or clean contaminated category(26).

PSI has been documented in a lot of studies but the frequency of infection is quite varied. Some studies have listed it as low as 1.8%(2) while some have gone as high as 6.7%(3). Most studies have ranged between these ranges.

No.	Ref.	Year of publication	Type of study	Total number of patients	Frequency of infection
1	Karthik *et al*[14]	2013	Prospective	570	10 (1.8%)
2	Mir *et al*[15]	2013	Prospective	675	45 (6.7%)
3	Yanni *et al*[16]	2013	Prospective	100	4 (4%)
4	Taj *et al*[17]	2012	Observational	492	27 (5.48%)
5	Yi *et al*[18]	2012	NA	400	11 (2.75%)
6	Triantafyllidis *et al*[19]	2009	Retrospective	1009	14 (1.39%)
7	Chuang *et al*[20]	2004	NA	420	6 (1.4%)
8	Shindholimath *et al*[21]	2003	Prospective	113	7 (6.3%)
9	den Hoed *et al*[22]	1998	Prospective	189	10 (5.3%)

Table 3 – Various studies showing incidence of Port Site Infection

Laparoscopic surgeries in which operative time was less than 30 mins showed almost no incidence of PSI. Patients who were admitted for more than 48 hours pre-operatively showed a higher incidence of PSI(27)

Factors like obesity, antibiotics and drains have not shown any association with PSI(28). Emergency procedures, surgery for acutely inflamed organs, diabetes, malnutrition, and steroid use have been shown to adversely affect the incidence of PSI.

Size, number and location of the port have also been shown to be associated with increased incidence of port site infection. 10mm ports are associated with a higher incidence of infection while 5mm ports are rarely infected. It was suggested that single port laparoscopic surgeries may hold an advantage in this avenue but no evidence was found supporting this claim(29).

Umbilical ports are the most commonly infected(30). Skin commensals are rarely found in infected port sites. In a study conducted to identify the organism's responsible swabs were taken before preparation, immediately after disinfection with PI and from the infected wounds. The most common organism cultured from infected wounds was Serratia marcescens, followed by Coagulase negative staphylococcus sp. These bacteria were not isolated before or after skin preparations(31). In another study, Pseudomonas was the most commonly associated with PSI.

In a study conducted in India, ports and trocars were soaked in PI before introduction into the patient. It was suggested that this would provide an irrigation effect and help prevent port site infection(5). The drawback of the study was that the duration for which the ports were dipped in PI was not mentioned and the number of patients included was less. We have tried to remove these drawbacks in our study.

MATERIALS AND METHODS

The present study was carried out in the Dept. of General Surgery, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi from January 2021 to December 2021.

Study Design: RANDOMISED CONTROLLED TRIAL

Study Period: January 2021 - December 2021

Place: Dept. of General Surgery, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi attached to KAHER's Jawaharlal Nehru Medical College, Belagavi.

Source of Date: Patients undergoing elective laparoscopic procedures.

Sample Size: A total of 164 patients were divided into two groups of 82 each.

Sampling procedure:

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^{2}\{p_1(1-p_1) + p_2(1-p_2)\}}{d^2}$$

$Z_{1-\alpha/2}$= 1.96 at 5% alpha error

$Z_{1-\beta}$= 0.84 at 80% power of study

$p_1 = 0.075$

$p_1 = 0.0125$

Therefore,

$$n = \frac{(1.96 + 0.84)^{2}\{0.075(1-0.075) + 0.0125(1-0.0125)\}}{(0.075-0.0125)^2}$$

N=164

Therefore, a sample size of 164 was considered for the study. The enrollment ratio was 1:1, hence 82 patients were taken in each group.

Randomization

The patients were allocated into the groups using sequentially Numbered Opaque Sealed Envelopes (SNOSE) technique.

Selection criteria

Inclusion

- All patients above the age of 18 years undergoing elective laparoscopic surgery.

Exclusion

- Immunocompromised patients
- Patients with sensitivity to PI
- Patients with peritonitis

Ethical clearance

The study was approved by the JNMC Institutional Ethics Committee on Human Subjects Research, Belagavi.

Trial Registration

The trial was prospectively registered with the Clinical Trial Registry of India. (CTRI no. - CTRI/2021/03/032108)

Informed consent

The patients fulfilling the selection criteria were explained regarding the nature of the study including the risks and benefits of the procedure. Written informed consent was obtained prior to enrollment in the study (Annexure 1).

Method of collection of Data

After admission, the selected patients were interviewed and detailed clinical history and examination was conducted. The findings were noted on a predesigned and pretested proforma (annexure 2).

Investigations

All patients underwent the following investigations before being separated into intervention/ control groups.

- Haemoglobin
- Total and differential leucocyte count
- Platelet count
- Blood grouping
- PT/INR
- Urine routine
- Blood urea
- Serum creatinine
- Viral markers
- ECG
- Chest X-ray
- USG abdomen and pelvis

Procedure

Pre-operative

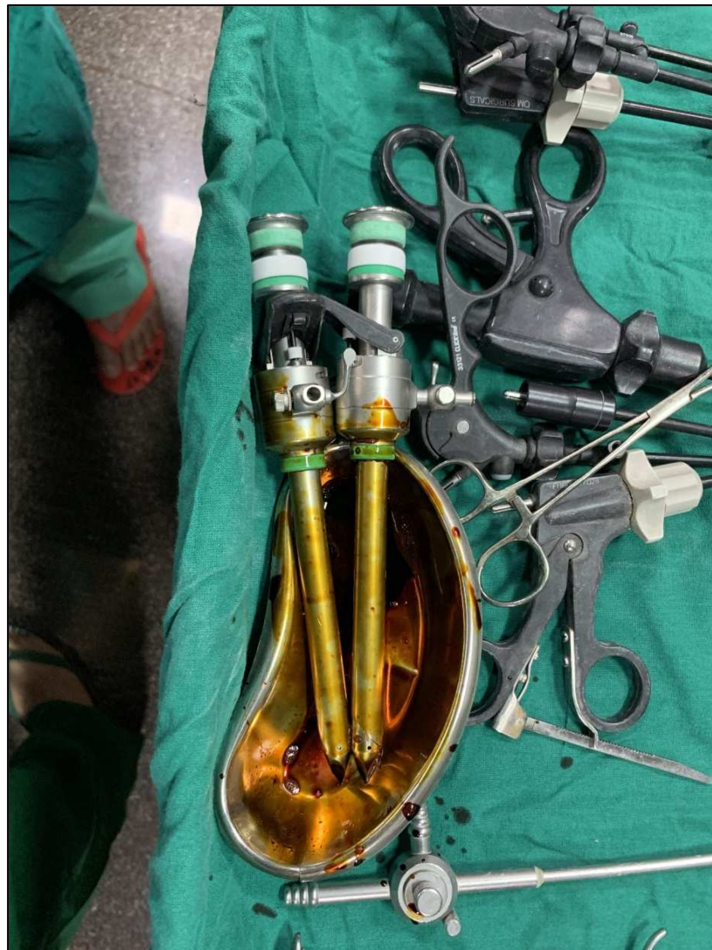
In both groups, the abdomen was shaved from nipple to mid-thigh prior to surgery. On the operating table, the abdomen was painted with 10% PI solution before draping. The abdomen was again cleaned with alcohol prior to the start of the

procedure. All patients received standard prophylactic antibiotics prior to skin incision.

Intervention

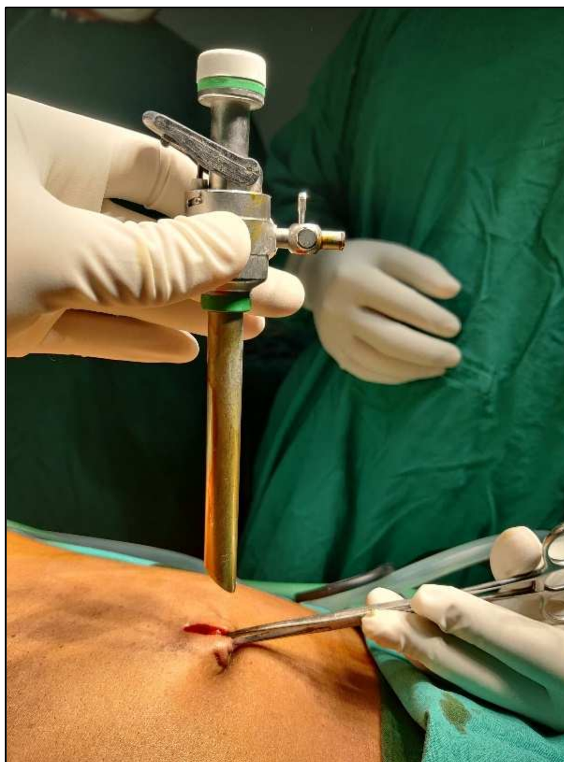
Group A

- All ports and trocars were kept in a kidney tray.
- 10% PI was poured over the ports and trocars in the kidney tray to cover the outer surface of these instruments.
- Coated instruments were allowed to stay for 5 minutes.
- Ports were removed from the kidney tray and inserted into the abdomen after the creation of the pneumoperitoneum.



Picture 6: Ports dipped in 10% PI

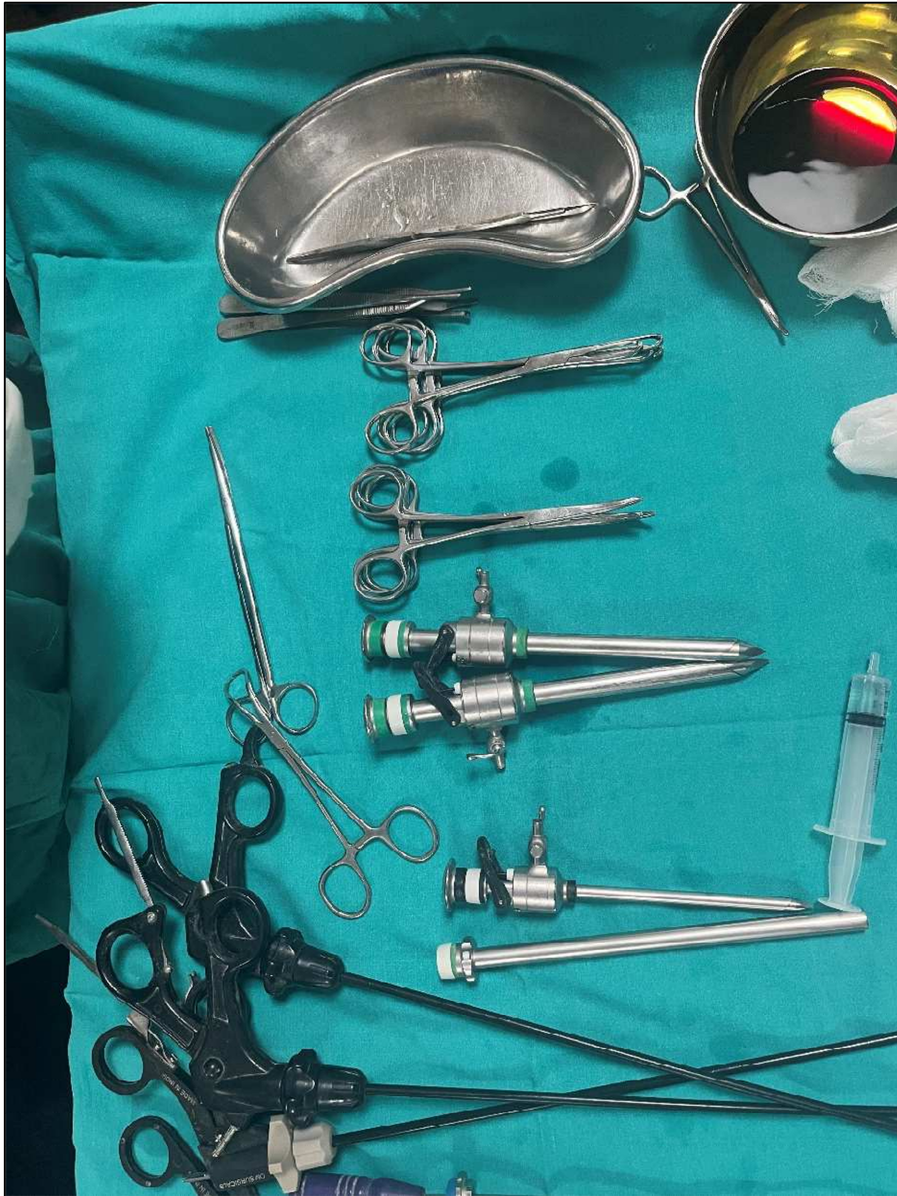
Picture 7: Ports and Trocars before use



Picture 8: Port being introduced

Group B

- Ports were directly introduced into the abdomen after the creation of the pneumoperitoneum.



Picture 9: Ports without 10% PI

Post-operative

The patients received standard postoperative care with standard antibiotics and analgesics.

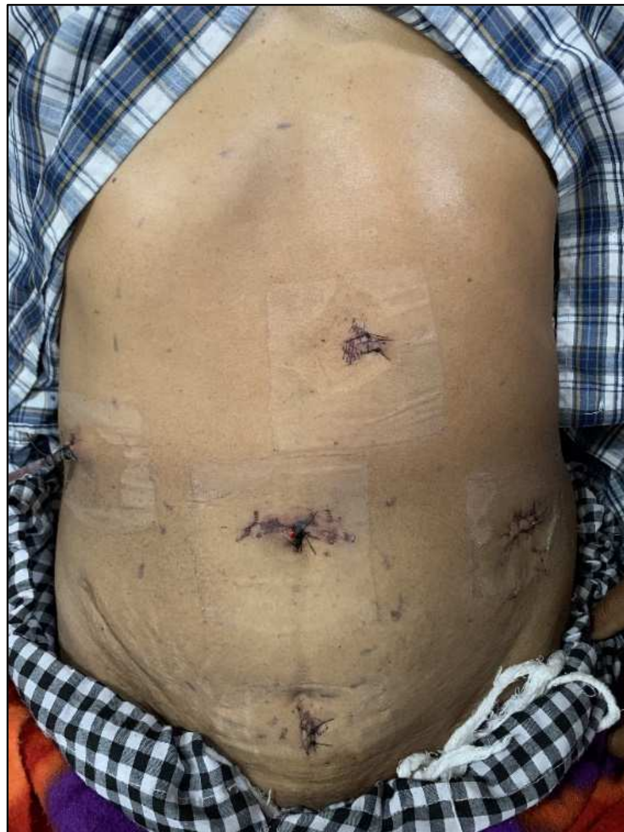
Outcome

SSI

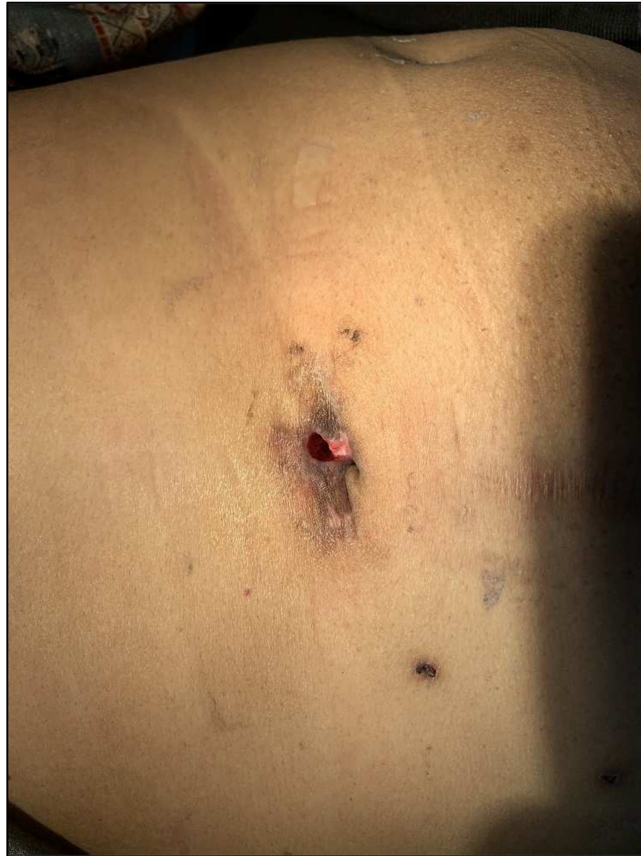
The patients in both groups were assessed for SSI on post-operative days 1, 3, 7 and 30 using the Southampton wound scoring system.

Pain

All the patients were also assessed for pain after 12 s, 24 hours and on post-op days 3, 7 and 30 using the visual analogue scale.



Picture 10 – Patient with no post operative infection



Picture 11 – Infected umbilical wound

STATISTICAL ANALYSIS:

All data was compiled in Microsoft Excel. The statistical arm of Microsoft excel was used for analysis. (Annexure 3)

All the baseline variables were compared between the two study groups, using mean and SD for quantitative variables; numbers and percentages for categorical variables.

The quantitative outcome variables were compared between the two groups using the z-test, depending on the distribution of data. Qualitative variables were compared using the Chi-square test.

RESULTS

The one-year present hospital based randomized controlled trial was carried out in the Department of General Surgery, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi from January 2021 to December 2021. A total of 164 patients undergoing laparoscopic surgery were enrolled. These patients were randomly allocated into two groups based on sequentially numbered opaque envelopes of 82 each that is the control group and the intervention group.

The data obtained was analyzed and the final results were tabulated.

Table 4: Age Distribution

Age groups	Intervention group	%	Control group	%	Total	%	Chi-square	p-value
<=20yrs	10	12.20	10	12.20	20	12.20	1.8470	0.8700
21-30yrs	21	25.61	17	20.73	38	23.17		
31-40yrs	22	26.83	23	28.05	45	27.44		
41-50yrs	15	18.29	19	23.17	34	20.73		
51-60yrs	5	6.10	7	8.54	12	7.32		
>=61yrs	9	10.98	6	7.32	15	9.15		
Total	82	100.00	82	100.00	164	100.00		
Mean age	37.43		37.44		37.43			
SD age	15.32		13.80		14.53			

In the present study, the majority patients belonged to age groups of 21 years to 50 years. Both the groups equally matched in reference to age groups with no statistical difference between them (p = 0.8700).

Figure 1: Age Distribution

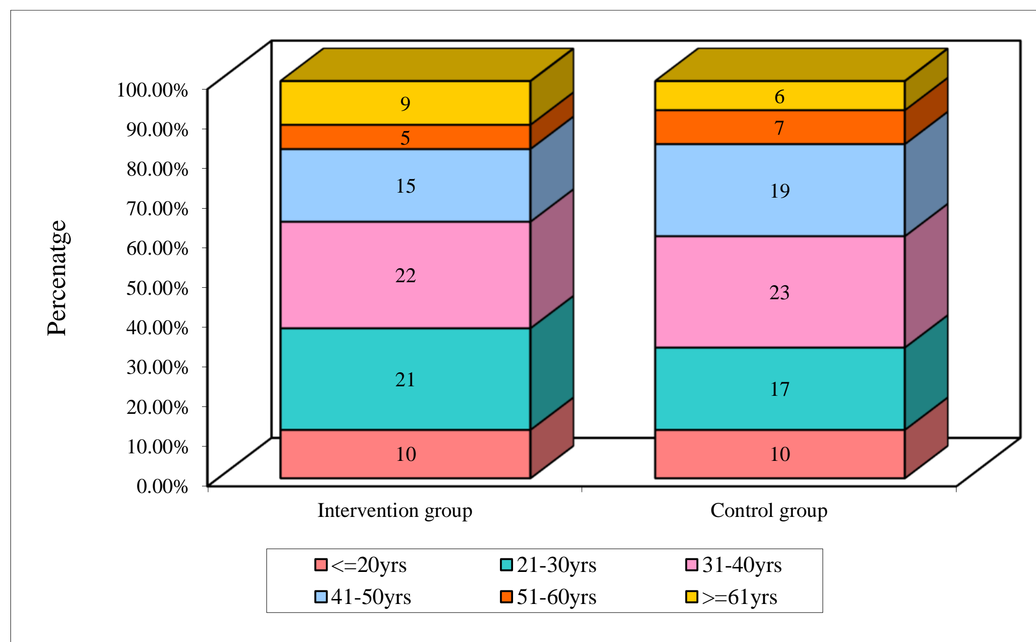
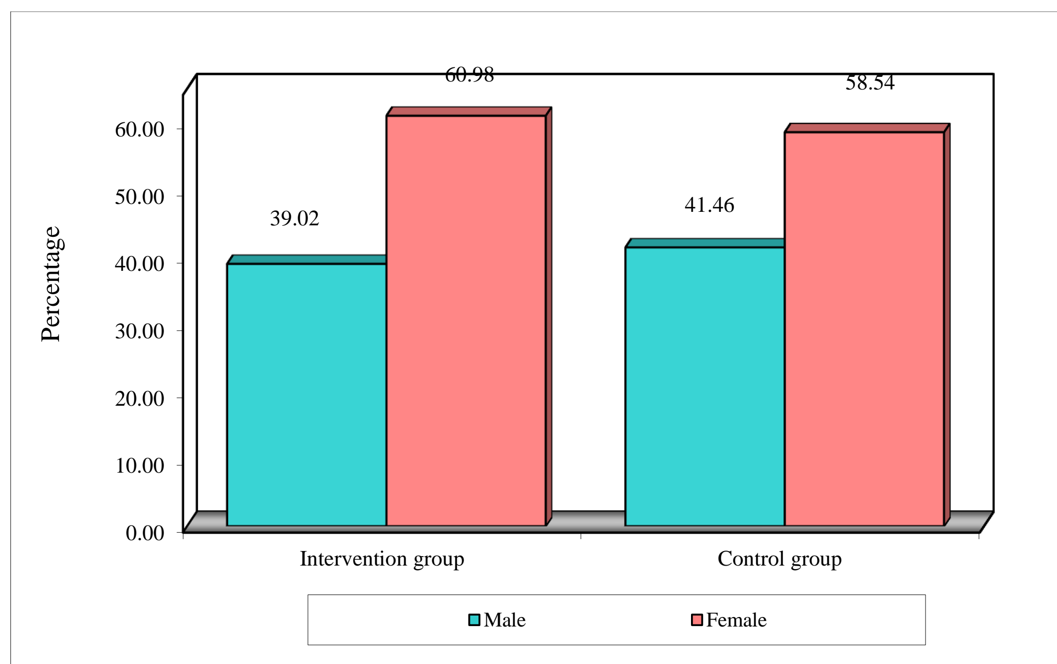


Table 5: Gender Distribution

Gender	Intervention group	%	Control group	%	Total	%	Chi-square	p-value
Male	32	39.02	34	41.46	66	40.24	0.1010	0.7500
Female	50	60.98	48	58.54	98	59.76		
Total	82	100.00	82	100.00	164	100.00		

Figure 2: Gender Distribution



Of the total enrolment of 164, 66 were males while 98 were females. 32 males and 50 females were allocated to the intervention group while 34 males and 48 females were in the control group after randomization. There was no statistical difference in the gender distribution of the two groups (p = 0.7500).

Table 6: Distribution according to diagnosis

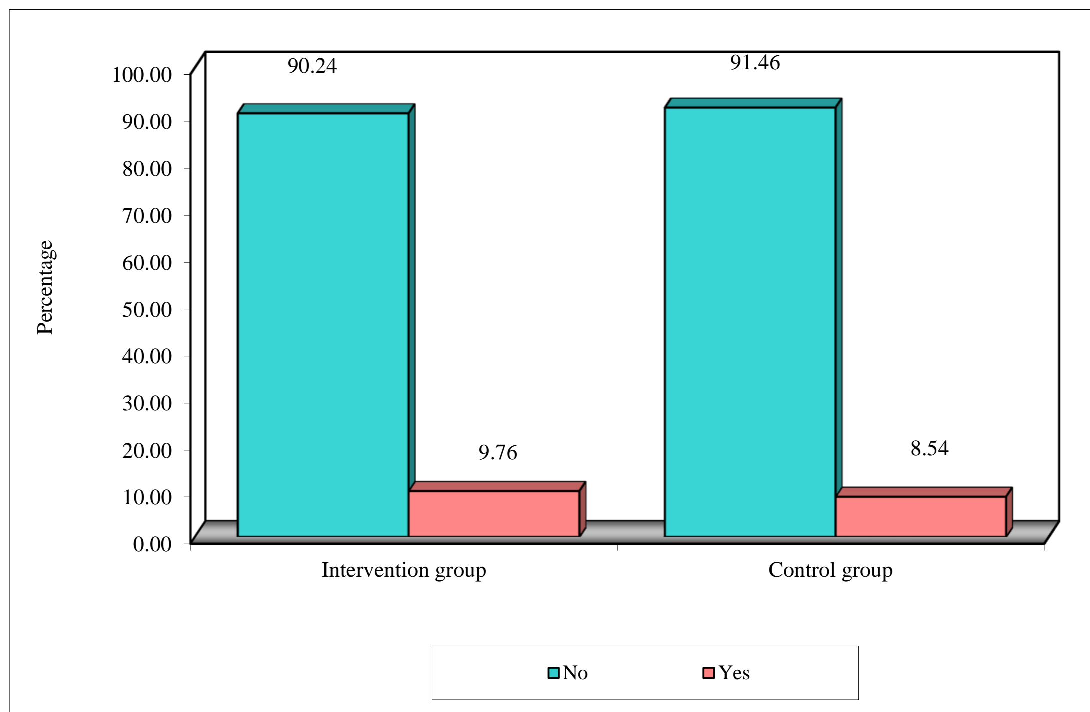
Diagnosis	Intervention group	%	Control group	%	Total	%
Appendicitis	41	50.00	35	42.68	76	46.34
Biliary pancreatitis	1	1.22	2	2.44	3	1.83
Cholelithiasis	23	28.05	24	29.27	47	28.66
Chronic pancreatitis	1	1.22	0	0.00	1	0.61
Gastric outlet obstruction	0	0.00	1	1.22	1	0.61
Hernia	15	18.29	16	19.51	31	18.90
Pain abdomen	0	0.00	2	2.44	2	1.22
Rectal prolapse	1	1.22	0	0.00	1	0.61
Splenic hydatid cyst	0	0.00	1	1.22	1	0.61
Total	82	100.00	82	100.00	164	100.00

Patients underwent surgeries for a total of 9 main diagnosis. Of these 76 patients underwent surgery for appendicitis. 41 were part of the intervention group (50%) while 35 were part of the control group. 51 patients underwent laparoscopic cholecystectomy for cholelithiasis or biliary pancreatitis and were equally distributed amongst the two groups. A total of 31 patients were operated on for hernias (inguinal or ventral), 15 of these patients were in the intervention group while 16 of the patients were in the control group. Two patients were operated on for chronic pain abdomen which was found to be due to adhesions. Both these patients were randomised to control group. One patient of rectal prolapse underwent laparoscopic rectopexy and was randomised to the intervention group. One patient in the control group underwent laparoscopic gastrojejunostomy for gastric outlet obstruction. A single patient with splenic hydatid cyst was randomised to the control group.

Table 7: Co-morbidities

Status HTN	Intervention group	%	Control group	%	Total	%	Chi-square	p-value
No	74	90.24	75	91.46	149	90.85	0.0730	0.7860
Yes	8	9.76	7	8.54	15	9.15		
Total	82	100.00	82	100.00	164	100.00		

Figure 3: Co-morbidities

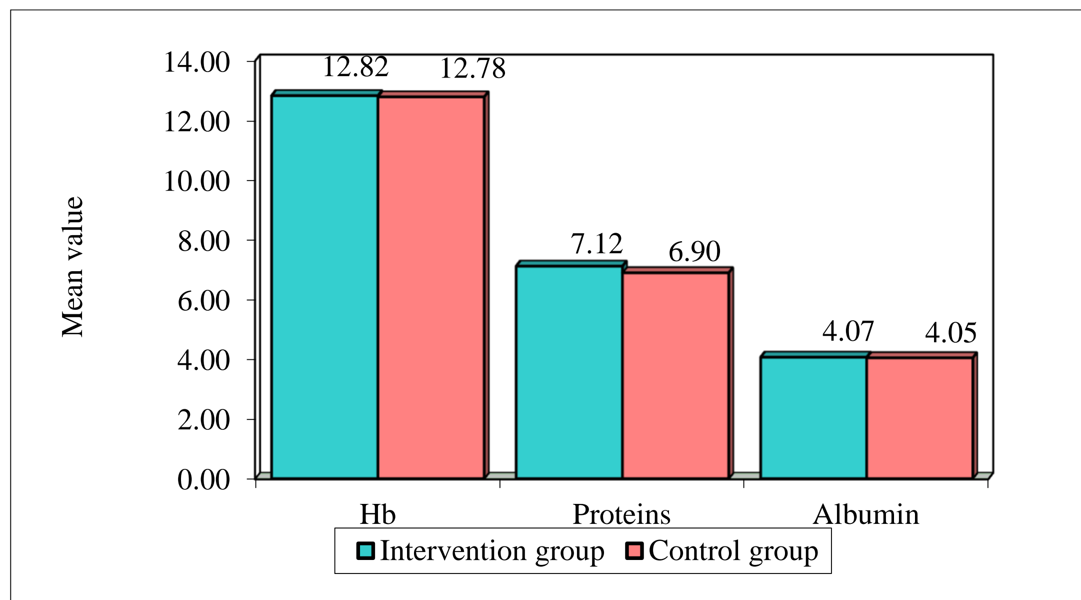


No patient enrolled in the study was a diabetic. Of the 164 patients enrolled 15 patients were hypertensive while 149 patients were non-hypertensive. 8 patients were randomised to the intervention group while 7 were in the control group. There was no statistical difference between the two groups with respect to hypertension status (p = 0.786).

Table 8: Clinical Parameters

Clinical parameters	Intervention group		Control group		t-value	p-value
	Mean	Std.Dev.	Mean	Std.Dev.		
Hb (gm/dL)	12.82	1.90	12.78	1.81	0.1178	0.9064
Proteins	7.12	0.67	6.90	0.80	1.9368	0.0545
Albumin	4.07	0.50	4.05	0.48	0.2739	0.7845

Figure 4: Comparison of the intervention group and the control group with clinical parameters

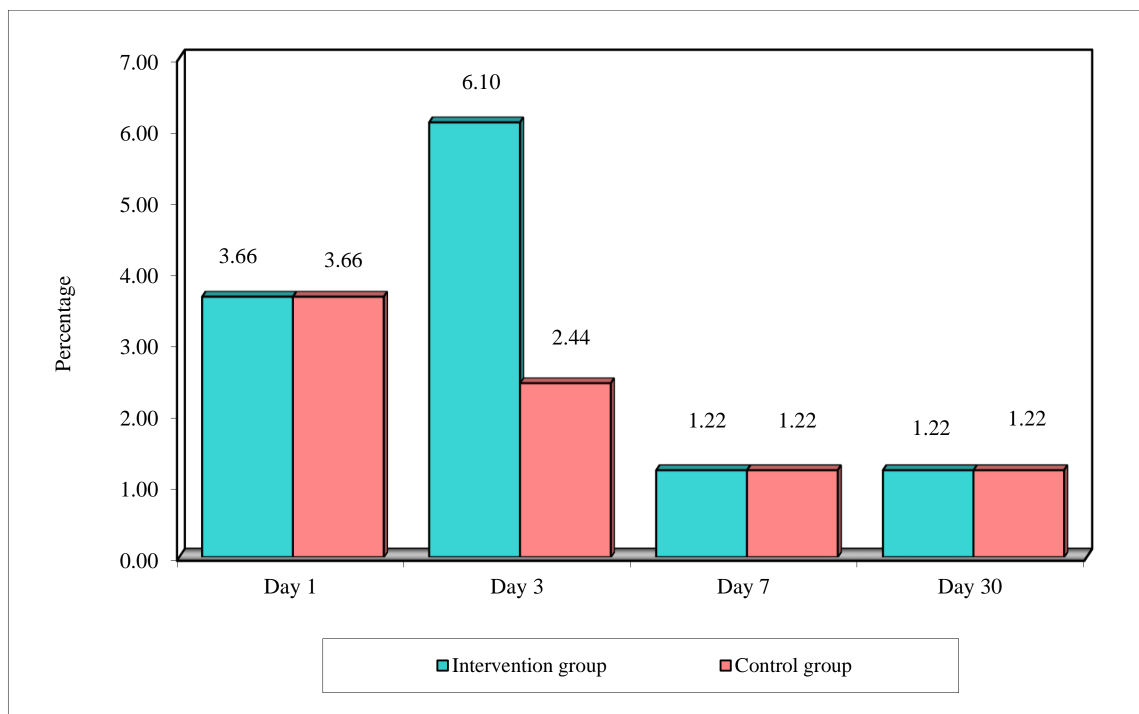


3 clinical parameters were taken namely haemoglobin, total proteins and serum Albumin. The mean Hb in the intervention group was 12.82 gm/dL with a standard deviation of 1.9 while the control group had a mean Hb of 12.78 gm/dL with an SD of 1.81. There was no statistical difference between the two groups (p = 0.0545). 7.12 gm/dL SD 0.67 was the average total protein in the intervention group while the control group had an average total protein value of 6.90 gm/dL SD 0.80. Patients in the intervention group had a mean Albumin value of 4.07 gm/dL SD 0.50 while those in the control group had a value of 4.05 gm/dL SD 0.48 which was statistically insignificant (p = 0.7845).

Table 9: Infection status at different treatment time points

Infection status at	Intervention group	%	Control group	%	Total	%	Yates Chi-square	p-value
Day 1								
No	79	96.34	79	96.34	158	96.34	0.0000	1.0000
Yes	3	3.66	3	3.66	6	3.66		
Day 3								
No	77	93.90	80	97.56	157	95.73	0.5970	0.4400
Yes	5	6.10	2	2.44	7	4.27		
Day 7								
No	81	98.78	81	98.78	162	98.78	0.0000	1.0000
Yes	1	1.22	1	1.22	2	1.22		
Day 30								
No	81	98.78	81	98.78	162	98.78	0.0000	1.0000
Yes	1	1.22	1	1.22	2	1.22		
Total	82	100.0	82	100.0	164	100.0		

Figure 5: Comparison of intervention group and control group with respect to the status of infection at different treatment time points

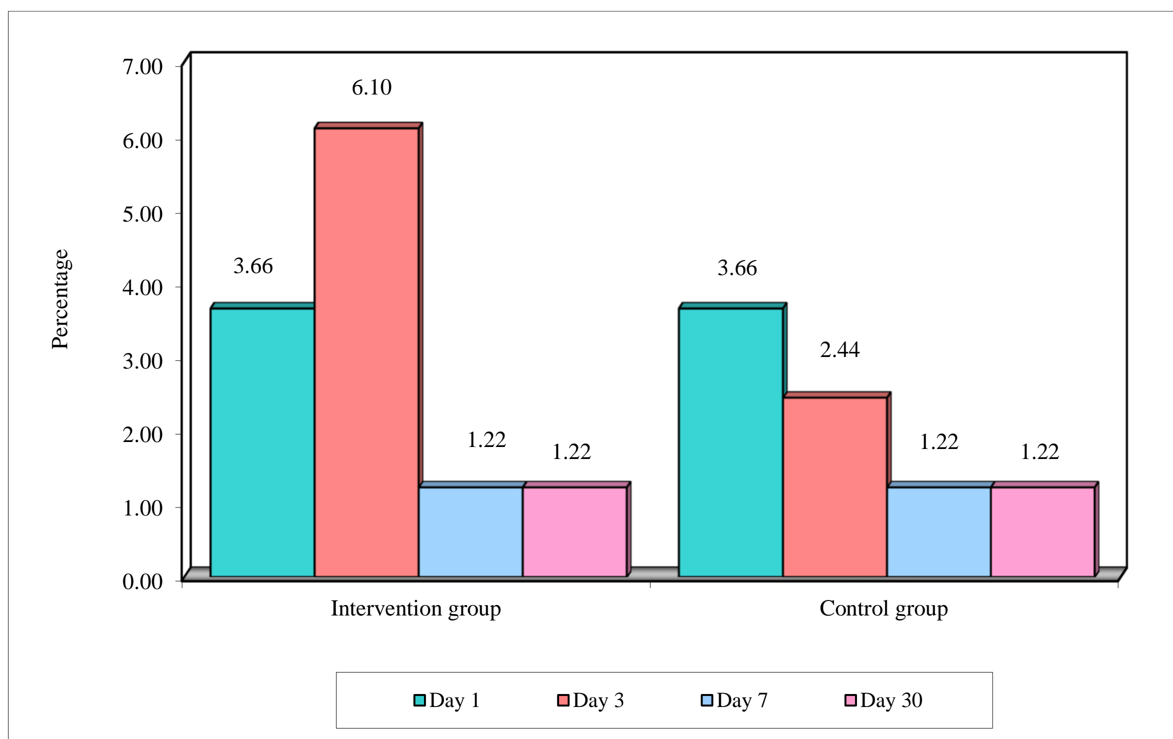


Patients were checked for wound infection on days 1, 3, 7 and 30 using the Southampton Wound score. On day one, a total of 6 patients had signs of infection with 3 patients in both the control group and the intervention group. On day 3 of surgery, 5 patients in the intervention group had signs of infection while 2 patients in the control had signs of infection but this difference was non-significant ($p = 0.440$). On day 7 only 1 patient in the intervention group and 1 patient in the control group had signs of infection. 1 patient in the intervention group and 1 patient in the control group had signs of infection on day 30. No significant difference was noted in wound infection rates in the two groups at any time point.

Table 10: Comparison of different treatment times with infection status

Groups	Changes from	p-value	Cochran Q
Intervention group	Day 1 to Day 3	0.6870	Q=7.6952, p=0.0527
	Day 1 to Day 7	0.6250	
	Day 1 to Day 30	-	
Control group	Day 1 to Day 3	1.0000	Q=4.2857, p=0.2322
	Day 1 to Day 7	0.6250	
	Day 1 to Day 30	-	

Figure 6: Comparison of different treatment times with the status of infection in the intervention group and control group



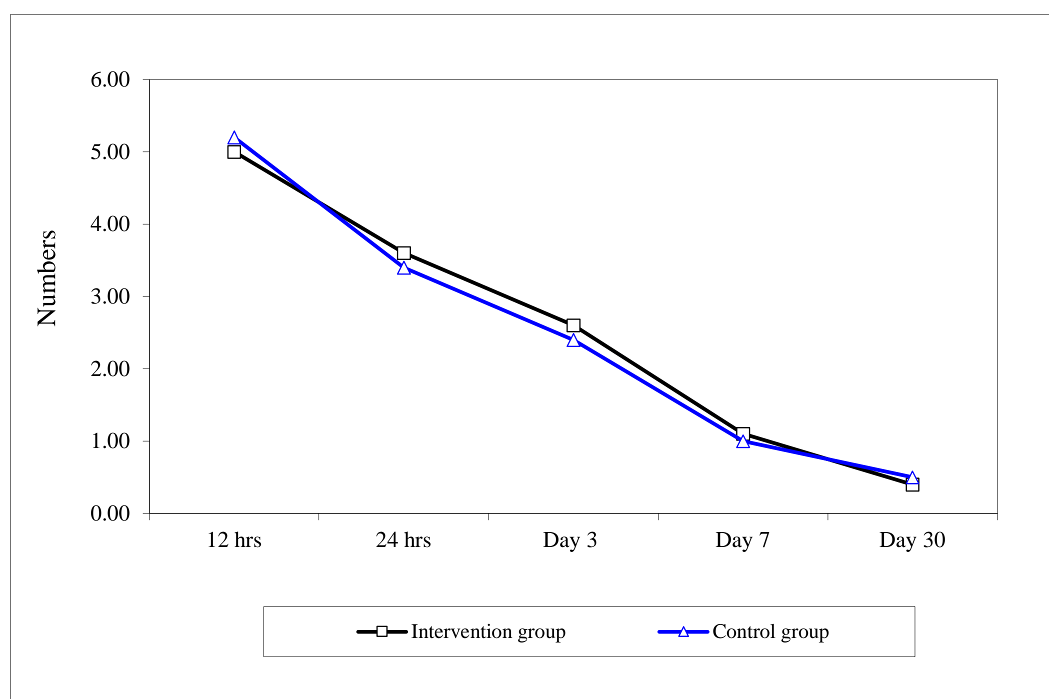
No significant change was seen in infections between various time points in both intervention and control groups.

Table 11: Comparison of intervention group and control group with pain scores at different treatment time points by Mann-Whitney U test

Time points	Intervention group			Control group			U-value	Z-value	p-value
	Mean	SD		Mean	SD.				
12 hrs	5.0	0.8	75.5	5.2	0.8	89.5	2788.0	-1.8861	0.0593
24 hrs	3.6	1.2	87.0	3.4	1.1	78.0	2995.0	1.2053	0.2281
Day 3	2.6	1.1	86.8	2.4	1.1	78.2	3007.5	1.1642	0.2443
Day 7	1.1	0.8	83.8	1.0	0.8	81.2	3254.0	0.3535	0.7237
Day 30	0.4	0.5	79.0	0.5	0.5	86.0	3075.0	-0.9422	0.3461
12 hrs-24 hrs	1.4	1.5	74.5	1.8	1.3	90.5	2709.5	-2.1443	0.0320*
12 hrs- Day 3	2.4	1.4	75.0	2.8	1.3	90.0	2748.0	-2.0177	0.0436*
12 hrs- Day 7	3.9	1.2	76.0	4.2	1.1	89.0	2826.0	-1.7611	0.0782
12 hrs- Day 30	4.5	0.9	77.7	4.7	0.9	87.3	2965.5	-1.3024	0.1928

*p<0.05

Figure 7: Comparison of intervention group and control group with pain scores at different treatment time points



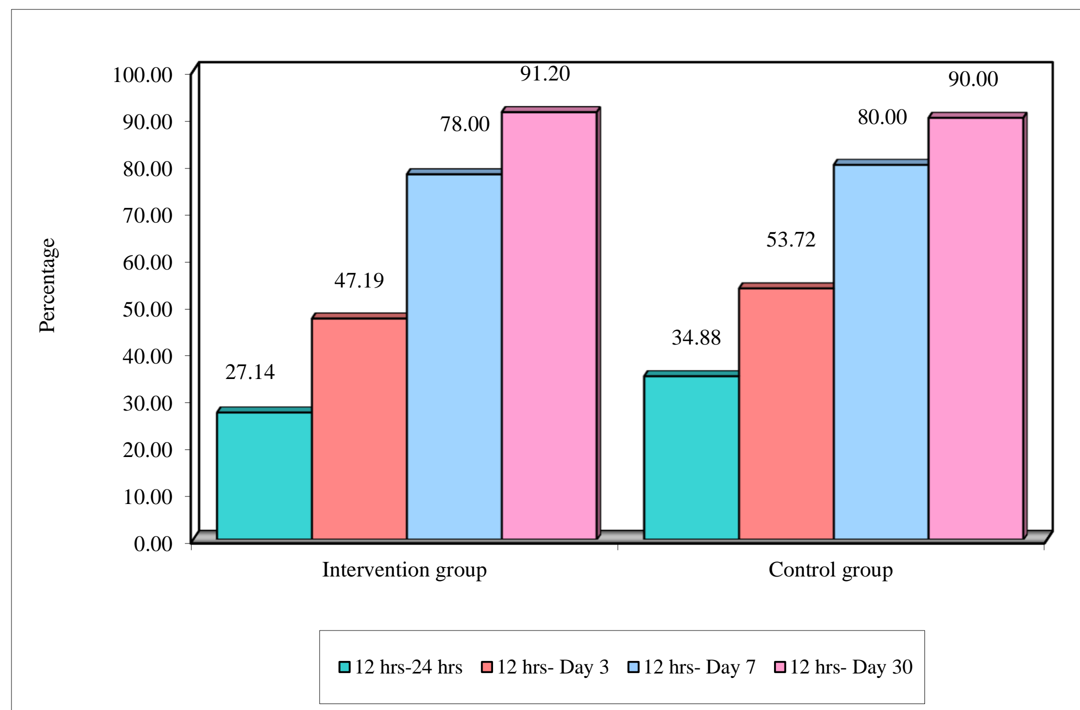
Pain scores using visual analogue score were checked at 12 hours, 24 hours and then at days 3, 7 and 30. At 12 hours the mean pain score was 5.0 and 5.2 in intervention and control groups while it was 3.6 and 3.4 respectively at 24 hours which were not significantly different ($p = 0.0593$ and $p = 0.2281$). The decrease in pain score between 12 hours and 24 hours was 1.4 in the intervention group and 1.8 in the control group, which is a significantly more decrease in the control group ($p = 0.0320$). On day 3, patients in the intervention group reported a mean pain score of 2.6 while those in the control group reported 2.4 ($p = 0.2443$). The decrease in pain score between 12 hours and day 3 was 2.4 in the intervention group and 2.8 in the control group showing a significant decrease in control group ($p = 0.0436$). The pain scores on days 7 and 30 did not show any significant difference ($p = 0.7237$ and $p = 0.3461$). The reduction of pain between 12 hours and day 7/30 was non-significant ($p = 0.0782$ and $p = 0.1928$).

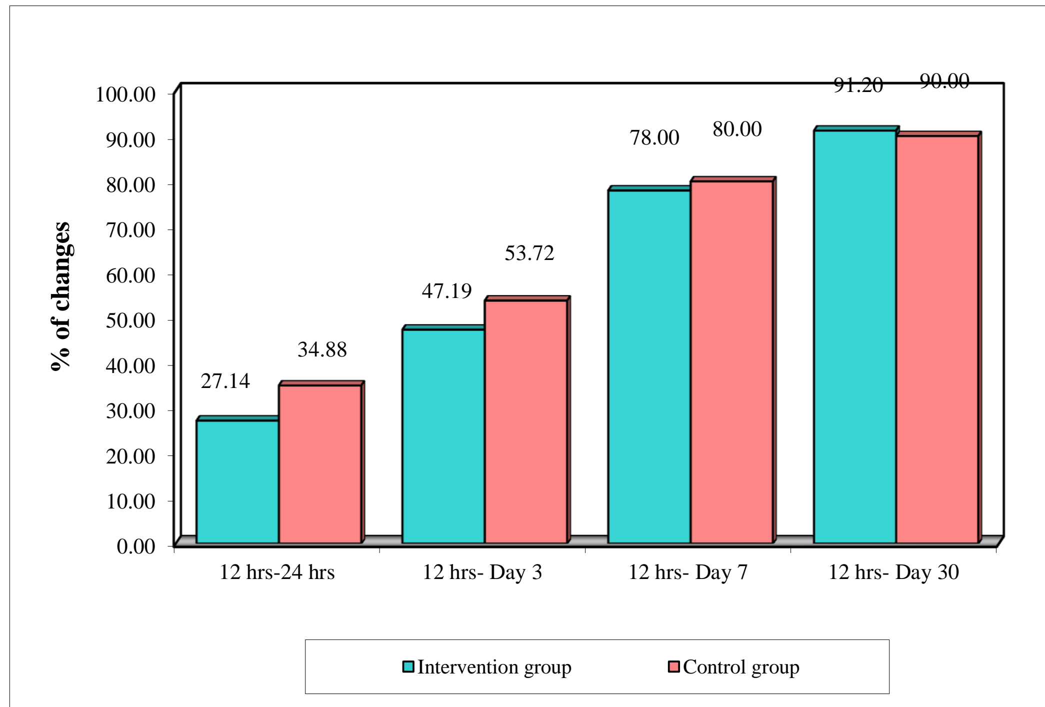
Table 12: Comparison of different treatment time points with pain scores

groups	Changes from	% of changes	Z-value	p-value
Intervention group	12 hrs-24 hrs	27.14	6.0823	0.0001*
	12 hrs- Day 3	47.19	7.3738	0.0001*
	12 hrs- Day 7	78.00	7.8660	0.0001*
	12 hrs- Day 30	91.20	7.8662	0.0001*
Control group	12 hrs-24 hrs	34.88	7.1839	0.0001*
	12 hrs- Day 3	53.72	7.7216	0.0001*
	12 hrs- Day 7	80.00	7.8660	0.0001*
	12 hrs- Day 30	90.00	7.8661	0.0001*

*p<0.05

Figure 8: Comparison of different treatment time points with pain scores





The percentage of change in pain score between 12 hours and other time points (24 hours, day 3, day 7 and day 30) was significant (p = 0.0001) in both intervention and control groups.

DISCUSSION

The advent of laparoscopic surgery has revolutionized the surgical field. The advantages such as reduced post-operative pain, decreased length of hospital stay, quicker return to regular activity and a lower frequency of wound infection give it an edge over conventional open surgery in gastrointestinal procedures.

The advantages of laparoscopic surgeries along with the implementation of ERAS protocol have allowed the introduction of the concept of ambulatory or outpatient surgeries(32). Procedures like laparoscopic cholecystectomies, laparoscopic appendicectomy, etc. are being actively done as outpatient surgeries.

Complications such as wound infection and postoperative pain act as a disadvantage with respect to ambulatory surgery. They not only add to the patient cost but also increase the inpatient load of a hospital.

We undertook a randomized control trial; in one group we dipped the ports and trocars in 10% PI before introducing them into the abdomen while in the other group we directly introduced the trocars. A total of 164 patients who consented and met the inclusion criteria were enrolled into the study. no patients included in the study were showing signs of peritonitis. They were randomized into two groups of 82 patients each. The two groups were comparable with respect to the demographic and laboratory parameters.

In our study, the incidence of PSI was found to be comparable in the two groups and the results were not statistically significant. The overall infection rate in our study was found to be 4.27%. This is in line with the port site infection rate found in other studies. This could be attributed to good sterilization techniques and maintenance of adequate asepsis during surgery.

This result was in contrast to the study conducted by Kumar et. al. which had shown a significant decrease in the incidence of port site infection. This difference could be attributed to the greater sample size in our study(5).

A meta-analysis conducted by Fournel et. al.(4) found a significant reduction in the incidence of SSI when wounds were irrigated with PI intraoperatively. This could not be reiterated in our results.

In our study we found pain to be comparable between the two groups and had a sharp decline on day 1 of surgery. This decrease in pain score is in line with the principles of laparoscopic surgery. The patients reported a decrease in pain from 12 hours to 24 hours and from 12 hours to day 3. The decrease in pain was significant ($p<0.0001$) in both groups. The change in pain was significantly more in the control group at these time points ($p<0.05$).

A study by Leggett et. al. showed how a smaller incision surgery can significantly reduce the pain of the patient(33). This is also the basis of laparoscopic surgery becoming the new norm in general surgery. Lee et. al. reported that the pain at the incision site is much more than the visceral pain and the pain is maximum in the initial 1-2 days (34).

In our study, we did not include patients with peritonitis such as acute cholecystitis, perforation, obstructions etc. which are more frequently associated with infections. Also, none of the patients was a diabetic. Diabetes is known to predispose to infection. Further evaluation with a larger sample size and a wider range of surgeries including gynaecological and oncosurgery procedures needs to be carried out to fully assess the effects of PI in PSI.

CONCLUSION

Port site infection is the most common complication of laparoscopic surgery. It increases the length of hospital stay, patient cost and incidence of port site herniation. PI has a documented antimicrobial activity. The effect of PI dipped ports to prevent port site infection in laparoscopic surgery could not be proved significantly in this study. Its use to prevent port site infection warrants further study.

SUMMARY

This study was conducted at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi in association with Jawaharlal Nehru Medical College during the year 2021.

A total of 164 patients undergoing elective laparoscopic surgery in the department of general surgery were included in the study. In 82 patients, ports were dipped in 10% PI solution prior to insertion while in the rest of the patients the ports were directly introduced.

The two groups were comparable with respect to demographic and clinical data.

No significant difference was found in the rate of port site infection in the two groups with an overall incidence of infection being 4.27%. There was a significant decrease in pain in the two groups from 12 hours to day 3.

Due to the low rate of infection in the two groups, a larger sample with the inclusion of gynaecological and oncological procedures is required to come to conclusion regarding the role of PI in reducing PSI.

SCOPE AND LIMITATIONS

Our study did not reveal any significant difference in PSI's in the two groups. A study with a larger sample size with inclusion of gynaecological and oncological procedures may be able to elicit any difference in the incidence if any.

Our study did not include diabetic patients which are more prone to infections and could change the results significantly

Inclusion of more clinical parameters such as skin fold thickness etc. have the potential of affecting the results significantly.

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ANNEXURE I: ETHICAL CLEARANCE

K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed – to- be- University)
Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category 'A' by MHRD (GoI)

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Ref: MDC/DOME/ 116 **Date: 25/01/2021**

To.
REG NO: BH0120002
PG student in Surgery,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"USE OF TROCARS AND PORT DIPPED IN 10% POVIDONE IODINE SOLUTION VERSUS CONVENTIONAL TECHNIQUE TO PREVENT PORT SITE INFECTION IN LAPAROSCOPIC SURGERIES: A HOSPITAL BASED RANDOMIZED CONTROL TRIAL STUDY ",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Smita Sonoli)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Harsha Hegde)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

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ANNEXURE II: CONSENT

CONSENT FOR PARTICIPATION IN RESEARCH STUDY

Mr/Mrs/Miss. ______________________________, we are requesting you to enroll yourself in study titled "**USE OF TROCARS AND PORT DIPPED IN 10% POVIDONE IODINE SOLUTION VERSUS CONVENTIONAL TECHNIQUE TO PREVENT PORT SITE INFECTION IN LAPAROSCOPIC SURGERIES: A HOSPITAL BASED RANDOMIZED CONTROL TRIAL STUDY"**, conducted by REG NO: BH0120002, Post Graduate in M.S. General Surgery under the guidance of Dr. _________________, Associate Professor, Department of General Surgery, J.N. Medical College, Belagavi under KAHER, Belagavi.

Respected Sir/Madam,

We request you to participate in our study. Your participation in the research is voluntary. Your decision to participate in the study or otherwise will not affect the relationship with KLES Prabhakar Kore Hospital. If you decide not to participate, you are free to withdraw at any time. During the study, your operative outcome will be assessed by some questions.

Purpose of the study:

This research is intended to compare the post-operative port site infection using trocar and port preparation by two different studies. The principal investigator of the study is Dr. REG NO: BH0120002, under the guidance of Dr. _______________.

Procedure Involved:

If you agree to enroll yourself in this study, your detailed history will be taken and you will be clinically examined in detail. Investigations like Hemoglobin, Total Count, Differential Count, Platelet Count, RBS, Blood Urea, Serum Creatinine, Blood

Grouping, Chest X-ray, ECG, USG Abdomen and Pelvis, required for confirmation of your diagnosis and for your pre-operative work up will be done accordingly. You will be assigned to either of the two groups for instrument preparation, i.e., Group A –trocar and port in 10% povidone iodine, Group B – conventional, by SNOSE [Sequentially Numbered Opaque Sealed Envelope].

You will undergo Laparoscopic Surgery under General Anesthesia.

The 10 mm ports will be closed, fascia with “2-0” Vicryl and skin with “3-0” Ethilon. The 5 mm ports will be closed using Ethilon in both the groups.

Post-operative Surgical Site Infection will be assessed using Southampton Scoring System at 1, 3, 7 and 30 days.

Post-operative pain will be assessed using Visual Analogue Scale (VAS) and graded at 12 ,24 hours, 3rd, 7th and 30th day. Intensity of pain will be assessed by using 10-point VAS representing various intensity of pain from 0 (No pain) to 10 (Worst possible pain).

Risks and Benefits:

There is no increased risk involved in being a part of this study and the complications are those which are normally anticipated. This study will help to estimate the incidence of surgical site infection when trocars and ports were dipped in 10% povidone iodine and conventional method. The results derived at the end of the study will possibly benefit all similar patients admitted in this hospital and elsewhere.

Withdrawing/removal from the study:

The participant has freedom to withdraw from the study whenever he/she wishes and without any prior notice. Even if you decline to participate, there will not be any change in the line of your management or the relationship with your doctor. You will be

told about all the information that affects your decision to participate in the study. The investigator may also exclude a participant from the study at any point of time.

Privacy and Confidentiality:

The only people to know that you are a research subject are members of the research team. No information about you or information provided by you during the research will be disclosed to other without your written permission except:

1. In emergency to protect your rights and welfare.
2. If required by law.

Institutional/sponsors policy:

If any unforeseen complications or injury occurs during the period of study, the participant will be given treatment within the limitations of KLES Prabhakar Kore Hospital.

Financial Incentives for participation:

The participant neither gets any financial incentives during the period of study nor will be asked to pay for this study.

Authorization to Publish Results:

When the results of the research are published, or discussed in a conference, no information will be displayed that would disclose your identity. Any information that is obtained in this study that can be associated with your identity will remain confidential.

CONSENT STATEMENT

I, Mr/Ms/Mrs. ______________________________ voluntarily agree for the participation as a subject of study. By signing this consent form, I am not giving up any of my legal rights. I may withdraw from the study anytime. I am signing the consent form after having read or been read for me in my vernacular language, including the risks and the benefits and having all my questions answered.

Subject Name : ____

Signature or Left Thumb Print of Subject: _____________________

Witness Name: ___________________ Signature: _________________

Investigators Name: _______________ Signature: _________________

Date: ______________

Place: ______________

ANNEXURE III: PROFORMA

PROFORMA

The proposed proforma / questionnaire to be used for data collection for the study "**USE OF TROCARS AND PORT DIPPED IN 10% POVIDONE IODINE SOLUTION VERSUS CONVENTIONAL TECHNIQUE TO PREVENT PORT SITE INFECTION IN LAPAROSCOPIC SURGERIES: A HOSPITAL BASED RANDOMIZED CONTROL TRIAL STUDY"** is as:

Group:

Name: IP no.:

Sex: Age:

Address: Religion:

Education: Date of admission:

Occupation: Date of discharge:

CHIEF COMPLAINTS:

HISTORY OF PRESENTING COMPLAINTS:

PAST HISTORY:

PERSONAL HISTORY:

<u>FAMILY HISTORY:</u>

<u>GENERAL PHYSICAL EXAMINATION</u>:

Built and Nourishment:

Weight:

Pallor / Icterus / Cyanosis / Clubbing / Edema / Lymphadenopathy

Vital Signs: PR: /min; BP: mm Hg; RR: /min; Febrile/Afebrile

<u>SYSTEMIC EXAMINATION:</u>

Abdomen:

Inspection:

Palpation:

Percussion:

Auscultation:

Cardio Vascular System:

Respiratory System:

<u>CLINICAL IMPRESSION:</u>

<u>INVESTIGATIONS:</u>

Hb: Total Leucocyte Count: Platelet count:

Random blood sugar :

Blood Group:

Blood urea: Sr. Creatinine:

PT/INR:

Urine routine and microscopy:

HIV: HBsAg:

ECG:

Chest Xray:

USG-Abdomen and Pelvis:

OPERATION DETAILS:

Date of Surgery:

Anesthesia: General Anesthesia

Duration of Surgery:

ASSESSMENT OF POST OPERATIVE WOUND

Southampton Wound Scoring System

GRADE 0 Normal Healing

GRADE I Normal Healing with mild bruising or erythema

- A Some bruising
- B Considerable bruising
- C Mild erythema

GRADE II Erythema plus other signs of inflammation

- A At one point
- B Around sutures
- C Along wound
- D Around wound

GRADE III Clear or Haemoserous discharge

- A At one point only (<2cm)

B Along wound (>2cm)

C Large volume

D Prolonged (>3days)

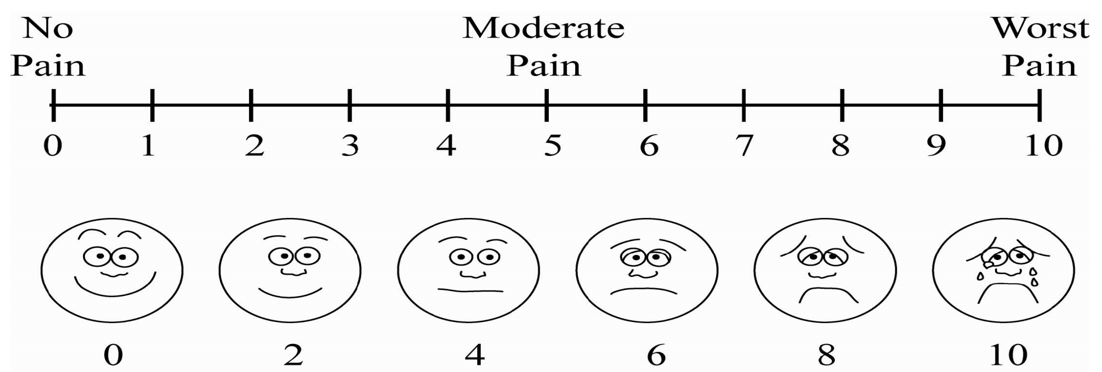
GRADE IV Pus

A At one point only (<2cm)

B Along wound (>2cm)

GRADE V Deep or severe wound infection with or without tissue breakdown; hematoma requiring aspiration

ASSESSMENT OF POST OPERATIVE PAIN BY VISUAL ANALOGUE SCALE (VAS):



SR. NO.	GRP	PATIENT	AGE	SEX	DIAGNOSIS	DM	HTN	HB	PROTEINS	ALB	PROCEDURE	INFECTION				PAIN				
												DAY 1	DAY 3	DAY 7	DAY 30	12 HRS	24 HRS	DAY 3	DAY 7	DAY 30
1	C	RAJ603	36	F	SUPRAUMBILICAL HERNIA	NO	NO	12.3	6.9	4.2	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	7	6	4	2	1
2	I	LAG119	70	F	CHOLELITHIASIS	NO	NO	12.2	8.7	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	5	4	2	0	0
3	C	SHA528	29	F	SPENOMEGALY	NO	NO	9.8	6.7	4.7	SPLENECTOMY	NO	NO	NO	NO	4	4	2	1	0
4	C	SOM656	31	M	APPENDICITIS	NO	NO	14.2	7.1	4.1	APPENDICECTOMY	NO	NO	NO	NO	5	2	4	0	1
5	C	GAY696	42	F	CHOLELITHIASIS	NO	NO	12.7	6.7	3.7	CHOLECYSTECTOMY	NO	NO	NO	NO	4	3	1	2	1
6	I	NUR914	24	F	APPENDICITIS	NO	NO	9	7.7	4	APPENDICECTOMY	NO	NO	NO	NO	4	5	3	1	1
7	C	KAL024	45	F	CHOLELITHIASIS	NO	NO	12.9	7.5	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	4	1	1
8	C	PAL292	28	F	APPENDICITIS	NO	NO	13.5	7.8	4.8	APPENDICECTOMY	NO	NO	NO	NO	4	2	2	1	1
9	I	SHR336	25	F	APPENDICITIS	NO	NO	12.8	6.6	4.1	APPENDICECTOMY	NO	NO	NO	NO	6	2	4	2	1
10	C	VAS364	48	M	CHOLELITHIASIS	NO	NO	14.7	7.4	4.3	CHOLECYSTECTOMY	NO	NO	NO	NO	5	3	2	1	0
11	C	MOH854	60	M	CHOLELITHIASIS	NO	NO	15.6	7.3	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	1	1	1
12	I	rab155	36	F	CHOLELITHIASIS	NO	NO	10.50	6.4	3.5	CHOLECYSTECTOMY	NO	NO	NO	NO	4	4	2	1	0
13	I	GAY308	27	F	APPENDICITIS	NO	NO	12.8	7.3	4.1	APPENDICECTOMY	YES	NO	NO	NO	6	5	4	2	1
14	C	BAB586	50	F	CHOLELITHIASIS	NO	NO	11.9	7.9	3.7	CHOLECYSTECTOMY	NO	NO	NO	NO	5	3	1	2	0
15	I	SAE899	62	F	APPENDICITIS	NO	YES	10.9	7.9	3.9	APPENDICECTOMY	NO	NO	NO	NO	4	5	3	0	0
16	C	VNO971	25	M	APPENDICITIS	NO	NO	15.5	6.8	4.2	APPENDICECTOMY	NO	NO	NO	NO	5	4	2	0	0
17	I	Swa239	32	F	APPENDICITIS	NO	NO	9.7	6.3	4	APPENDICECTOMY	NO	NO	NO	NO	4	2	3	2	0
18	C	ABD591	19	M	APPENDICITIS	NO	NO	15.6	6.7	2.4	APPENDICECTOMY	NO	NO	NO	NO	5	3	2	0	1
19	I	SUM777	30	F	APPENDICITIS	NO	NO	12.3	7	4.6	APPENDICECTOMY	NO	NO	NO	NO	5	3	1	1	1
20	C	NIN184	72	M	APPENDICITIS	NO	NO	15.3	6	3.7	APPENDICECTOMY	NO	NO	NO	NO	4	5	2	0	0
21	C	ROH350	19	M	APPENDICITIS	NO	NO	12.2	7.4	4.1	APPENDICECTOMY	NO	NO	NO	NO	5	4	3	2	0
22	C	SHA511	48	F	CHOLELITHIASIS	NO	NO	12.1	6.4	4	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	2	2	0
23	I	SAM724	39	F	CHOLELITHIASIS	NO	NO	13.2	7.5	4.2	CHOLECYSTECTOMY	NO	NO	NO	NO	4	3	3	2	0
24	C	VAS728	50	M	HIATUS HERNIA	NO	YES	11	6.9	4.2	HIATAL HERNIA REPAIR WITH CHOLECYSTECTOMY	NO	NO	NO	NO	5	4	1	1	0
25	C	JYO575	25	M	EVENTRATION	NO	NO	15	6.9	4.2	PLICATION	NO	NO	NO	NO	5	4	3	1	0
26	I	LAX596	20	M	APPENDICITIS	NO	NO	17.3	6.9	4.3	APPENDICECTOMY	NO	NO	NO	NO	5	5	1	0	1
27	C	IND789	31	F	PARAUMBILICAL HERNIA	NO	NO	13.9	6.9	4.3	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	5	3	1	0	1
28	I	SAV261	29	F	CHOLELITHIASIS	NO	NO	13.3	7.4	4.4	CHOLECYSTECTOMY	NO	YES	NO	NO	5	2	1	1	1
29	C	MAH377	50	M	BILIARY PANCREATITIS	NO	NO	14	6.3	4.3	CHOLECYSTECTOMY	NO	NO	NO	NO	6	3	1	1	0
30	C	SUN407	28	F	APPENDICITIS	NO	NO	13.2	6.3	3.8	APPENDICECTOMY	NO	NO	NO	NO	6	5	3	1	1
31	I	GOU554	21	M	B/L INGUINAL HERNIA	NO	NO	15	6.4	4.3	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	5	3	2	1	1
32	I	VID801	30	F	APPENDICITIS	NO	NO	13.7	7.4	4.2	APPENDICECTOMY	NO	NO	NO	NO	5	5	4	1	0
33	C	SHI885	52	M	GASTRIC OUTLET OBSTRUCTION	NO	NO	12.8	6.2	4.1	POSTERIOR GASTROJEJUNOSTOMY	NO	NO	NO	NO	6	3	1	0	1
34	I	DHA041	49	F	CHOLELITHIASIS	NO	NO	12.4	7	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	4	4	4	0	0
35	C	MAY060	18	F	APPENDICITIS	NO	NO	11.7	6.5	4.3	APPENDICECTOMY	NO	NO	NO	NO	5	5	3	0	0
36	I	ARA186	43	F	CHOLELITHIASIS	NO	NO	10.5	7.4	4.5	CHOLECYSTECTOMY	NO	NO	NO	NO	6	5	1	0	0

SR. NO.	GRP	PATIENT	AGE	SEX	DIAGNOSIS	DM	HTN	HB	PROTEINS	ALB	PROCEDURE	INFECTION				PAIN				
												DAY 1	DAY 3	DAY 7	DAY 30	12 HRS	24 HRS	DAY 3	DAY 7	DAY 30
37	I	SAM230	18	M	APPENDICITIS	NO	NO	16.9	7.6	4.5	APPENDICECTOMY	NO	NO	NO	NO	5	4	1	0	0
38	C	BEN392	24	F	APPENDICITIS	NO	NO	12.4	6.6	4	APPENDICECTOMY	NO	NO	NO	NO	6	5	4	1	0
39	C	MAN855	38	F	INCISIONAL HERNIA	NO	NO	11.2	5.9	4.1	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	6	5	4	0	1
40	I	VID931	30	F	CHOLELITHIASIS	NO	NO	12.1	7.1	4.3	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	4	1	0
41	C	MAH136	28	M	INDIRECT INGUINAL HERNIA	NO	NO	12.9	5.4	4.5	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	6	5	4	0	0
42	C	LAX780	31	F	PAIN ABDOMEN	NO	NO	12.8	7.2	4.6	ADHESIOLYSIS	NO	NO	NO	NO	5	4	4	2	0
43	I	SUR862	32	F	APPENDICITIS	NO	NO	13.2	7.4	4.5	APPENDICECTOMY	NO	NO	NO	NO	4	2	4	2	1
44	C	SUB053	63	M	PAIN ABDOMEN	NO	NO	13.1	7.3	3.8	OMENTAL BIOPSY	NO	NO	NO	NO	4	4	3	2	0
45	I	SUN290	40	F	CHOLELITHIASIS	NO	NO	10.9	7.1	3.9	CHOLECYSTECTOMY	NO	YES	NO	NO	6	4	4	1	1
46	C	VIN346	33	F	APPENDICITIS	NO	NO	9.4	7.6	4	APPENDICECTOMY	NO	NO	NO	NO	6	3	1	2	1
47	I	SHE498	38	F	APPENDICITIS	NO	NO	12.2	7.9	4.3	APPENDICECTOMY	NO	NO	NO	NO	4	3	4	1	0
48	I	PRA671	33	M	INGUINAL HENIA	NO	NO	15.5	7.4	5	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	5	2	3	0	0
49	C	RUK158	51	F	APPENDICITIS	NO	YES	13.8	8	4.4	APPENDICECTOMY	NO	NO	NO	NO	5	3	2	2	0
50	C	ASH785	40	F	CHOLELITHIASIS	NO	NO	10.3	6.4	3.7	SUBTOTAL CHOLECYSTECTOMY	NO	NO	NO	NO	4	3	2	2	1
51	I	GAN919	19	M	APPENDICITIS	NO	NO	13.7	6.5	4.1	APPENDICECTOMY	NO	NO	NO	NO	4	5	4	2	1
52	C	NAN930	34	M	APPENDICITIS	NO	NO	14.5	6.9	4	APPENDICECTOMY	NO	NO	NO	NO	6	4	2	1	1
53	I	SAR220	43	F	APPENDICITIS	NO	NO	12.4	7	3.9	APPENDICECTOMY	NO	NO	NO	NO	4	4	2	2	1
54	I	VIT244	43	M	CHRONIC PANCREATITIS	NO	NO	9	7.2	2.6	CYSTOGASTROSTOMY	NO	NO	NO	NO	4	2	2	0	0
55	C	GIR284	43	M	APPENDICITIS	NO	NO	15	7.1	4.8	APPENDICECTOMY	YES	NO	NO	NO	6	5	3	1	0
56	C	SUM378	38	F	CHOLELITHIASIS	NO	NO	8.7	6.6	4	CHOLECYSTECTOMY	NO	NO	NO	NO	4	2	4	1	0
57	I	SHA446	58	F	CHOLELITHIASIS	NO	NO	12.9	7.7	4.8	CHOLECYSTECTOMY	NO	NO	NO	NO	6	3	3	1	0
58	I	SAP587	21	F	CHOLELITHIASIS	NO	NO	12	6.5	4.2	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	4	1	1
59	I	MOH947	29	M	APPENDICITIS	NO	NO	15.5	7.9	4	APPENDICECTOMY	NO	NO	NO	NO	5	5	1	1	0
60	C	ROO435	38	F	CHOLELITHIASIS	NO	NO	10.9	6.2	3.4	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	4	1	0
61	C	RAJ638	42	M	DIRECT INGUINAL HERNIA	NO	NO	11.9	5.9	3.9	TOTALLY EXTRAPERITONEAL REPAIR	NO	NO	NO	NO	5	4	2	1	1
62	C	SAN566	36	M	APPENDICITIS	NO	NO	11.7	4.7	2.8	APPENDICECTOMY	NO	NO	NO	NO	5	2	1	0	1
63	I	GAN570	53	F	CHOLELITHIASIS	NO	NO	12.4	5.8	3.6	CHOLECYSTECTOMY	NO	NO	NO	NO	6	5	4	1	0
64	I	SAN745	23	F	APPENDICITIS	NO	NO	12.9	8.4	4.3	APPENDICECTOMY	NO	NO	NO	NO	6	5	3	1	1
65	C	RAM268	32	M	APPENDICITIS	NO	NO	14.2	6.6	3.3	APPENDICECTOMY	NO	YES	YES	NO	4	5	1	2	1
66	I	HON623	28	M	APPENDICITIS	NO	NO	14.4	6.9	4.1	APPENDICECTOMY	NO	NO	NO	NO	4	4	4	0	0
67	C	GAN985	21	M	SUBACUTE APPENDICITIS	NO	NO	14.6	7.3	4.1	APPENDICECTOMY	NO	NO	NO	NO	4	2	4	0	1
68	I	VAI128	23	M	APPENDICITIS	NO	NO	15.5	7.1	5	APPENDICECTOMY	NO	NO	NO	NO	5	5	3	2	1
69	C	NAN853	38	F	CHOLELITHIASIS	NO	NO	9.4	7.2	3.8	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	1	2	0
70	C	NIT915	32	M	APPENDICITIS	NO	NO	12	6.7	4.7	APPENDICECTOMY	NO	NO	NO	NO	5	5	4	1	0
71	C	AAS398	28	F	SUBACUTE APPENDICITIS	NO	NO	11.9	7.3	4.4	APPENDICECTOMY	NO	NO	NO	NO	4	3	2	0	0

SR. NO.	GRP	PATIENT	AGE	SEX	DIAGNOSIS	DM	HTN	HB	PROTEINS	ALB	PROCEDURE	INFECTION				PAIN				
												DAY 1	DAY 3	DAY 7	DAY 30	12 HRS	24 HRS	DAY 3	DAY 7	DAY 30
72	I	SHA614	42	F	BILIARY PANCREATITIS	NO	NO	13	7	4.2	CHOLECYSTECTOMY	NO	NO	NO	NO	5	5	2	2	1
73	I	SAN842	32	F	DIVERICATION OF RECTI	NO	NO	12.5	6.9	4.2	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	5	2	3	1	1
74	C	JES790	33	F	APPENDICITIS WITH ADHESIONS	NO	NO	11.2	6.4	4.2	APPENDICECTOMY	NO	NO	NO	NO	5	2	1	0	1
75	I	DOD819	71	F	APPENDICITIS	NO	YES	13.5	7.3	4.1	APPENDICECTOMY	NO	NO	NO	NO	4	5	4	0	1
76	C	KAS457	43	F	INCISIONAL HERNIA	NO	NO	12	6.2	3.9	INTRAPERITONEAL ONLAY MESH REPAIR	YES	NO	NO	NO	7	3	2	2	1
77	C	VID317	23	F	APPENDICITIS	NO	NO	12.2	6.4	3.6	APPENDICECTOMY	NO	NO	NO	NO	4	2	3	2	1
78	C	KAS384	42	F	APPENDICITIS WITH ADHESIONS	NO	NO	10.6	4.6	3	APPENDICECTOMY	NO	NO	NO	NO	5	5	3	1	0
79	I	KRI837	18	M	APPENDICITIS	NO	NO	13.9	7.8	4.5	APPENDICECTOMY	NO	NO	NO	NO	6	3	3	2	0
80	I	TIP946	40	M	APPENDICITIS	NO	YES	16.8	6.7	3.9	APPENDICECTOMY	NO	NO	NO	NO	6	4	3	2	0
81	C	PRA190	48	M	APPENDICITIS	NO	NO	14	6.2	3.8	APPENDICECTOMY	NO	NO	NO	NO	6	4	3	2	1
82	C	POO551	25	F	PARAUMBILICAL HERNIA	NO	NO	13.3	7.3	4.3	PRIMARY CLOSURE	NO	NO	NO	NO	6	3	3	2	1
83	I	SHR580	18	F	CHRONIC APPENDICITIS	NO	NO	11.8	7.2	4.3	APPENDICECTOMY	NO	NO	NO	NO	4	5	3	1	1
84	C	LAL636	31	F	CHRONIC APPENDICITIS	NO	NO	10.2	6.7	3.6	APPENDICECTOMY	NO	NO	NO	NO	6	3	2	1	0
85	I	MAM276	44	F	CHOLELITHIASIS	NO	YES	12.1	7.1	3.8	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	4	1	0
86	I	MAR507	46	M	CHOLELITHIASIS	NO	NO	11.5	7.7	4	CHOLECYSTECTOMY	NO	NO	NO	NO	4	3	4	2	1
87	C	BAS307	46	M	DIAPHRAGMATIC HERNIA	NO	YES	14.1	7.6	4.3	HERNIA REPAIR	NO	NO	NO	NO	6	2	2	2	1
88	C	BAB338	55	M	CHOLELITHIASIS	NO	YES	9.7	6.9	4.5	CHOLECYSTECTOMY	NO	NO	NO	NO	4	4	1	0	1
89	C	SPO408	18	F	APPENDICITIS	NO	NO	11	7.5	4.2	APPENDICECTOMY	NO	NO	NO	NO	6	4	1	2	1
90	C	CHE713	19	M	RIGHT INGUINAL HERNIA	NO	NO	15.2	8.3	4.6	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	6	2	1	2	0
91	C	MAL914	24	M	CHOLELITHIASIS	NO	NO	17.3	8	4.2	CHOLECYSTECTOMY	NO	NO	NO	NO	6	5	2	2	0
92	I	SOM919	44	M	UMBILICAL HERNIA WITH OMENTOCELE	NO	NO	14.4	7.6	4.7	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	6	5	3	1	1
93	I	SHI379	59	M	PARAUMBILICAL HERNIA	NO	NO	14.5	7.6	4.2	PRIMARY CLOSURE	NO	NO	NO	NO	5	5	3	2	1
94	C	KAV407	43	F	RECURRENT INCISSIONAL HERNIA	NO	NO	11.4	7.4	3.8	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	6	3	2	0	0
95	I	SRU869	18	F	APPENDICITIS	NO	NO	8.6	7.3	3.8	APPENDICECTOMY	NO	NO	NO	NO	4	3	4	1	1
96	C	VIK872	18	M	APPENDICITIS	NO	NO	14.5	8.6	4.4	APPENDICECTOMY	NO	NO	NO	NO	4	5	2	2	0
97	I	ANA209	55	F	CHOLELITHIASIS	NO	NO	10	7	3.8	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	2	2	1
98	C	SUR438	34	F	CHOLELITHIASIS	NO	NO	13.9	4.5	3.1	CHOLECYSTECTOMY	YES	YES	NO	NO	4	3	3	1	1
99	C	NAZ502	53	F	CHOLILITHIASIS	NO	NO	12.8	8	4.9	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	3	0	1
100	C	GEE511	32	F	APPENDICITIS WITH ADHESIONS	NO	NO	12.6	8.7	5.1	APPENDICECTOMY	NO	NO	NO	NO	6	5	4	0	1
101	I	NAG626	40	F	APPENDICITIS	NO	NO	11.6	7.2	3.7	APPENDICECTOMY	NO	NO	NO	NO	4	3	4	2	1
102	I	ANP882	42	F	CHOLELITHIASIS	NO	NO	12.3	7.7	4.8	CHOLECYSTECTOMY	NO	NO	NO	NO	5	5	2	0	0
103	C	FAR389	47	M	CHOLELITHIASIS	NO	NO	14.9	8.1	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	3	2	1
104	I	MAL626	40	M	PARAUMBILICAL HERNIA	NO	NO	15.8	6.3	4.8	PRIMARY CLOSURE	NO	NO	NO	NO	5	5	2	2	0

SR. NO.	GRP	PATIENT	AGE	SEX	DIAGNOSIS	DM	HTN	HB	PROTEINS	ALB	PROCEDURE	INFECTION				PAIN				
												DAY 1	DAY 3	DAY 7	DAY 30	12 HRS	24 HRS	DAY 3	DAY 7	DAY 30
105	C	RUK173	67	F	CHOLELITHIASIS	NO	NO	12.2	5.8	3.3	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	3	1	1
106	C	AIS183	65	F	CHOLELITHIASIS	NO	YES	13.2	7.7	4.3	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	3	0	1
107	I	GUR308	33	M	UMBILICAL HERNIA WITH OMENTOCELE	NO	NO	12.7	9	4.4	PRIMARY CLOSURE	NO	NO	NO	NO	6	5	1	1	1
108	I	SAY709	37	F	CHOLELITHIASIS	NO	NO	11.2	7	4	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	1	2	1
109	I	RAM373	40	M	RECTAL PROLAPSE	NO	NO	15.5	7.6	4.3	LAP RECTOPEXY WITH POST MESH FIXATION	No	NO	NO	NO	5	2	4	2	0
110	I	SHI557	35	M	APPENDICITIS	NO	NO	10.4	6.7	4.1	APPENDICECTOMY	NO	NO	NO	NO	6	2	4	1	0
111	I	MAN570	22	M	APPENDICITIS	NO	NO	14.6	7.6	4.3	APPENDICECTOMY	NO	NO	NO	NO	5	2	1	1	1
112	C	JAY842	38	F	CHOLELITHIASIS	NO	NO	12.1	8.2	4.9	CHOLECYSTECTOMY	NO	NO	NO	NO	5	5	4	0	1
113	C	BHA089	67	F	BILIARY PANCREATITIS	NO	NO	11.8	6.9	3.5	CHOLECYSTECTOMY	NO	NO	NO	NO	4	2	1	0	0
114	C	KAV497	19	F	APPENDICITIS	NO	NO	11.9	7.8	4	APPENDICECTOMY	NO	NO	NO	NO	5	4	3	2	1
115	I	REK524	44	F	INCISIONAL HERNIA	NO	YES	12.1	7.7	3.1	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	5	3	2	2	1
116	C	BHA102	33	F	APPENDICITIS WITH ADHESIONS	NO	NO	7.6	7.5	4.3	APPENDICECTOMY	NO	NO	NO	NO	6	4	4	0	1
117	C	MAH110	49	F	PARAUMBILICAL HERNIA	NO	NO	11.6	7.1	4.6	PRIMARY CLOSURE	NO	NO	NO	NO	5	4	1	0	1
118	I	NAM482	21	F	SUBACUTE APPENDICITIS	NO	NO	13.1	7.2	4	APPENDICECTOMY	NO	NO	NO	NO	4	5	2	2	0
119	C	MAL348	48	F	APPENDICITIS	NO	NO	11.4	6.2	4	APPENDICECTOMY	NO	NO	NO	NO	4	3	4	1	1
120	C	VIS493	20	M	APPENDICITIS	NO	NO	14.5	6.9	4	APPENDICECTOMY	NO	NO	NO	NO	4	2	1	1	0
121	C	IMR874	20	M	APPENDICITIS	NO	NO	12.7	6.3	3.9	APPENDICECTOMY	NO	NO	NO	NO	4	5	3	2	1
122	I	NAN765	24	F	CHRONIC APPENDICITIS	NO	NO	12.7	6.7	3.9	APPENDICECTOMY	NO	NO	NO	NO	6	5	2	1	1
123	C	SOM448	53	M	CHOLELITHIASIS	NO	YES	14.4	6.7	3.9	CHOLECYSTECTOMY	NO	NO	NO	NO	5	4	4	2	0
124	I	SUN537	38	F	APPENDICITIS	NO	NO	11.6	7.7	3.9	APPENDICECTOMY	YES	NO	NO	NO	5	4	3	2	0
125	I	MAL617	41	F	INCISIONAL HERNIA	NO	NO	12	6.3	3.4	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	5	2	1	2	0
126	I	BAD643	65	M	SUPRAUMBILICAL HERNIA	NO	YES	13.2	6.3	3.4	PRIMARY CLOSURE	NO	NO	NO	NO	5	4	3	0	1
127	I	BHA882	20	F	APPENDICITIS WITH MESENTRIC LYMPHADINITIS	NO	NO	12	7.8	4.9	APPENDICECTOMY	NO	NO	NO	NO	6	3	3	2	1
128	I	BHA076	32	F	CHRONIC APPENDICITIS	NO	NO	13.5	7.3	4.2	APPENDICECTOMY	NO	NO	NO	NO	6	2	2	1	1
129	C	NAV111	31	F	SPEELINIC HYDRATID CYST	NO	NO	12.3	73	3.6	LAPROSCOPIC REPAIR WITH DEROOFING OF HYDATID CYST	NO	NO	NO	NO	5	2	2	1	0
130	C	ZUL917	48	M	B/L DIRECT INGUINAL HERNIA	NO	NO	15.7	6.9	4.8	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	6	3	3	1	1
131	C	GAJ232	67	M	B/L INDIRECT INGUINQL HERNIA	NO	NO	11	6.7	3.8	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	6	2	1	1	1
132	I	IMT337	42	M	APPENDICITIS	NO	NO	14.3	6.3	3.6	APPENDICECTOMY	NO	NO	NO	NO	5	4	2	0	0

SR. NO.	GRP	PATIENT	AGE	SEX	DIAGNOSIS	DM	HTN	HB	PROTEINS	ALB	PROCEDURE	INFECTION				PAIN				
												DAY 1	DAY 3	DAY 7	DAY 30	12 HRS	24 HRS	DAY 3	DAY 7	DAY 30
133	I	SAN757	65	M	RT INDIRECT INDIRECT INGUNIAL HERNIA	NO	NO	15.1	7.5	4.1	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	5	5	3	1	0
134	I	SAD148	24	F	CHRONIC APPENDICITIS	NO	NO	12.3	6.6	4.4	APPENDICECTOMY	YES	YES	NO	NO	4	2	1	2	1
135	C	MUH161	23	M	CHRONIC APPENDICITIS	NO	NO	15.5	7.7	4.7	APPENDICECTOMY	NO	NO	NO	NO	6	4	4	2	0
136	C	KAV469	54	F	CHOLELITHIASIS	NO	YES	11.2	6.7	3.8	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	2	2	0
137	I	BHA717	42	F	APPENDICITIS	NO	NO	9.5	6	4.1	APPENDICECTOMY	NO	NO	NO	NO	4	4	3	2	0
138	C	PAV957	25	F	CHOLELITHIASIS	NO	NO	14.3	6.9	3.8	APPENDICECTOMY	NO	NO	NO	NO	5	2	1	2	1
139	I	ROH958	19	M	APPENDICITIS	NO	NO	15.1	7	3.9	APPENDICECTOMY	NO	NO	NO	NO	4	5	3	0	0
140	I	BAS008	43	M	APPENDICITIS	NO	NO	13.9	7.5	5	APPENDICECTOMY	NO	NO	NO	NO	4	5	2	1	0
141	I	SUR164	71	M	CHOLELITHIASIS	NO	YES	12.6	7.1	3.3	CHOLECYSTECTOMY	NO	NO	NO	NO	6	5	1	0	1
142	I	SHA379	37	F	CHOLELITHIASIS	NO	NO	12.6	7.4	4	CHOLECYSTECTOMY	NO	NO	NO	NO	4	2	4	2	0
143	I	PAR589	75	M	CHOLELITHIASIS	NO	NO	12.4	6.3	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	5	2	1	2	0
144	I	GAU848	52	F	RECURRENT INCISSIONAL HERNIA	NO	NO	12.9	7.1	4.7	INTRAPERITONEAL ONLAY MESH REPAIR	NO	NO	NO	NO	7	2	1	0	0
145	C	KOU865	21	F	CHOLILITHIASIS	NO	NO	12.6	7.2	4.3	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	2	2	0
146	C	SAH082	20	F	SUBACUTE APPENDICITIS	NO	NO	13.5	7.7	4.4	APPENDICECTOMY	NO	NO	NO	NO	5	2	4	1	0
147	C	MIN546	40	F	CHOLELITHIASIS	NO	NO	13	6.9	4.1	CHOLECYSTECTOMY	NO	NO	NO	NO	5	5	2	0	0
148	I	AKS747	19	F	APPENDICITIS	NO	NO	13.5	8.9	4.4	APPENDICECTOMY	NO	NO	NO	NO	6	2	2	2	0
149	I	SUN601	30	F	SUBACUTE APPENDICITIS	NO	NO	11.6	8.2	4.4	APPENDICECTOMY	NO	NO	NO	NO	5	3	2	2	0
150	I	GAN614	70	M	CHOLELITHIASIS	NO	NO	12.2	7.1	3.8	CHOLECYSTECTOMY	NO	YES	YES	NO	4	4	1	1	0
151	I	RES864	33	F	CHOLILITHIASIS	NO	NO	12.2	7.2	3.7	CHOLECYSTECTOMY	NO	NO	NO	NO	6	4	4	0	0
152	I	NEH916	19	F	CHRONIC APPENDICITIS	NO	NO	12.5	6.4	3.7	APPENDICECTOMY	NO	NO	NO	NO	5	5	4	1	0
153	C	PRA155	21	F	CHOLELITHIASIS	NO	NO	13.3	6.2	3.7	CHOLECYSTECTOMY	NO	NO	NO	NO	6	2	1	1	1
154	C	GUR421	48	M	B/L INGUINAL HERNIA	NO	NO	14.7	6.4	3.6	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	6	3	4	0	0
155	C	SHW536	26	F	APPENDICITIS	NO	NO	12.2	6.6	3.5	APPENDICECTOMY	NO	NO	NO	NO	5	2	1	0	1
156	I	ANA784	31	M	HIATUS HERNIA	NO	NO	13.8	7.1	4.4	FUNDOPLICATION	NO	YES	NO	NO	4	5	2	0	0
157	I	IRA176	22	M	LEFT INGUINAL HERNIA	NO	NO	15.8	6.6	3.9	TRANS ABDOMINAL PREPERITONEAL REPAIR	NO	NO	NO	NO	5	3	2	0	1
158	I	BAS686	34	M	APPENDICITIS	NO	NO	14	6.1	3.4	APPENDICECTOMY	NO	NO	NO	NO	4	4	2	0	0
159	I	SUI690	32	F	APPENDICITIS	NO	NO	12.8	5.8	3.6	APPENDICECTOMY	NO	NO	NO	NO	6	5	2	0	0
160	I	TAR780	26	F	CHOLELITHIASIS	NO	NO	8.1	5.8	3.5	CHOLECYSTECTOMY	NO	NO	NO	NO	5	3	3	2	0
161	I	MAL132	44	M	SUPRAUMBILICAL HERNIA	NO	YES	14.3	5.9	3.4	PRIMARY CLOSURE	NO	NO	NO	NO	5	5	3	1	1
162	C	RAS803	37	F	APPENDICITIS	NO	NO	14	6.6	3.8	APPENDICECTOMY	NO	NO	NO	NO	6	3	3	1	0
163	I	KAS139	81	F	CHOLELITHIASIS	NO	NO	9.9	6.9	4	CHOLECYSTECTOMY	NO	NO	NO	NO	6	3	3	1	0
164	I	BAS240	29	M	APPENDICITIS	NO	NO	15.6	6.6	2.01	APPENDICECTOMY	NO	NO	NO	NO	6	4	2	0	0