"CLINICAL STUDY OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERIES"

BY

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DISSERTATION SUBMITTED TO SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH, TAMAKA, KOLAR, KARNATAKA.

In partial fulfilment of the requirements for the degree of

M.S. GENERAL SURGERY

UNDER THE GUIDANCE OF

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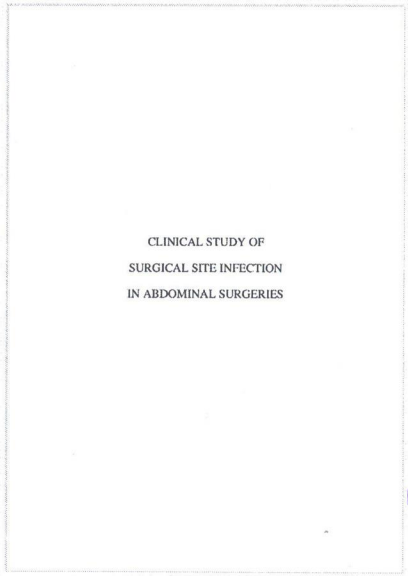

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CLINICAL STUDY OF

SURGICAL SITE INFECTION

IN ABDOMINAL SURGERIES

ABSTRACT

Background: The term "surgical site infection" (SSI), according to the Center for Disease Control and Prevention (CDC), refers to an infection in a wound that happens in 30 days or less following surgical procedure or one year if an implant is kept in situ and the infection is believed to be connected with the procedure.In all hospital surgical specialties, surgical site infections (SSI) remain a serious problem despite improvements in asepsis, antimicrobial medications, sanitation, and surgical methods.

Aim and Objective: 1.To determine the incidence of SSI in patients having abdominal operations, both emergency and elective

2.To describe the bacteriology causing SSI in patients undergoing abdominal surgeries -elective and emergency included.

3.To describe the clinical outcome in relation with post op complications like purulent discharge, wound dehiscence and duration of hospital stay on the patient.

Methodology: Patients who had undergone abdominal surgeries in R.L.Jalappa Hospital, Kolar from December 2020 to August 2022 were included in the study after fulfilling the inclusion criteria. The clinical outcome of these patients in terms of post-operative complications like purulent discharge, wound

dehiscence and duration of hospital stay . Incidence of SSI, bacteriology, and antibiotic sensitivity were noted. Peritoneal fluid is aspirated and tested for culture and sensitivity in cases of peritonitis.On post-operative days 2, 3, 4, 5, 6, 14, 21, and 28, all of them were observed, and the results were recorded. In case of discharge from the site, it was collected and evaluated for sensitivity testing and culture. For intra-abdominal problems such intra-abdominal collections and deep organ space infections, USG or CT are frequently performed. The patient paid the charges because the studies in this case were typical.Antibiotics provided as a preventive measure or before surgery were noted. Following surgery, antibiotic medication based on culture results was given. All of this data was recorded in a typical proforma, and the outcomes were statistically examined in relation to numerous criteria.

Results: Our study was conducted and analyzed using the ASEPSIS scoring system taking into consideration purulent exudate, wound dehiscence, isolation of organism from surgical site and amount of hospital stay following abdominal surgery.

Among the participants included in our study, 25.8% developed purulent exudate from surgical site. Among these 74.2 % of patients underwent emergency surgery and 25.8% of underwent elective surgery. 22.5 % of total participants were noted to have wound dehiscence. Among the patients who developed wound dehiscence 70.4 % of patients underwent emergency surgery

and 29.6 % of patients underwent elective surgery. Among the participants 10% had positive culture from the surgical site. Out of these patients 58.3% of patients underwent emergency surgery and 41.7 % of patients underwent elective surgery. Based on the ASEPIS score more than half of the study participants (55.8%) were found to have acceptable wound healing, while one-fifth (20.8%) showed healing disturbances. Our study showed surgical site infection in around 23.7 % of the total participants. Among the patients with SSI, 64.3 % had a minor wound infection, 32.1 % had a moderate wound infection and 3.6 % had severe wound infection. As mentioned earlier the incidence of surgical site infection with positive wound culture in our study population is 10%, which was found to be slightly higher. E coli was the most frequent pathogen discovered in the surgical site wound followed by Klebsiella pneumoniae. In elective surgeries Escherichia coli is found to be be the most frequently isolated. In emergency surgeries Enterobacter and Escherichia coli are the most commonly isolated pathogens. The overall asepsis wound score increases as the number of days in which the patient stays in hospital increase.

Conclusion: Emergency surgeries are more prone for incidence of SSI's as compared to elective surgeries. However there is no significant relation between SSI with positive culture between emergency and elective abdominal surgeries.

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ABBREVIATIONS

S. No	Abbreviation	Explanation
1	SSI	Surgical Site Infection
2	CDC	Centre for Disease Control
3	NHSN	National Health Care Safety Network
4	ASC	Active Surveillance Culture
5	AST	Active Surveillance Testing
6	SIP	Superficial Incisional Primary
7	SIS	Superficial Incisional Secondary
8	CBG	Coronary Bypass Graft
9	DIP	Deep Incisional Primary
10	DIS	Deep Incisional Secondary
11	CT	Computer Tomography
12	spp	Species
13	ECDC	European Centre for Disease Prevention and Control

14	MRSA	Methicillin Resistant Staphylococcus Aureus
15	MRI	Magnetic Resonance Imaging
16	SENIC	Nosocomial Infection Control
17	NNIS	National Nosocomial Infection Surveillance
18	ASA	American Society of Anaesthesiology
19	NPWT	Negative Pressure Wound Therapy
20	VAC	Vacuum Assisted Closure
21	PDS	Polydioxanone
22	SCIP	Surgical Care Improvement Project
23	IBM	International Business Machines
24	SPSS	Statistical Package for Social Sciences
25	NCI	Nosocomial Infection
26	BMI	Body Mass Index

INTRODUCTION

The term "surgical site infection" (SSI), according to the Center for Disease Control and Prevention (CDC), refers to an infection in a wound that happens in 30 days or less following surgical procedure or one year if an implant is kept in situ and the infection is believed to be connected with the procedure.[1]

Most typical infections in healthcare happens after 1-3 percent of all surgical procedures. Comparing abdominal surgery to other forms of surgery, abdominal surgery has much higher rates of surgical site infections (SSI), with several prospective studies reporting a frequency between 15 and 25 percent, depending on the extent of contamination.

SSIs are among the leading causes of mortality and disease in India. SSIs in India range from 1.6 to 38 percent depending on the situation. This variance could be brought on by variations in the hospital population, clinical procedures, infection control policies, and institutional setting.[2]

In all hospital surgical specialties, surgical site infections (SSI) remain a serious problem despite improvements in asepsis, antimicrobial medications, sanitation, and surgical methods. They are to blame for the rising expense, morbidity, and mortality of surgical procedures, and they still pose a serious threat to patients even in institutions that use the most advanced medical equipment, preoperative planning, and antibiotic prophylactic programmes.[3] Potential sources of infection include patients (especially those with bacterial contamination of the

gastrointestinal system), the hospital setting, staff, food, infected surgical instruments, dressings, and even drugs and injections.[4]

Bacterial colonisation of the patient's epidermis, gastrointestinal tract, and vaginal tract are the main causes of SSIs. The organism that is isolated most frequently is Staphylococcus aureus. Exogenous factors, which are much less frequent than endogenous flora, may also be at play, such as equipment malfunctions in operating rooms and sterile techniques. In addition to hindering postoperative healing, bacteria in the tissue or organ space might result in wound dehiscence, anastomotic leaks, and superficial incisional infections.[5]

The SSI risk index created by CDC and the National Nosocomial Infections Surveillance System includes the most well-known risk variables for the development of SSI, such as wound classification, ASA score, and length of the procedure.[6]

This study's objectives are to evaluate the occurrence of SSI in patients undergoing abdominal operations, both elective and emergency, to explain the bacterial origin and pattern of antibiotic sensitivity, and to summarise the clinical findings related post-operative sequelae.

OBJECTIVES

1. To determine the incidence of SSI in patients having abdominal operations, both emergency and elective
2. To describe the bacteriology causing SSI in patients undergoing abdominal surgeries -elective and emergency included.
3. To describe the clinical outcome in relation with post op complications like purulent discharge, wound dehiscence and duration of hospital stay on the patient.

REVIEW OF LITERATURE

Historical Backdrop

The word "surgical site infection" has taken place of "surgical wound infection". "SSI" was originally used by CDC in 1992.

According to historical records, wound treatment was a practice even of the primitive man. The proof is offered by cave drawings that date to between 30,000 and 2,000 BC that were found in Spain.[7]

However, the earliest writings come to the era of Hammurabi (approx. 2000 BCE). Hippocrates, Celsus, and Galen's ways for mending wounds were practised in antique Greece and Rome. *Pus bonum et laudabile*, which is correctly understood as "good and respectable pus," was a surgical doctrine back then. It was believed that pus was an indication of a typical healing..[7]

Hippocrates believed that if the pus from a wound was white and not unpleasant, health would follow however, if it were ichorous and muddy, death would result. The phrase "pus laudabile" wasn't rendered obsolete in the realm of medicine until the 19th century, thanks to a discovery.[8]

Ignaz Philipp Semmelweis, a Hungarian obstetrician (1818–1865) suggested that medical professionals should use chlorinated water to wash their hands before evaluating patients. At that time, this lead to a significant reduction in mortality. However, because he would spritz phenol all over the

operating area, British surgeon Joseph Lister is acknowledged as the inventor of modern asepsis.[9]

The issue of surgical site infections persists even though many methods, including perioperative antibiotic prophylaxis, antibacterial outwits, and air conditioning in operating rooms, are now used.

Wound healing

Cell migration is the first step in the complex and dynamic process of wound healing, which leads to repair and closure. Angiogenesis, granulation tissue deposition, contraction, connective tissue matrix remodelling, maturation, debris clearance, infection control, inflammation clearing, and other processes are all a part of the process. When this chain of events fails, the wound develops into an open, chronic wound that is neither structurally nor functionally intact.

Stages of Wound Healing[10]

The healing of wounds is a serious concern, especially in elderly people with co-morbidities. It places a significant social and financial burden on the patient because to the pain, morbidity, extended medical care, and requirement for major reconstructive surgery.

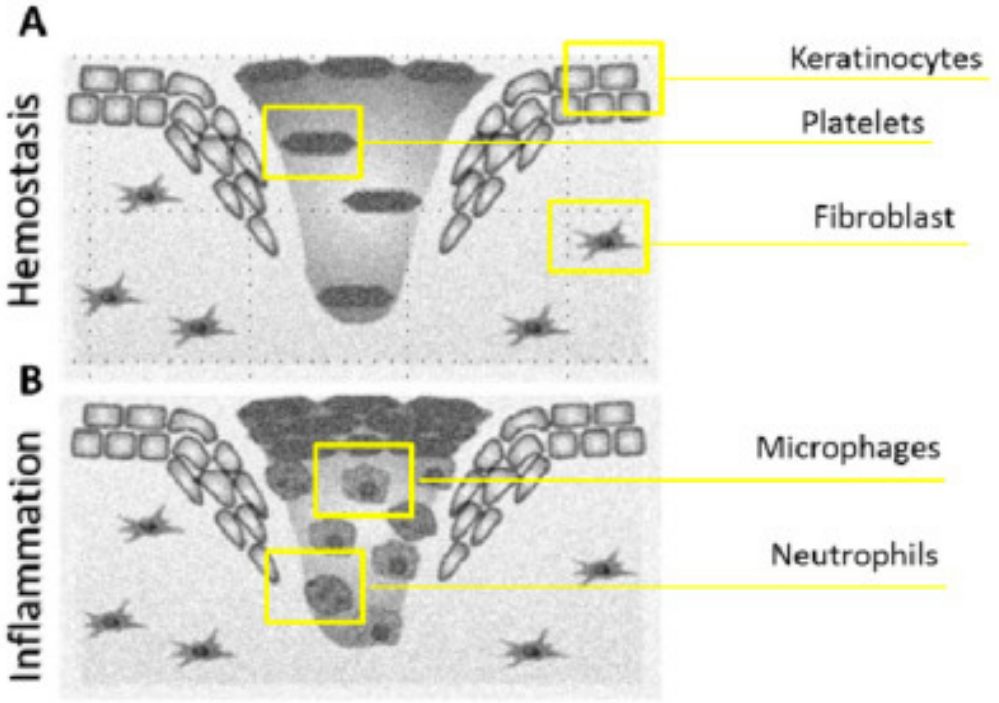
The stages of healing

(a) Early stage of inflammation accompanied with a platelet-enriched blood clot and dilated vessels

(b) Polymorphonuclear leukocytes and lymphocytes(round cells) are more abundant in the late stages of inflammation, which also have enhanced vascularity (round cells).

(c) Period of proliferation accompanied by capillary buds and fibroblasts.

(d) Mature scar that has contracted.



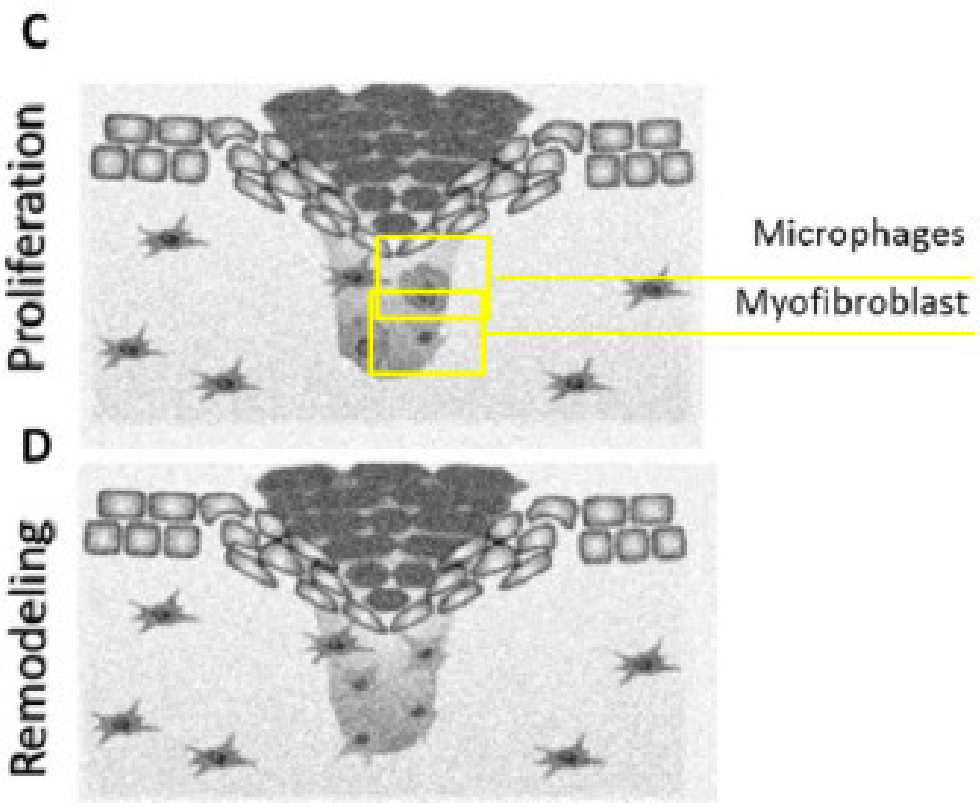


Figure 1 Diagrammatic illustration of wound healing process with cells tangled in each phase.

Surgical Site Infections

Among the diseases contracted in hospitals SSI is found to be more prevalent and is thought to occur in 2–11% of surgical procedures.[11] There is evidence linking SSIs to greater mortality, longer hospital stays, and higher medical expenses. They might also leave unsightly scars, which is troublesome, particularly for young ladies.[7]

Epidemiology

Finding wound infections has gotten harder as the number of day surgeries has increased and hospital stays have become shorter. It is advised to read the CDC data from 2018 with the preceding cautions in mind. Infections at surgical sites in the US. (SSI) caused 157,500 morbidities in 2018 and an estimated 8,205 fatalities. SSI was responsible with 11% of all fatalities in intensive care units. The patient suffers since each SSI necessitates an additional 11 days in the hospital, and the system suffers because it costs $3.2 billion annually. The kind of surgery done has an impact on SSI rates as well.[12,13]:

- 2.1 for per 1000 clean surgical procedures
- The rate of contaminated surgery is 6.4 per 1000 procedures.
- The rate of dirty surgery is 7.1 per 1000 surgeries.

Definition

"The SSI must occur within 30 days after the operative procedure if no implant is left in place, or within 1 year if implant is in place, and the infection appears to be related to the operative procedure.7 SSIs are classified based on the depth and tissue layers involved as superficial incisional, deep incisional, and organ/space."

The CDC and NHSN lists the following criteria for defining infection at the surgical site: [1]

SSIs are classified into two categories: organ/space and incisional. Incisional SSIs can either be deep (including layers of fascia and/or muscles) or superficial (just containing the skin or subcutaneous tissue of the incision). Organ / space infections of operative site are infection in tissue that was opened or handled during surgery and is located deep to the fascia.

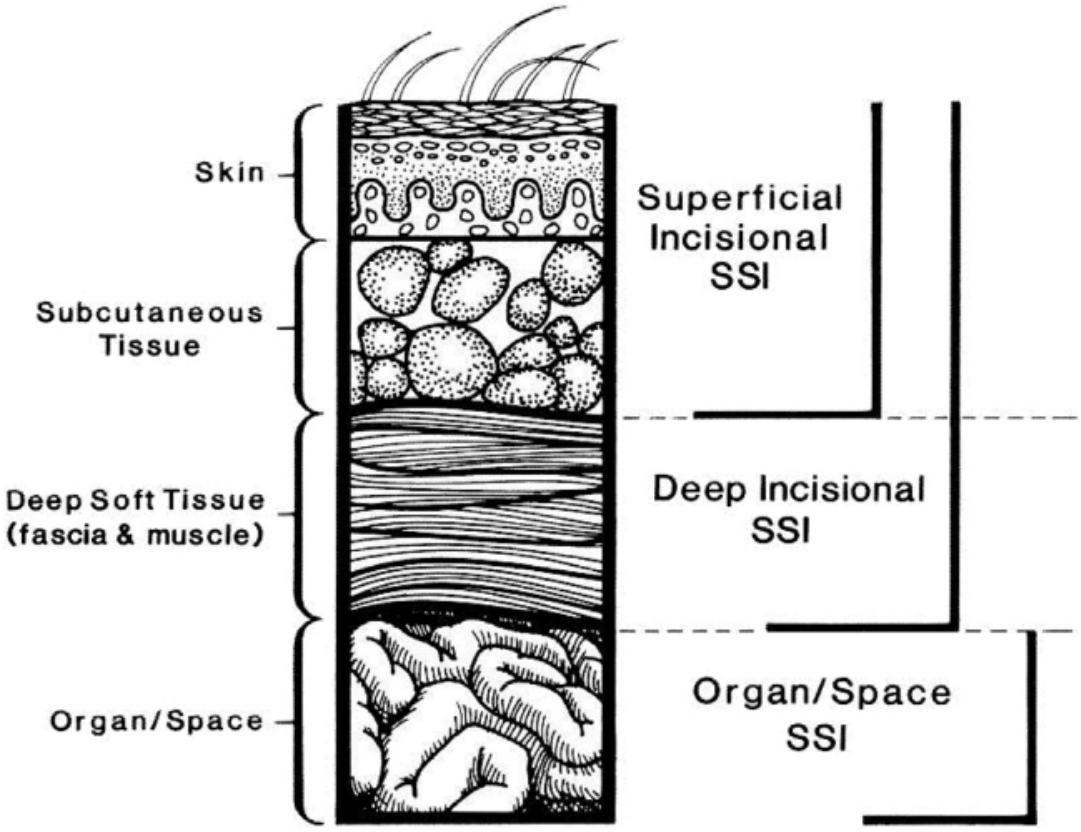


Figure 2 CDC classification of SSI

Superficial Incisional SSI

The following conditions must be satisfied:

The incident takes place within 30 days of NHSN surgical operation (day 1 being the day of the procedure).

AND

only the incision of skin and subcutaneous tissue

AND

Minimum one of the following must be present if not both

a. Purulent drainage is being caused by the superficial operative incision.

b. Microorganism(s) discovered by a culture or any nonculture microorganism testing approach to diagnose clinically and for treatment (Example : Active Surveillance Culture / Testing (ASC/AST)) from a sample acquired aseptically from a superficial operative incision or subcutaneous tissue.

c. A doctor practicing surgery or doctor-designate purposefully opens a superficial operative incision, and neither culture nor non-culture test from wound's surface or subcutaneous tissue is carried out.

AND

The patient exhibits minimum one of the below mentioned physical characteristics: heat, erythema, localised discomfort, or tenderness, or swelling.

The process of diagnosis of a superficial operative incisional SSI must be made by a doctor practicing medicine / a physician designee.

There are two kinds of superficial operative incisional SSI:

1. **Superficial Incisional Primary (SIP)** – a patient who underwent surgery involving one / multiple operative incisions and has a superficial incisional infection discovered in primary incision (for example, Caesarean section or surgery over chest for CBGB)
2. **Superficial Incisional Secondary (SIS)** – a patient with several surgical incisions has a SSI of superficial incision found in the secondary surgical incision (Example : donor site incision for CBGB)

Deep incisional SSI

The incident takes place 30 days following the NHSN surgical operation (where day 1 is the day of procedure)

AND

Includes the incision's deep soft tissues (Example :fascial and muscle layers)

AND

Minimum one of the following must be present if not both

a. Discharge with pus resulted from the deep incision.

b. a deep surgical incision that naturally dehisces, or that a surgeon, doctor, or physician purposefully opens or aspirates.

AND

If a culture or non-culture-based microbiologic test technique (Example:, Active Surveillance Culture / Testing (ASC/AST)) isn't employed to identify the micro organism(s) from the deep tissues of the incision, it is not being used for clinical diagnosis or therapy. This need isnt sufficed by a negative microbe culture or non-culture-based test from the deeper soft tissues of the surgical incision.

AND

The patient exhibits minimum of the below mentioned signs or symptoms: fever (heat index greater than 38°C); localised soreness or stiffness

c. a deeper surgical incision with an abscess or any other indications of infection seen via a gross anatomical, histopathologic, or imaging test

Deep incisional SSIs are classified into two types:

1. **Deep Incisional Primary (DIP)** – a patient who has had surgery with one or more incisions and who later develops a deep incisional SSI in a main incision (for example, C-section incision or chest incision for CBGB).

2. **Deep Incisional Secondary (DIS)** – a deep incisional SSI found in the secondary incision of a patient who underwent surgery with numerous incisions (for example, donor site incision for CBGB).

Organ/Space SSI

The following conditions must be satisfied:

The incident takes place 30 days after the NHSN surgical operation (where day 1 is the date of the procedure).

AND

involves any body component that is exposed or worked on during surgery that is deeper than the fascial/muscular layers.

AND

At least one of the following must be present if not both

a. purulent discharge from an organ or space-specific drain (for example, closed suction drainage system, open drain, T-tube drain, CTguided drainage).

b. Organism(s) isolated from fluid or tissue within the organ or space using a culture-based or non-culture-based microbiologic testing technique for clinical diagnosis or therapy (e.g., not Active Surveillance Culture/Testing (ASC/AST)).

c. an imaging test finding that suggests infection, such as an abscess or other infection-related evidence involving the organ or space that was discovered during a gross anatomical / histopathological examination.

AND

fulfils the requirements for an infection site in a particular organ or area in at least one way.

Classification of Surgical wounds

With significantly varying postoperative wound infection rates, surgical operations and resulting additional classifications for wounds which contain clean , clean-contaminated , contaminated , and dirty-infected.

Surgery site classified as per the National Research Council

Class I/clean:

Operations that do not require entering the respiratory, digestive, vaginal, or urogenital tracts; surgical wounds that do not exhibit symptoms of infection or inflammation. Operative wounds are mostly closed and in case of requirement drained using a system which is closed during procedures where aseptic conditions are totally maintained. If they match the requirements given above, this type of injuries includes operative wounds from injuries during trauma which are not penetrating.

Class II : Clean contaminated :

Procedures which involve the genitalia, urethra, digestive, or urinary tracts in a setting that is contaminated under regulated conditions without aberrant contamination Operations on the biliary tract , appendix, vagina, and oropharynx that show no signs of infection and in which sterile environment is properly maintained fall under the category.

Class III/ contaminated

Open wounds from recent trauma (within 7 hours of the causal event). operations needing a high degree of sterility (open heart surgery) or substantial gastro intestinal tract pollution. Wounds in which there is an acute , non-purulent inflammation fall under the group.

Class IV : Infected / dirty

Injuries from trauma that are older than seven hours, have devitalized tissue, an active clinical infection, or have ruptured viscera. According to this definition, the germs that lead to infection in the post operative period were present at the operative site before the procedure.

Aetiology

The aetiology of wound infection post surgery is complicated by variability of these infections. Location based on geography , surgical specialism, and the extensive range of treatments carried out all influence how they differ.

There are two categories of risk variables: patient factors and procedure factors.

Table 1 Factors which have risk of surgical site infections

Patient factors	**Procedural factors**
Age	Skin disinfection
Status if nutrition	Hair shaving
Diabetes mellitus	Perioperative antibiotics
Tobacco smoking	Surgery time frame
Obesity	Operating room air conditioning
Infections that occur concurrently	Improper instrument sterilization
Colonization with drug resistant pathogens	Wound containing foreign body
Immune deficiency	operative site drainage
Number of days of hospitalisation prior to operation	Not sufficient haemostasis
	Dead space
	Significant trauma during surgery

To lower SSI rates, effective planning, maintenance, and training must be considered while thinking about the theatre environment. An appropriate theatre block should allow for the separation of clean and polluted regions as well as the best patient flow. Additionally, the arrangement of the operating room and the placement of the equipment and supplies should be done to maintain a sterile and clean atmosphere. When it comes to ventilation, positive pressure ventilation , filtering , inbuilt airflow with laminar systems, and the quantity of exchange of air are all crucial things to consider. In several specialties, it's common practise to appropriately reduce patient flora the day before surgery by giving patients a chlorhexidine shower. Only use clippers to remove hair before surgery when it is essential. There is debate over the use of iodine- or chlorhexidine-based surgical preparation preparations, and different subspecialties have their own regimens. It has been demonstrated that using the proper washing method and double gloving can lower infection rates in surgeons. The WHO surgical checklist was developed to enhance coordination, avoid issues, and enhance general safety, including preventing surgical site infections.[14]

Agent Factors

The skin is one of the most colonised organ in humans by microbes, most of them are benign or even helpful to the host. An estimated three million germs can be found in 1 cm^3 of skin.[15] Skin colonisation varies greatly depending on the host's topography, as well as on internal and external environmental factors. The armpit and inguinal region are two examples of folded skin. These regions experience higher humidity and temperatures, which favours the growth of bacteria that prefer humid settings (Example: Gram-negative bacilli, Corynobacterium spp., Staphylococcus aureus). Lipophilic microbes thrive in the skin's densely populated sebaceous glands of the back and chest (Propionibacterium species, Malassezia species)[16]. Main purpose of skin as barricade is to protect the body from toxins or bacteria that could be harmful. Millions of T cells are helped to mature by symbiotic bacteria on the skin, which stops the invasion of other pathogenic species.

Table 2 Common pathogens over the skin and their disease causing potentials

Micro-organism[16]	Incidence/ Virulence
Staphylococcus epidermidis	Common , pathogenic in some cases
Staphylococcus aureus	Rare, pathogenic
Staphylococcus warneri	Rare, sometimes pathogenic
Streptococcus pyogenes	Rare, pathogenic
Streptococcus mitis	Common, sometimes pathogenic
Propionibacterium acnes	Common, sometimes pathogenic
Corynebacterium spp	Common, sometimes pathogenic
Acinetobacter johnsonii	Common, sometimes pathogenic
Pseudomonas aeruginosa	Rare, sometimes pathogenic

Infections at surgical sites are most frequently brought on by endogenous microorganisms. They include microorganisms that typically stay on the skin or inside the organ which is operated on (e.g. bacteria in intestine in gastrointestinal surgery).[17]

Occasionally, the pathophysiology of SSI is linked to exogenous contamination sources such colonised or surgical staff with infections, the surgical room and its surroundings and instruments used during operations. Exogenous point source epidemics are documented, despite the fact that most exogenous source illnesses are intermittent.[11]

Table 3 Most isolated pathogens responsible for SSI

Pathogen[18]	Percent of Infections
Staphylococcus aureus	23
Coagulase-negative staphylococci	17
Enterococci	7
Pseudomonas aeruginosa	5
Escherichia coli	5
Streptococci	4
Enterobacter species	3
Proteus species	3
Klebsiella pneumonia/oxytoca	3
Serratia species	3

Frequent cause of infection over operated site in these years, as per the European Center for Disease Prevention and Control (ECDC), is S.aureus.[7] Nearly 50 percent of all cases are due to Resistant to methicillin S. aureus (MRSA) strains.[19] An elevated incidence of infection was related with MRSA colonisation of the upper airway in postoperative patients.[8] In a research, 4.3 percent of 9006 individuals had MRSA colonisation in the anterior nasal passages. MRSA caused 1.86 percent of SSIs in that group, compared to 0.20 percent in patients who were not infected.[20]

Infection and it's pathogenesis

SSI occuring is due to complex link between

(1) microbiological properties (for example, virulence and burden of pathogen),

(2) characteristics of the host. Example: Immune status, diabetes

(3) wound characteristics. Example: hemostasis, presence of foreign material, and amount of dead tissue.

Microbial infection of surgical sites is as ubiquitous as death and taxes despite the use of advanced technology and expert skills. The endogenous flora of the patient or, less frequently, the environment of the room of operation (OR) are both entry points for pathogens that cause SSI.[11]

Clinical Features

The onset of infection at surgical site symptoms typically occurs 3–7 days after surgery, and they must do so within 30 days (or one year in cases with implant). Patients having metabolic syndrome are more likely to develop diabetes, smoking, being elderly, or having impaired immune systems. A larger risk applies to patients who have undergone difficult, protracted, or contaminated surgery. Most patients also describe feeling generally unwell along with a gradual onset of pain and discharge.

The five traditional symptoms of inflammation are similar to the clinical characteristics of surgical site infections, but there are a few tiny changes that set them apart. Erythema, localised discomfort, unexplained prolonged pyrexia, purulent wound discharge, wound dehiscence, and problems with wound healing are a few of these.

If an infection of the wound is detected, the dressings should be taken off. The clinician will be informed that there is ischemia and/or necrosis by the blisters over the operative wound , tight closure , grey or black tissue , and higher risk of infection of the wound . Unless there is discharge, a culture sample should be taken , and if a wound infection is suspected, treatment should start. A pus discharge, however, does suggest infection; a serous or sanguinous discharge does not.

During the check up , patients will be checked for sepsis from wound as and other reasons , and the proper therapy would be started.

In a study that examined the impact of employing wound photography in circumstances where face-to-face review was not feasible, it was discovered that it increased diagnostic precision and assisted in avoiding overtreatment.[21]

Evaluation

The diagnosis is made using the results of the clinical examination. To pinpoint the responsible organisms and sensitivities, however, microbiological swabs are necessary.

Imaging techniques like ultrasound or Computed tomography /Magnetic resonance Imaging can be helpful if infection which is deep is suspected.

To assess the risk of SSI,l preoperatively, a variety of techniques can forecast the possibility of developing an infection depending on various variables which cause the risk . The national nosocomial infection surveillance system, the Australian Clinical Risk Index, and the European System for Cardiac Operative Risk Evaluation are examples of traditional systems that are widely acknowledged. However, because so many factors which cause the risk are ignored in their calculations, their usefulness is constrained.[21]

Some people struggle with discrimination or fail to stratify the risk for surgeries. As demand for individualised care increases, more specialty- and

procedure-specific scoring systems are being developed , such as the Surgical Site Infection Risk Score and the Infection Risk Index in cardiac surgery.[22–25]

Both the Efficacy of Nosocomial Infection Control (SENIC) index and the National Nosocomial Infections Surveillance (NNIS) index are suggested to predict the likelihood of SSI in elective surgery. They are designed to create prevention plans and lower infection-related morbidity and mortality rates in surgical patients. The SENIC appears to have a stronger predictive value than the NNI in studies that evaluated the two indexes and found that they were both reliable indicators of SSIs.[26]

SENIC Risk Index

The American Society of Anesthesiologists (ASA) preoperative assessment score, which was approved in a sizable research including 44 institutions from 1987 to 1990, gradually replaced SENIC risk index.

1.9 percent is the wound infection rate for ASA grades 1 and 2.

Infection rates from wounds varied from 4.3% to 5% in ASA classes 3 to 5.

Table 4 SENIC Risk Index

Variables that influence SSI	Point
An abdominal surgery	1
Duration of Operation for more than 2 hours	1
Surgical wound site classified as contaminated or dirty / infected	1
Operative intervention on a patient with >3 discharge diagnosis	1
Total Index	4

Table 5 Classification of the American Society of Anaesthesiology - Risk index (ASA)[27]

Classification	Physical condition of the patient
1	Normally healthy.
2	Discrete systemic disease.
3	Serious, non-incapacitating, systemic disease
4	Life-threatening, incapacitating systemic disease.
5	Moribund with death expected within 24 hrs.

Table 6 Basic SSI Risk Index by The National Nosocomial Infection Surveillance

NNIS SYSTEM	Point
Operation contained as class 3 and class 4 surgical wound	1
The patient has an ASA preoperative score of 3,4, or 5	1
Duration exceeds 75th percentile of „T" point.	1

Th

The time that is taken in hours which represent the 75th percentile of processes in the NNIS survey is known as the "T point."

Complications

It is possible to distinguish between local and systemic surgical wound infection consequences.

The development of cellulitis, osteomyelitis, abscesses, delayed or non-healing wounds, and further wound disintegration are examples of local consequences.

Systemic consequences include sepsis and bacteremia, both of which have the potential to spread hematogenously over long distances.

Table 7 : ASEPSIS SCORE:

	Proportion of wound affected (%)					
Wound characteristics	0	<20	20–39	40–50	60–79	>80
Serous exudates	0	1	2	3	4	5
Erythema	0	1	2	3	4	5
Purulent exudates	0	2	4	6	8	10
Separation of deep tissues	0	2	4	6	8	10

Criteria	Points
Additional treatment	
Antibiotics	10
Drainage of pus under local anesthesia	5
Debridement of wound (general anesthesia)	10
Serous discharge	Daily 0–5
Erythema	Daily 0–5
Purulent exudates	Daily 0–10
Separation of deep tissues	Daily 0–10
Isolation of bacteria	10
Stay as inpatient prolonged over 14 days	5

Total score	Category of infection
0–10	Satisfactory healing
11–20	Disturbance of healing
21–30	Minor wound infection
31–40	Moderate wound infection
>40	Severe wound infection

Management of SSI

There are various rules and standards in place to prevent surgical site infections because they waste resources and result in morbidity and mortality. Examples include skin preparation preoperatively, the application of films to the skin , operative theatre cleanliness guidelines, perioperative and postoperative antibiotics to be used prophylactically, and dressings. It's crucial to strengthen the patient's natural defences, including early mobilisation and status of nutrition.[28]

For prophylaxis, a safe, short-acting medicine is utilised since it will cover the expected bacteria and have the shortest duration of action. The antibiotic should be given 30 to 60 minutes before the surgical blade contacts the skin in order to provide tissue concentrations enough time to attain levels which are therapeutically significant at the time of surgery. For processes which are clean , Staphylococci must be protected by the antibiotics. In case of clean-contaminated procedures, coverage for Staphylococci is necessary, with additional cover based on the method and location. The typical drugs used for this include cefazolin 2g (weight-adjusted) or vancomycin 15mg/kg plus metronidazole, cefoxitin, or ertapenem. In case of dirty and contaminated procedures, prophylaxis is often not advised because antibiotic treatment is required.

Surgical specialty, region in the body , and procedure type has their own approach for treating the SSI that has occurred because the microbiological range is typically variable. Additionally, it is vital to think about removing foreign bodies due to the development of biofilm (mesh, implants, and metalwork).[29,30] Source control and choosing the appropriate antibiotics depending on the type of surgery performed and predicted sources of the microorganisms which cause the infection remain essential.

Often, the best course of action for successfully treating infection is early surgical debridement. However, in difficult surgery, reopening the operated site can lead to severe morbidity. When enough proof shows that the infection is superficial, it may be decided for conservative management.[30]

If a patient is septic, quick measurements and treatments can save their lives.

Prevention of SSI

About half of SSIs, according to estimates, can be prevented.[31–35] Common practises that were demonstrated to decrease incidence of SSIs include administration of antibiotics prophylactically before making an operative incision, clipping the surgical site is preferred to shaving it, keeping the patient's body temperature normal and supplementing their oxygen supply during the recovery period, and achieving adequate glycemic control.[36–43] It has been shown that even the modest addition of a checklist to maintain safety of operative site can fldecrease the morbidity and mortality in patients undergoing

noncardiac surgery.[44] Additionally, it has been shown that advancements in surgical technique, such as laparoscopy, intraoperative irrigation of operative site, usage of protectors of operative site and negative pressure wound therapy (NPWT) systems thereafter, decrease wound morbidity with time.[45–48]

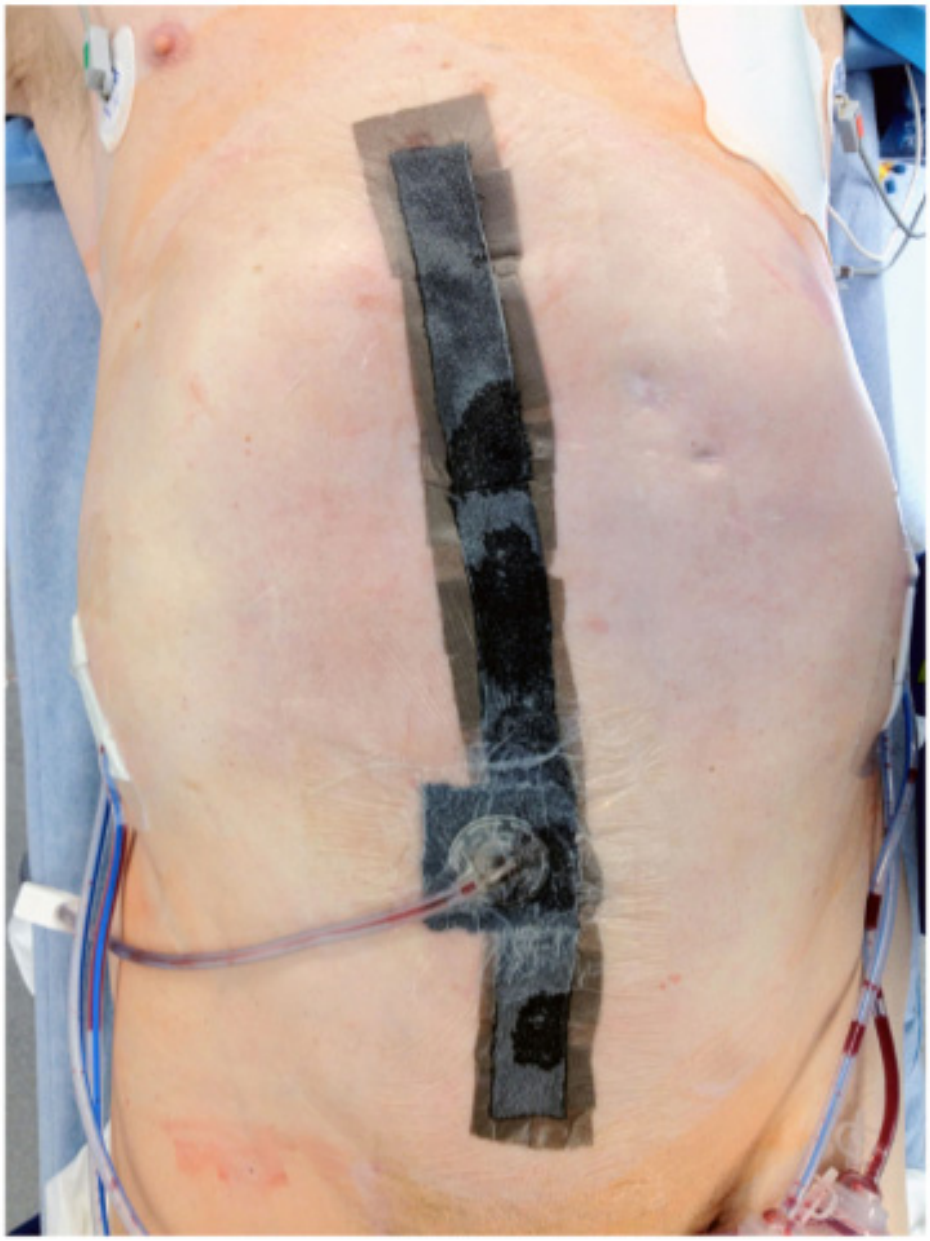


Figure 3 Examples of negative pressure wound care devices that were proved to decrease the incidence of operative site infection in the past.[5]

NPWT is a technique that frequently employs dressing containing foam and suction pump to produce an a seal which is airtight over the abdominal incision or wound after general surgery. NPWT can be applied to the treatment of skin flaps, ulcers, and skin grafts. In order to help create an initial postoperative airtight seal over the wound until the surgical team replaces the dressing for the first time, the dressing is placed under an adjustable negative pressure once it has been applied45.

The incidence of SSI and complications (such as seroma) decreased after surgical procedure over abdomen, which was also observed in other series. 49 It has also been demonstrated that applying various NPWT versions to patients who require abdomen to be open following trauma or in general surgical procedure lowers mortality and enhances primary fascial closure rates.[49] By boosting micro vessel blood flow to the operative wound edges and tissue bed, and also by facilitating the clearance of excessive oedema while preserving appropriate wound moisture for healing, the vacuum-assisted closure (VAC) treatment is believed to improve morbidity if operative wound.[50] Additionally, much reduced counts of bacteria and higher rates of granulation of tissue were identified in animals utilising NPWT.[51]

In the past, surgical wounds were covered with sterile bandages for up to 48 hours after surgery to reduce the incidence of postoperative SSIs. But there is now inadequate evidence to support the claim that such a practise reduces the

rate of SSI.[52,53] There has also been a lot of research in the use of sutures coated with antibiotics for closure of abdominal wall to lower SSIs. Contrary to past meta-analyses, the PROUD trial's results showed no advantage for triclosan-coated polydioxanone (PDS) closure over control/uncoated closure.[54,55] To summarise, closed suction drainage should be utilised carefully because frequent use may be associated with a higher risk of infection, whether it is used intra-abdominally or subcutaneously.

Antibiotic prophylaxis timing is a quality indicator that must be adhered to nationally. Pre-incision antibiotic medication timing has been the subject of much investigation.[56–60] The use of preventative antibiotics in obvious circumstances is still up for debate. Prophylaxis is necessary in any circumstance when contamination is either visible or anticipated. Prophylactic antibiotics may be less effective if administered too soon before the incision or after the treatment has started, according to historical data.[61,62,62] Data from a substantial multicenter prospective study provide support for the guideline to deliver antibiotic prophylaxis one hour prior to making an incision.[60]

Making the necessary choice of cover is important because the antibiotics administered after gastrointestinal surgery does show to influence SSI. For instance, the use of ertapenem, ciprofloxacin/metronidazole, and cefazolin/metronidazole improves SSI outcomes after colorectal surgery.[59,60,63] Additionally, studies have shown that combining mechanical bowel

preparations with parenteral and oral antimicrobials can decrease SSIs after colorectal surgery.[64] Antibiotic prophylaxis use following surgery shouldn't last longer than 24 hours.[65,66] The antibiotics should be redosed, which is crucial, especially when protracted instances, and is dependent on loss of blood and the half-life of antibiotics , is another factor to take into account.

The impact of skin decontamination on decreasing the frequency of SSIs are carefully observed.[67–69] Researchers looked at nasal use of mupirocin/chlorhexidine as a component of a decontamination programme for the infection as an effort to stop the spreading of MRSA and as a result to reduce the incidence of SSIs.[70] The outcomes of its use have been variable, and this practise has drawn criticism from many due to the possibility of increase in the resistance in dangerous bacteria and questions regarding this method's cost-effectiveness.[70] Alcohol-based chlorhexidine products usage is more firmly supported by the evidence than that of povidone-iodine due to their effect for decreased infections after surgery even in clean patients.[71,72]

There are more people working together to reduce the frequency of SSIs. The National Nosocomial Infections Surveillance system was created by the CDC in the 1970s for monitoring infection rates at hospitals in the United States of America. These days, this system is known as the National Healthcare Safety Network (NHSN). Additionally comparable programmes are the ACS-NSQIP and the Veterans Affairs Surgical Quality Improvement Program.[35] The

National Surgical Infection Prevention Project was established by the CDC and Centers for Medicare and Medicaid Services in 2002 to lower the morbidity and mortality in postoperative surgical site infections (SSI).[73]

The percentage of patients who receive antibiotic prophylaxis in accordance with guidelines, in a span of 1 hour of operative incision (in a span of 2 hours for vancomycin or fluoroquinolones), and prophylaxis was stopped in 24 hours of surgery were performance indicators for national surveillance and improvement of quality in antibiotic prophylaxis.[73] By implementing these suggestions, 56 hospitals were able to decrease their SSI by 27% (from 2.3 to 1.7%) in just three months.[74] Similar to this, the Surgical Care Improvement Project (SCIP) is an excellent collaboration of national organisations committed to improving surgical care safety by preventing SSIs and complications (ie, venous thromboembolism, cardiac complications etc).[56]

Inspite of high degree of compliance with SCIP measures, the measured SSI rate has not fallen appreciably.[75] A study by Wick et al. found employing evidence-based, standardised interventions, creating a surgical unit-based safety programme for safe and reliable strategy for improvement of patient care.[76]

Table 8 Recommendations for avoiding abdominal wound infections following surgery.[5]

Prevention in pre operative period	
Checklist	Use a World Health Organization checklist to improve adherence to good practises.
Stop smoking	Instruct people to stop smoking before 30 days before the surgery
Control of blood glucose	During surgery, diabetic individuals should aim to control their blood sugar levels and avoid hyperglycemia.
Skin preparation	skin that is free of all contamination Preparation should be done in concentric circles, starting with the incision site. Use alcohol-containing antisepsis drugs in combination with iodophor or chlorhexidine gluconate unless contraindicated (eg, povidone-iodine)
Hair removal	Avoid shaving unless necessary. Use clipper blade with a single-use to remove hair; Avoid razors.
Antibiotic prophylaxis	Before 30 minutes to 1 hour of the incision, with very few exceptions. Immediately after the operation, stop (till 72 hours for cardiothoracic procedures in adults) The doses should be

	altered based on the patient's weight in situations when the treatment is prolonged or severe blood loss occurs. Mix of parenteral and oral antibiotics along with bowel preparations before colorectal surgeries.
Intraoperative prevention	
Maintenance of normal temperature	Keep the perioperative temperature normal (35.5 degrees)
Increase tissue oxygenation	During and after surgery involving general anaesthesia and ventilatiory support, give additional oxygen
Wound protectors	For open abdominal surgery, use wound protectors.
Prevention during post surgical period	
Blood glucose levels	Maintain immediate post surgical glucose levels at 180 mg/dL or less, especially for patients who have undergone cardiac surgery.
Wound dressings	Closed wounds should be covered with sterile dressings for the first 24 to 48 hours following surgery.

MATERIALS AND METHODS

STUDY DESIGN:

Patients who had undergone abdominal operations participated in the prospective observational study.

STUDY AREA:

Patients who had undergone abdominal procedures at the RL Jalappa hospital, which is a part of the Kolar-based Sri Devaraj Urs Academy of Higher Education and Research, were included in the study.

STUDY PERIOD AND DURATION:

The study period is from December 2020 to August 2022. (1 year 9 months)

STUDY POPULATION:

All patients admitted to the General Surgery department who underwent abdominal procedures between December 2020 and August 2022, including clean, clean contaminated, contaminated, and unclean cases.

SAMPLE SIZE CALCULATION

Size of sample was estimated by using the proportion of no growth in culture in SSI was 14% from the study using the formula

$$N = Z^2_{1-\alpha/2} * p * (1 - p) / d^2$$

$Z_{1-\alpha/2}$ - two tailed probability for 95% confidence interval = 1.96

P(%)- Prevalence of incidence of infection at operative site among patients undergoing surgery over abdomen = 8.4%

d (%)- precision or allowable error for incidence of infection over operative site among patients undergoing surgery over abdomen = 0.10

Using the above values at 95% Confidence level

a sample size of 112 subjects was included in the study.

Considering 10% Nonresponse a sample size of 112 + 6.2 ≈ 118 subjects was included in the study.

INCLUSION CRITERIA:

- All patients undergoing abdominal surgeries (elective and emergency).
- Patients between the age of 18-70

EXCLUSION CRITERIA:

- Patients with previously existing infected skin lesions over the operating site.

SAMPLING METHOD:

All patients (Universal Sampling technique) admitted to the department of general surgery who underwent abdominal procedures between December 2020 and August 2022, including clean, clean contaminated, contaminated, and unclean cases.

DATA COLLECTION PROCEDURE

The study included all patients having elective and urgent abdominal procedures, including clean, clean contaminated, contaminated, and unclean cases. Study the clinical outcome of these patients with SSI in terms of post op complications like purulent discharge, wound dehiscence and duration of hospital stay on the patient. Incidence of SSI, bacteriology, and antibiotic sensitivity were noted. Peritoneal fluid is aspirated and tested for culture and sensitivity in cases of peritonitis.

On post-operative days 2, 3, 4, 5, 6, 14, 21, and 28, all of them were observed, and the results were recorded. If case of discharge from the site, it was collected and evaluated for sensitivity testing and culture. For intra-abdominal problems such intra-abdominal collections and deep organ space infections, USG or CT are frequently performed. The patient paid the charges because the studies in this case were typical.

Antibiotics provided as a preventive measure or before surgery were noted. Following surgery, antibiotic medication based on culture results was given. All of this data was recorded in a typical proforma, and the outcomes were statistically examined in relation to numerous criteria.

STUDY VARIABLES

- Age
- Gender
- Co-morbidity
- Diagnosis
- Procedure done
- Asepsis wound score
- Pre-op antibiotics used
- Post op antibiotics used
- Duration of hospital stay
- Organisms present in Peritoneal fluid
- Organisms present in surgical site wound.

ETHICAL CONSIDERATION

The Institutional Ethics Committee provided its ethical approval. The study complied with all ethical principles. The researchers made sure that the participants' privacy and secrecy were maintained throughout the procedure and that the data they collected was only used for the study's intended purposes.

DATA ANALYSIS

- The gathered data were imported into Microsoft Excel and then examined by IBM. software for statistics SPSS 23.0.

- Frequency analysis and percentage analysis were employed to characterise the data using descriptive statistics for discrete variables. For continuous variables, mean, median, and standard deviation were employed.

- Discrete variables in the two groups were examined for statistically significant differences using the Chi Square test to characterise the data in inferential statistics. The correlation between the length of stay and the overall asepsis wound score was evaluated using Pearson's correlation test.

- The probability value of 0.05 was regarded as the significant level in all the statistical techniques.

RESULTS

Table 9: Age distribution among research participants

Measures	**Age in years**
Mean	42.55
Median	40
Std. Deviation	16.122
Minimum	18
Maximum	70

The mean age of the study samples are 42.55 ± 16.12 years with the lowest age of 18 years and maximum age of 70 years.

Table 10 Distribution of study participants according to gender

Gender	Frequency	Percent
Female	49	40.8
Male	71	59.2
Total	120	100

Nearly 59.2 percentage of the participants were male, and 40.8 percent of the participants were female.

Figure 4 Distribution of study participants according to gender

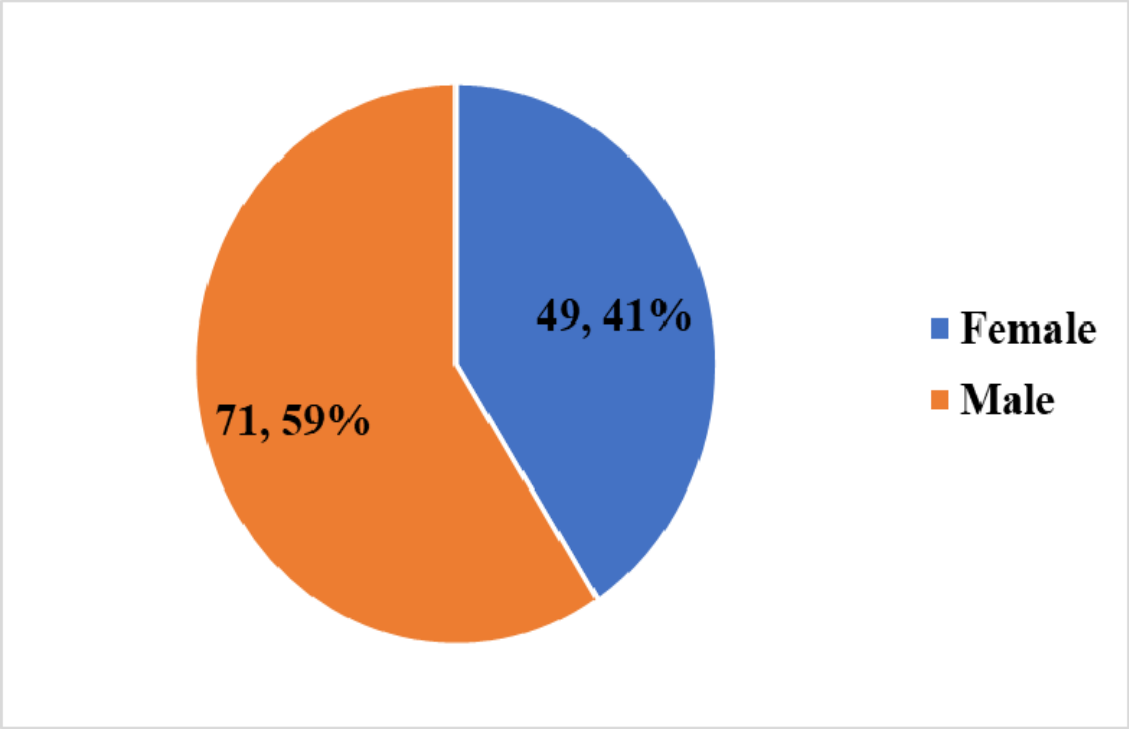


Table 11 Distribution of study participants according to the prevalence of Diabetes Mellitus

Presence of Diabetes Mellitus	Frequency	Percent
Yes	11	9.2
No	109	90.8
Total	120	100

The prevalence of diabetes mellitus among the study participants were 9.2 percent in the present study.

Figure 5 Distribution of study participants according to the prevalence of Diabetes Mellitus

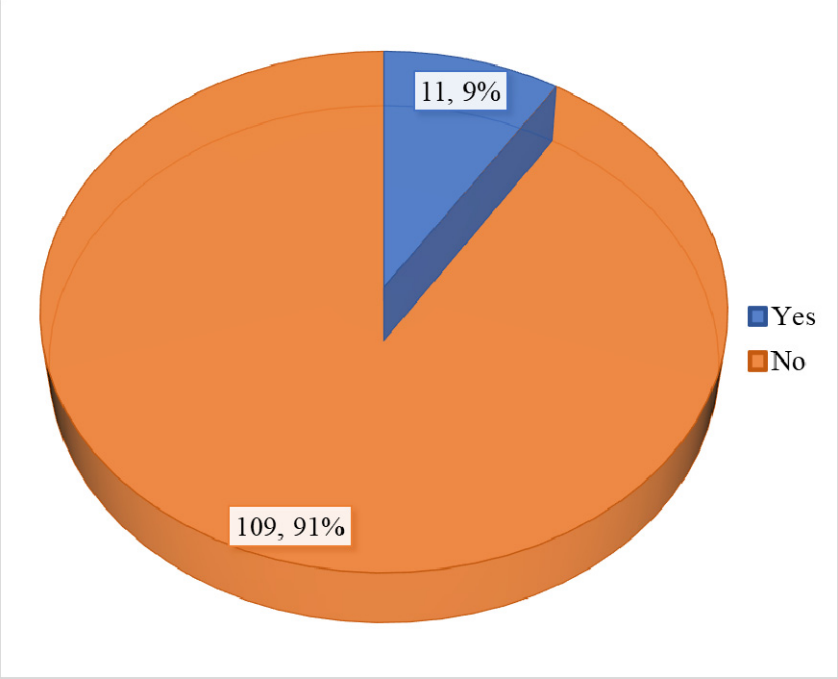


Table 12 Research participants distribution according to the prevalence of Hypertension

Presence of Hypertension	Frequency	Percent
No	103	85.8
Yes	17	14.2

The prevalence of hypertension among the study participants were 14.2 percent in the present study.

Figure 6 Research participants distribution according to the prevalence of Hypertension

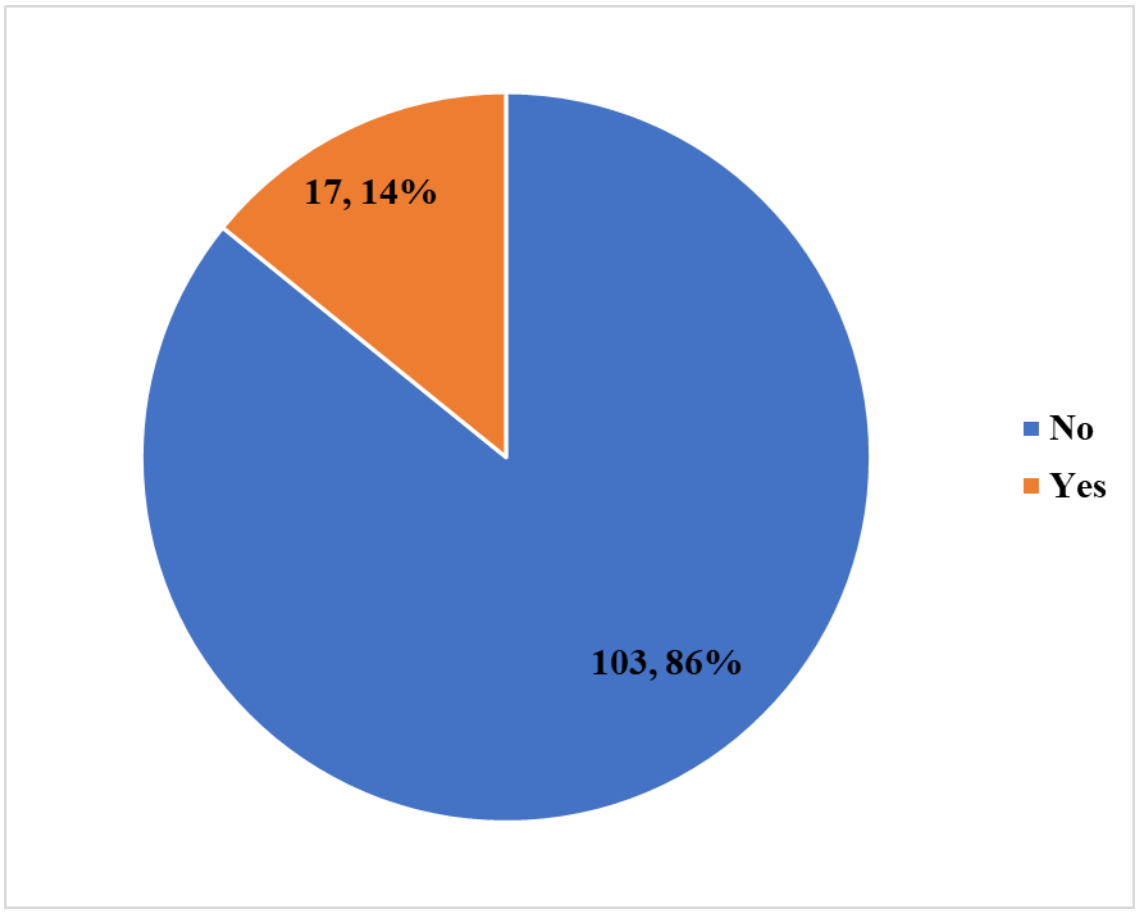


Table 13 Research participants distribution according to the prevalence of thyroid disease

Presence of thyroid disease	Frequency	Percent
No	118	98.3
Yes	2	1.7
Total	120	100

The prevalence of thyroid disease among the study participants were 1.7 percent in the present study.

Figure 7 Reasearch participants distribution according to the prevalence of thyroid disease

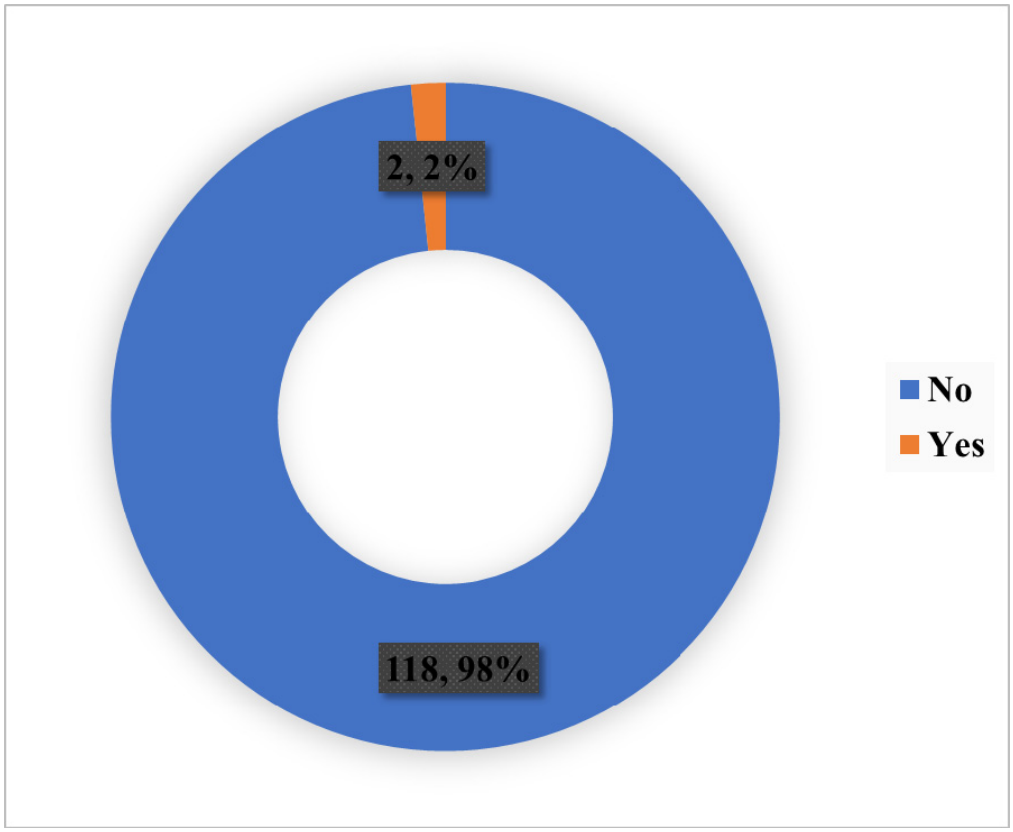


Table 14 Research participants distribution according to the prevalence of lung disease.

Presence of lung disease	Frequency	Percent
No	116	96.7
Yes	4	3.3
Total	120	100

The prevalence of lung disease among the study participants were 3.3 percent in the present study.

Figure 8 Research participants distribution according to the prevalence of lung disease

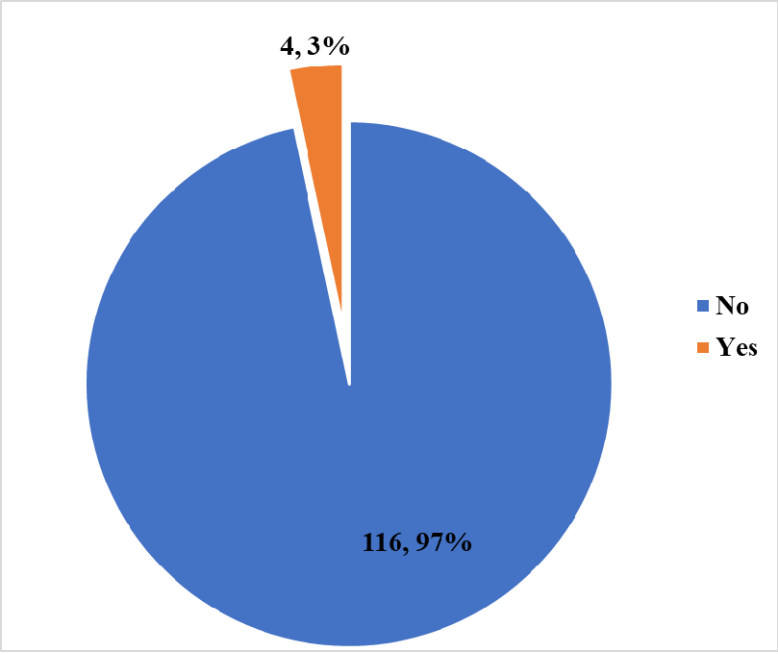


Table 15 Research participants distribution according to the prevalence of cardiac disease

Presence of cardiac disease	Frequency	Percent
No	118	98.3
Yes	2	1.7
Total	120	100

The prevalence of cardiac disease among the study participants were 1.7 percent in the present study.

Figure 9 Research participants distribution according to prevalence of cardiac disease

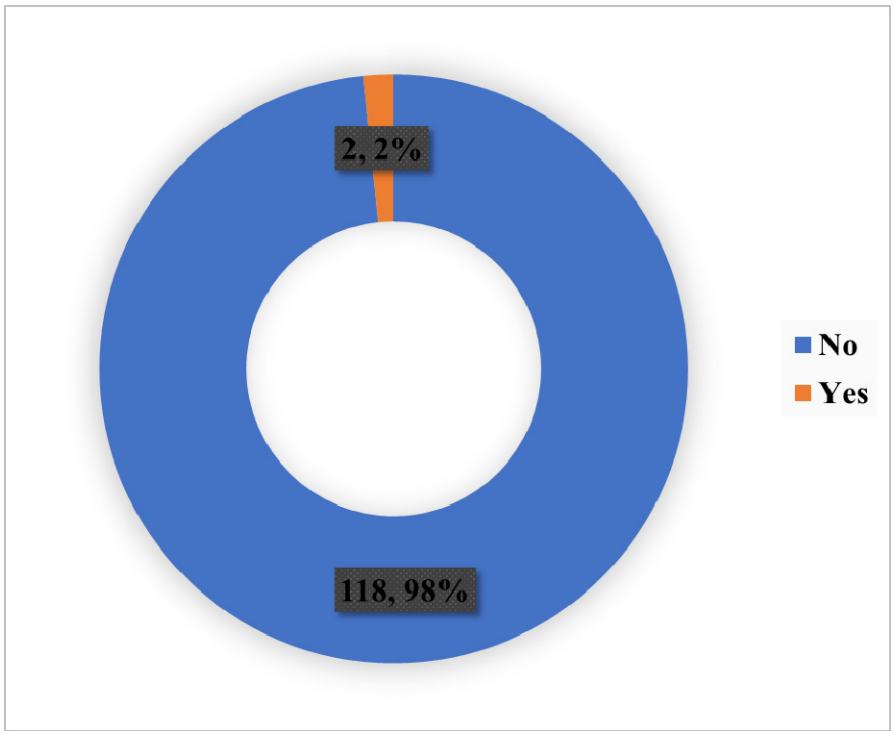


Table 16 Research participants distribution according to the prevalence of viral illness

Presence of viral illness	Frequency	Percent
No	117	97.5
Yes	3	2.5
Total	120	100

The prevalence of viral illness among the study participants were 2.5 percent in the present study.

Figure 10 Distribution of research participants as per prevalence of viral illness

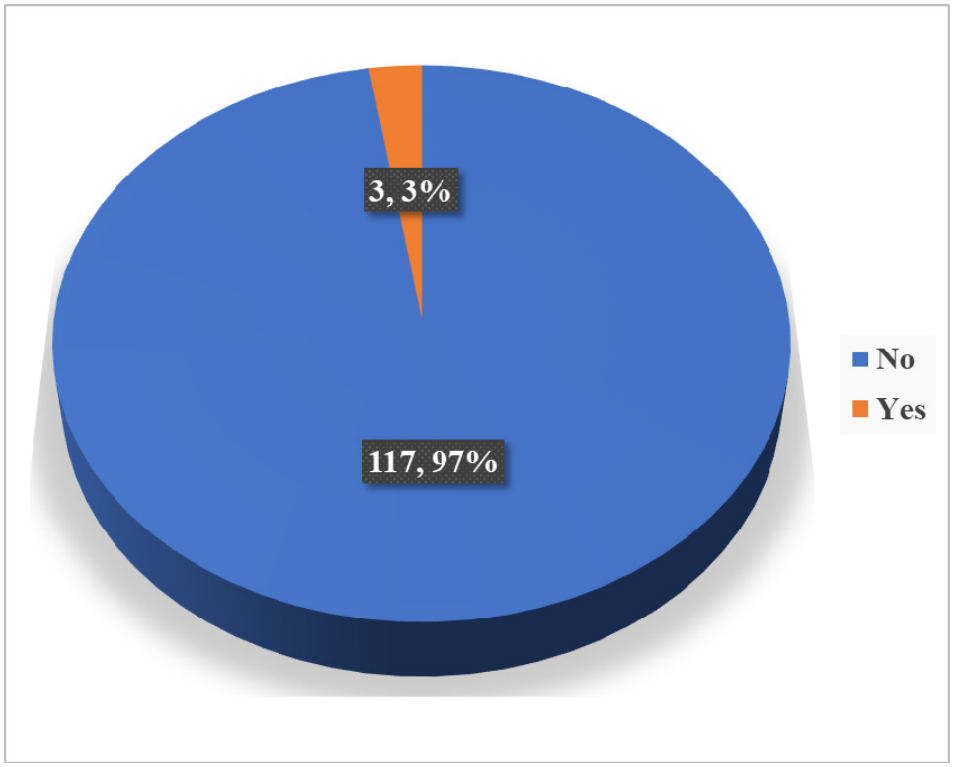


Table 17 Research participants as per prevalence of seizure disorder

Presence of seizure disorder	Frequency	Percent
No	119	99.2
Yes	1	0.8
Total	120	100

The prevalence of seizure disorder among the study participants were 0.8 percent in the present study.

Figure 11 Research participants according to the prevalence of seizure disorder

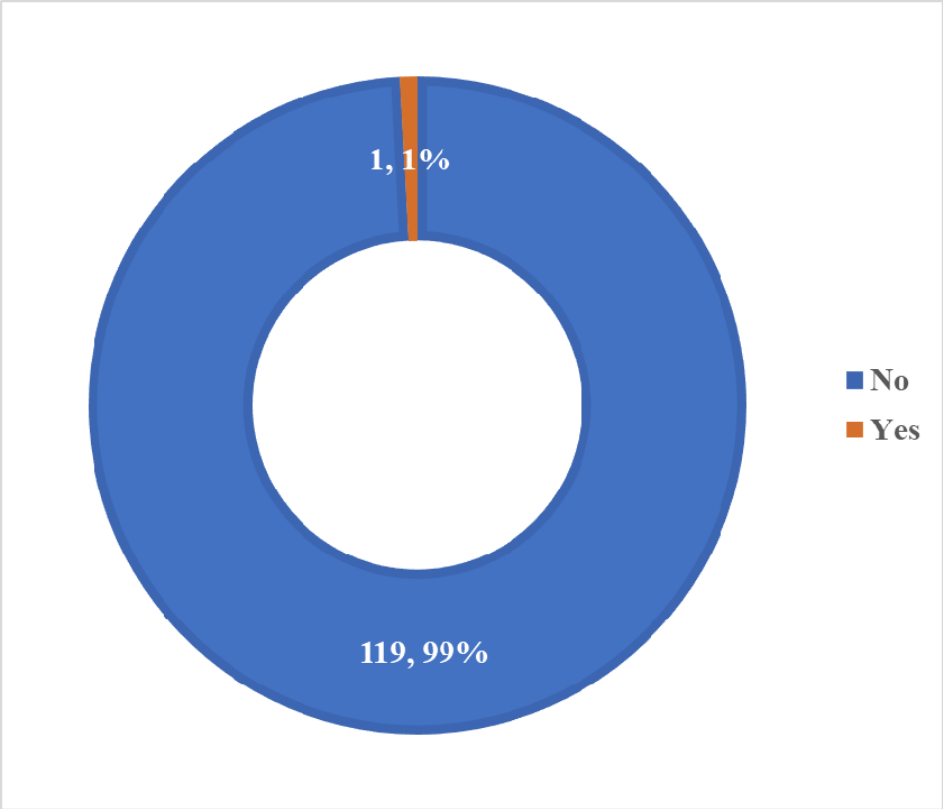


Table 18 Distribution of study participants according to diagnosis

Diagnosis	Frequency	Percent
Appendicitis	25	20.8
Blunt trauma abdomen	3	2.5
Carcinoma in abdomen	23	19.2
Colostomy	1	0.8
Ileostomy	1	0.8
Intestinal obstruction	12	10
Mass in abdomen	2	1.7
Peritonitis secondary to perforation	30	25
Ventral hernia	23	19.2
Total	120	100

The most common condition for abdominal surgery among the study participants were peritonitis secondary to perforation (25%) followed by appendicitis (20.8%) and ventral hernia (19.2%), and carcinoma in abdomen (19.2%).

Figure 12 Research participants according to diagnosis

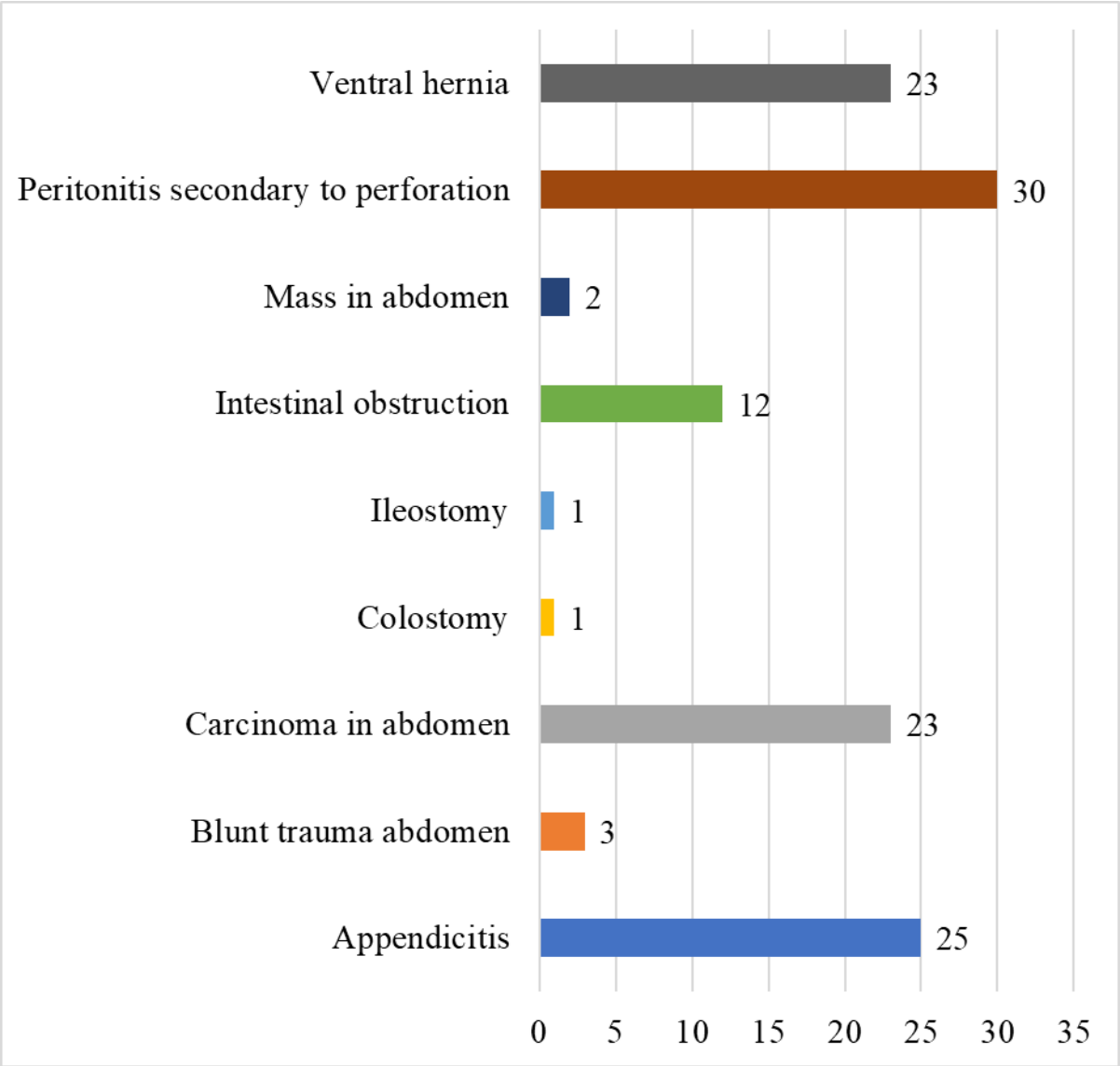


Table 19 Research participants distribution according to type of surgery

Type of Surgery	Frequency	Percent
Elective	48	40
Emergency	72	60
Total	120	100

Nearly 60 percent of the study participants taken up for emergency abdominal surgery and 40 percent was taken up for elective abdominal surgery.

Figure 13 Research participants distribution according to type of surgery

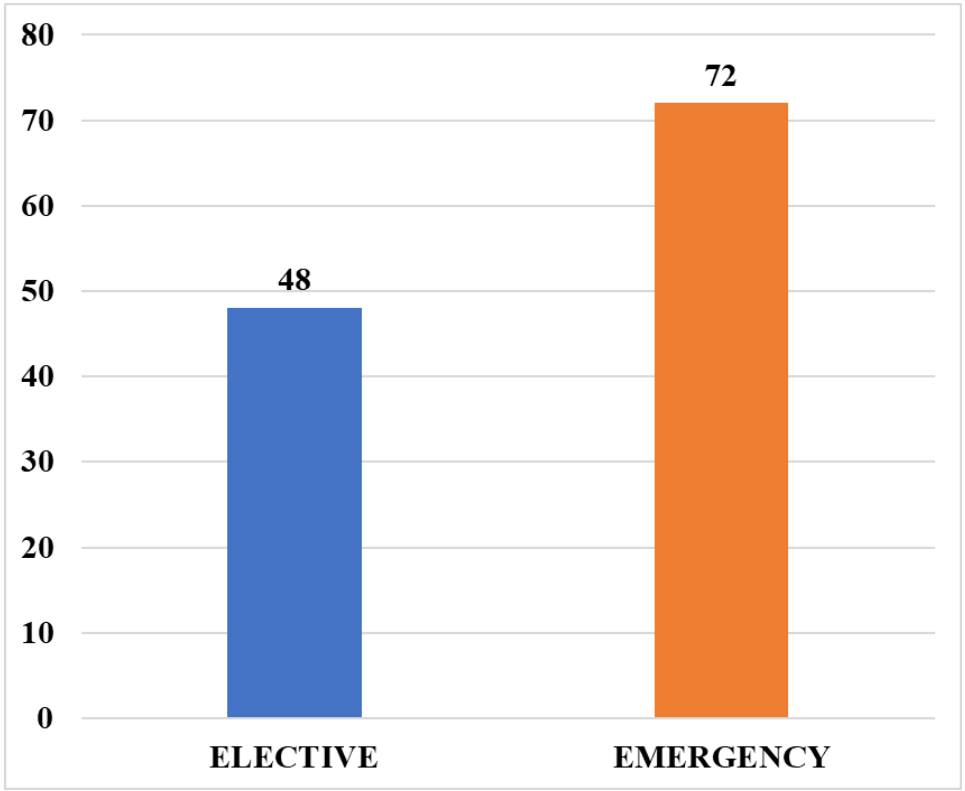


Table 20 Research participants distribution as per the incision during abdominal surgery

Incision used	Frequency	Percent
Midline laparotomy incision	45	38.13
Grid iron incision	28	23.7
Upper midline	22	18.64
Infra umbilical incision	12	10.16
Transverse incision	5	4.2
Chevron incision	2	1.6
Paramedian	1	0.8
Lower midline	1	0.8
Kochers + upper midline incision	1	0.8
Oblique lumbar incision	1	0.8

Table 21 Research participants distribution as per pre-op antibiotics used

Antibiotics used	Frequency	Percent
Cefotaxime	5	4.2
Cefaperazone + Sulbactam	2	1.7
Metronidazole	79	65.8
Ceftriaxone	20	16.7
Cefuroxime	69	57.5
Amikacin	1	0.8
Piperacillin + Tazobactam	24	20

The most common choice of pre-operative antibiotic among the study participants was metronidazole (65.8 percent) and cefuroxime (57.5percent). Nearly 20% of the study participants had Piperacillin + Tazobactam as the choice of pre-operative antibiotic.

Figure 14 Research participants distribution as per the pre-op antibiotics used

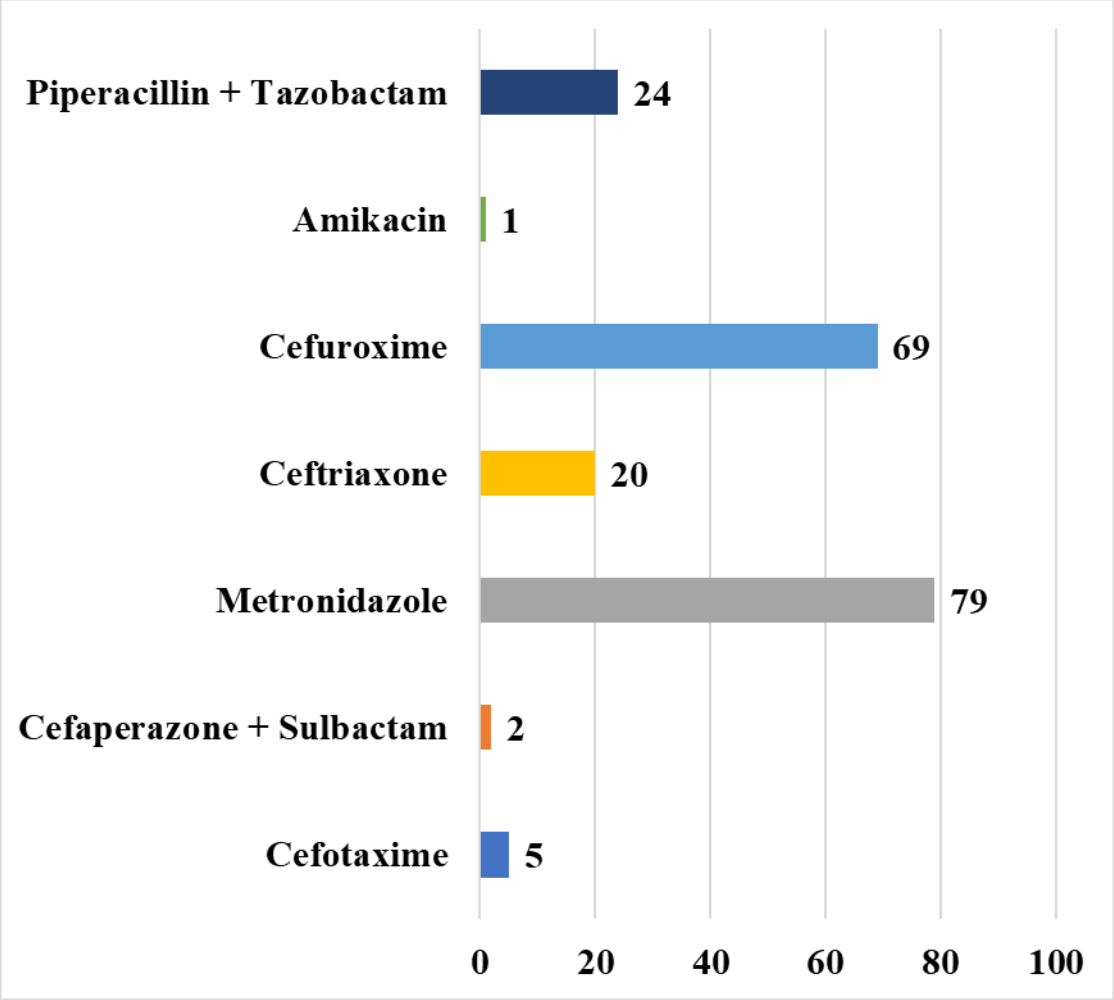


Table 22 Research participants distribution as per organism present in Peritoneal fluid

Organism present in Peritoneal fluid	Frequency	Percent
Aciteno Bacter, Enterococcus	1	0.8
Candida	1	0.8
E Coli	4	3.3
Enterobacter	1	0.8
Enterococcus	3	2.5
Klebsiella Pneumoniae	1	0.8
Streptococcus A	1	0.8
No	108	90
Total	120	100

The most common organism found in the peritoneal fluid among the study samples was E coli (3.3%) followed by enterococcus (2.5%).

Figure 15 Research participants distribution as per organism present in Peritoneal fluid

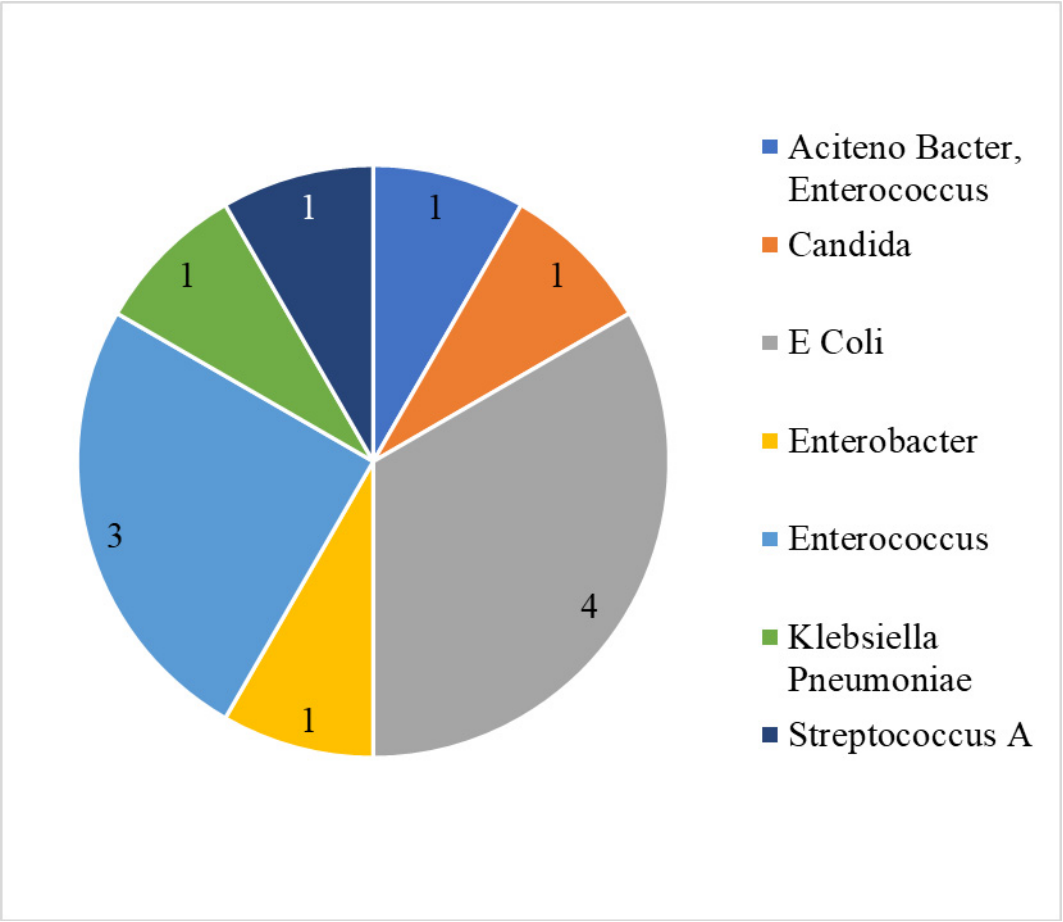


Table 23 : Research participants distribution as per purulent exudate from surgical site

	Emergency	Elective	Total	Percentage
Purulent exudate	**23**	**8**	**31**	**25.8**
No / Non purulent exudate	**49**	**40**	**89**	**74.2**
Total	**72**	**48**	**120**	**100**

Table 24 Research participants distribution as per organism present in surgical site wound

Organism present in surgical site wound	Frequency	Percent
Acinetobacter- Klebsiella Pneumoniae	1	0.8
E.Coli	5	4.2
Enterobacter	2	1.7
Enterococcus	1	0.8
Klebsiella Oxytoca	1	0.8
Klebsiella Pneumoniae	2	1.7
No Organism	108	90
Total	120	100

The most common organism found in the surgical site wound among the study samples was E coli (4.2%) followed by Klebsiella Pneumoniae (1.7%).

Figure 16 Research participants distribution as per organism present in surgical site wound

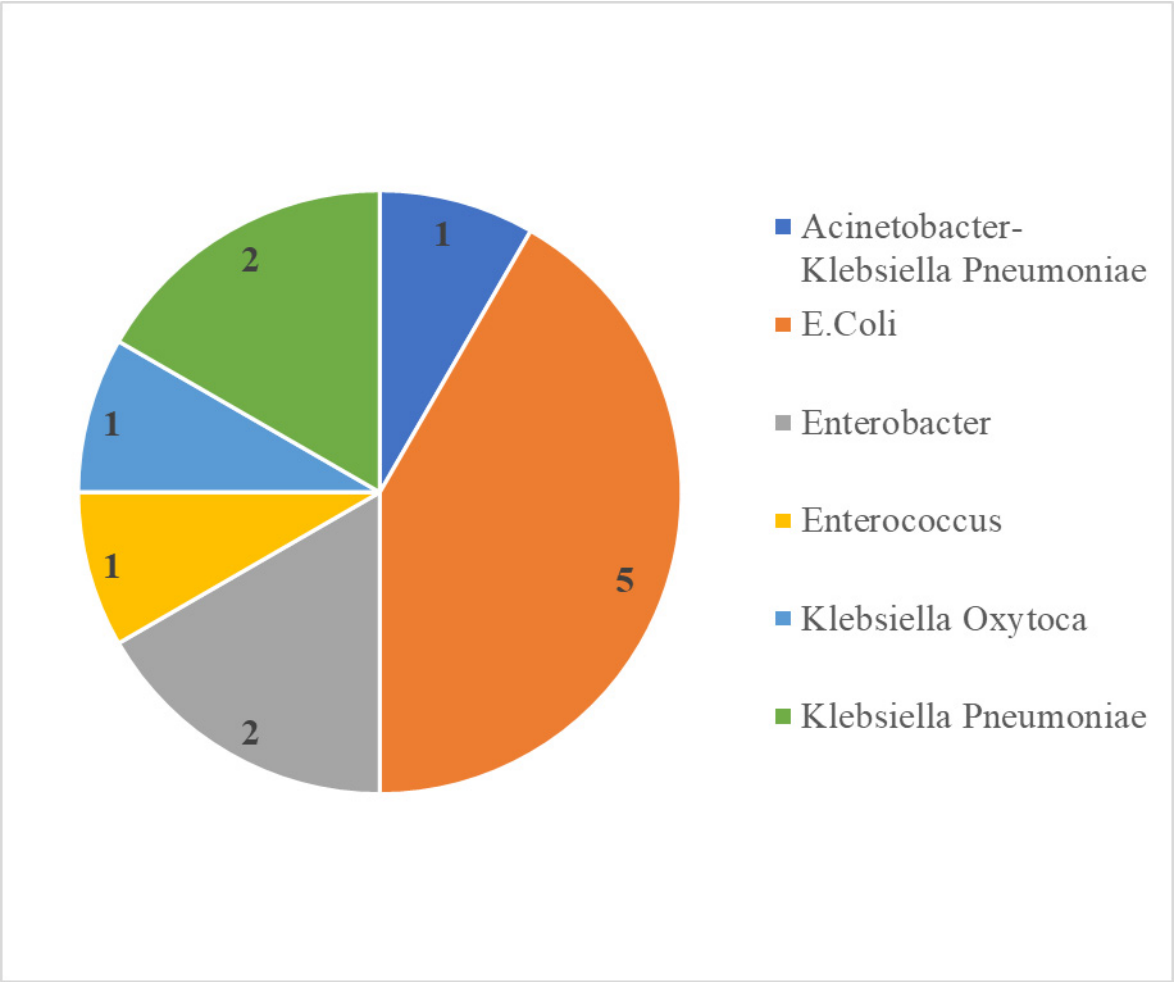


Table 25 Research participants distribution as per prevalence of Surgical site Infection with positive wound culture

Positive wound culture	Frequency	Percent
Yes	12	10
No	108	90

The prevalence of surgical site infection with positive culture among the study participants is 10 percent (12 patients).

Figure 17 Research participants distribution as per prevalence of Surgical site Infection with positive wound culture

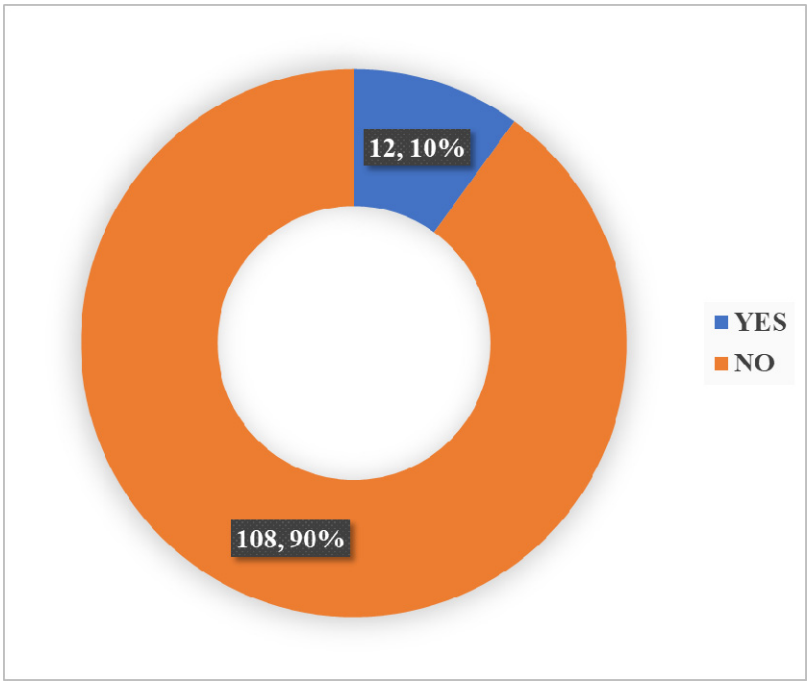


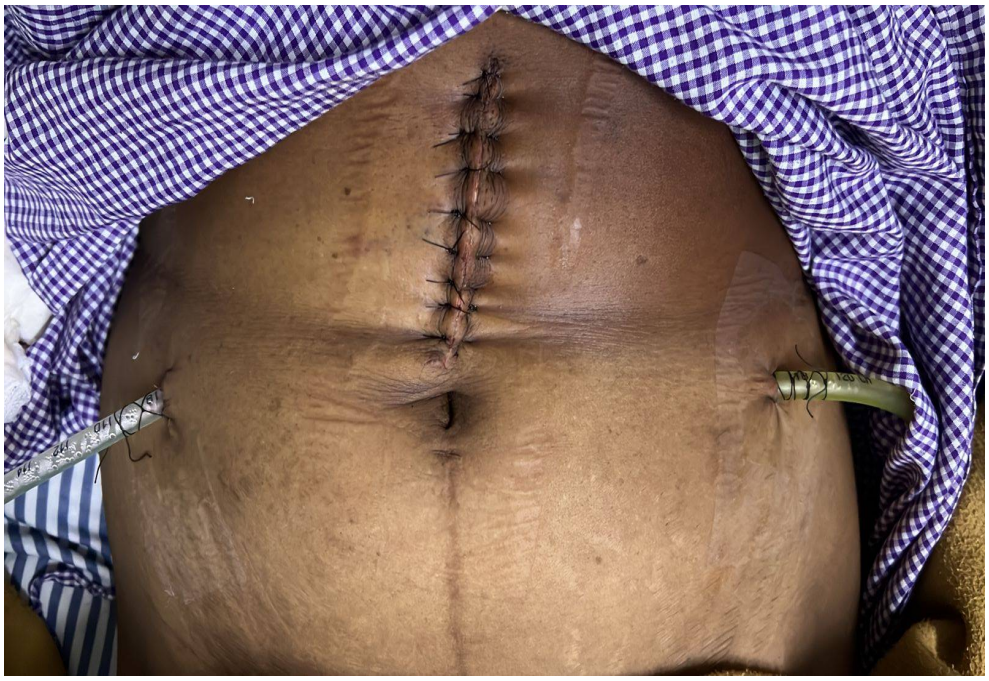
Table 26 Research participants as per wound dehiscence

Wound dehiscence	**Emergency**	**Elective**	**Total**	**Percentage**
Yes	**19**	**8**	**27**	**22.5**
No	**53**	**40**	**93**	**77.5**
Total	**72**	**48**	**120**	**100**

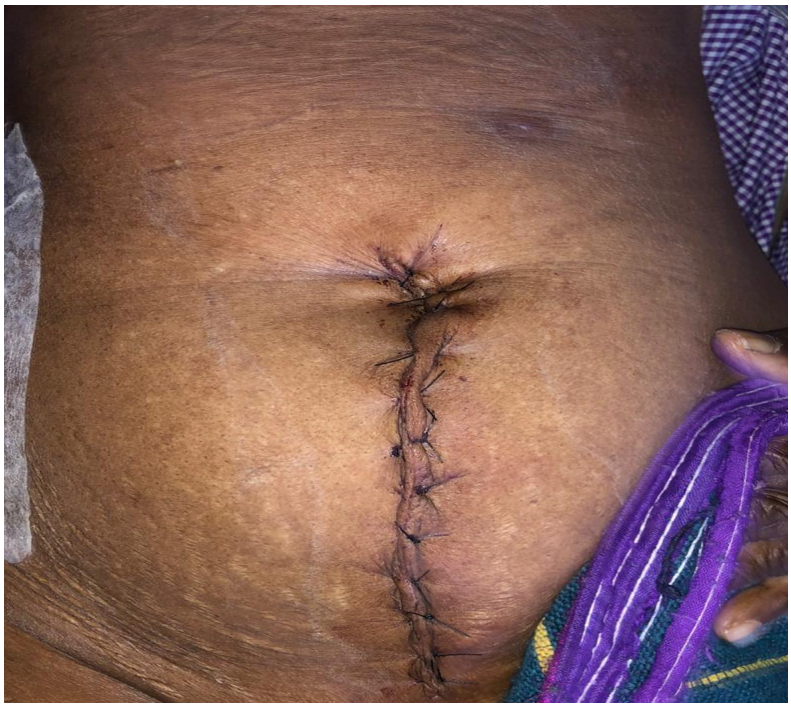
Table 27 Research participants distribution as per Asepsis wound score

Asepsis wound score	**Frequency**	**Percent**
Satisfactory	67	55.8
Disturbance of healing	25	20.8
Minor wound infection	18	15
Moderate wound infection	9	7.5
Severe wound infection	1	0.8
Total	120	100

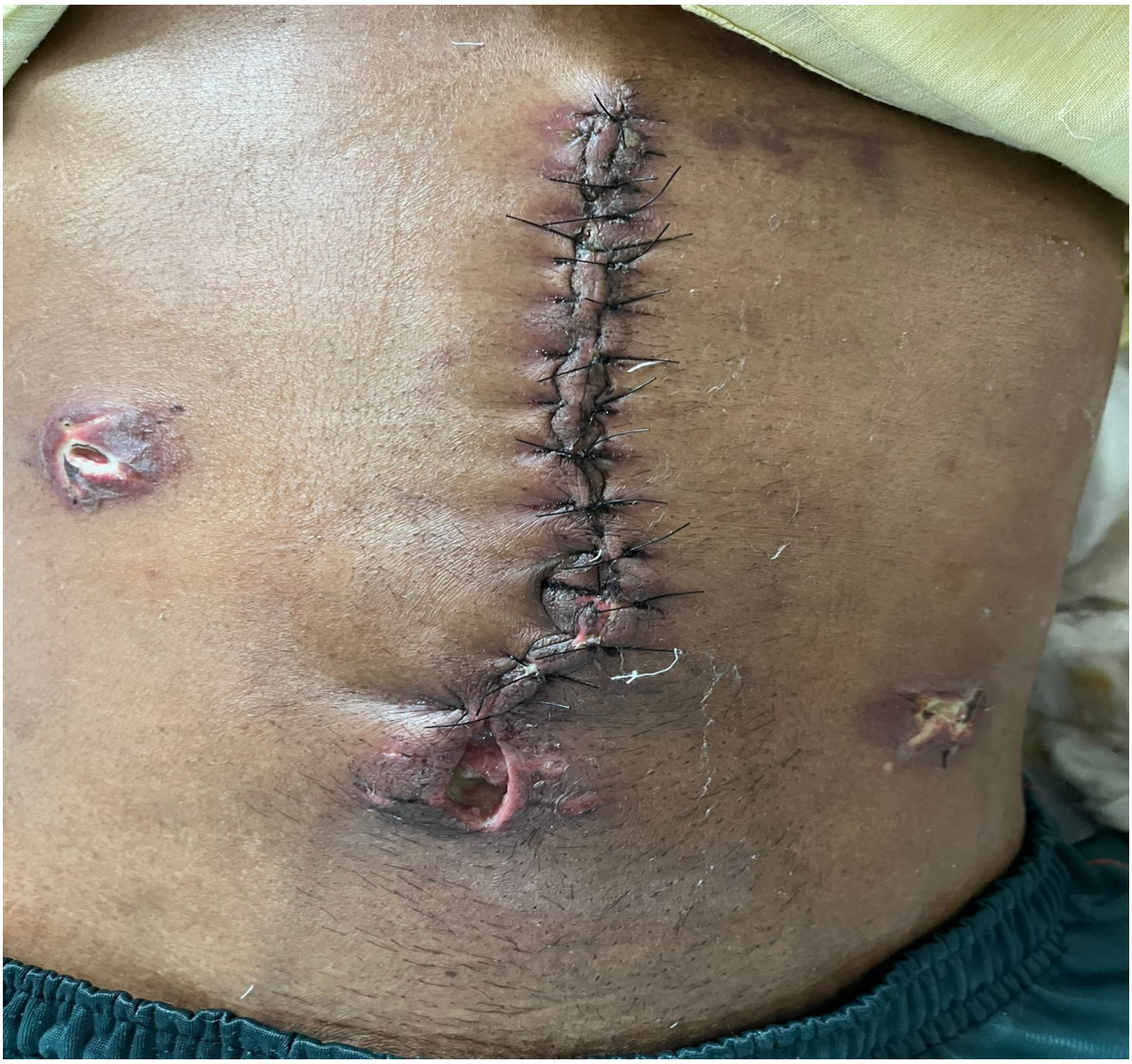
More than half of the study participants (55.8%) had satisfactory wound healing following abdominal surgery and one fourth of the study participants (20.8%) had disturbance of healing. Only 0.8 percent had severe wound infection.



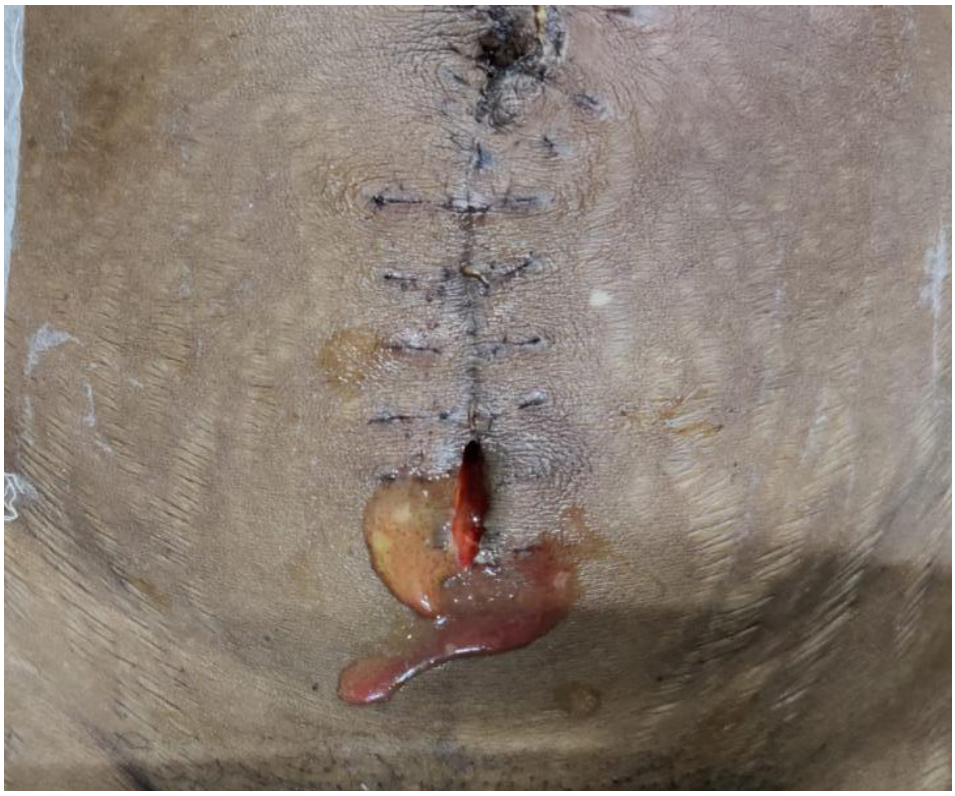
Picture 1 : Satisfactory wound healing



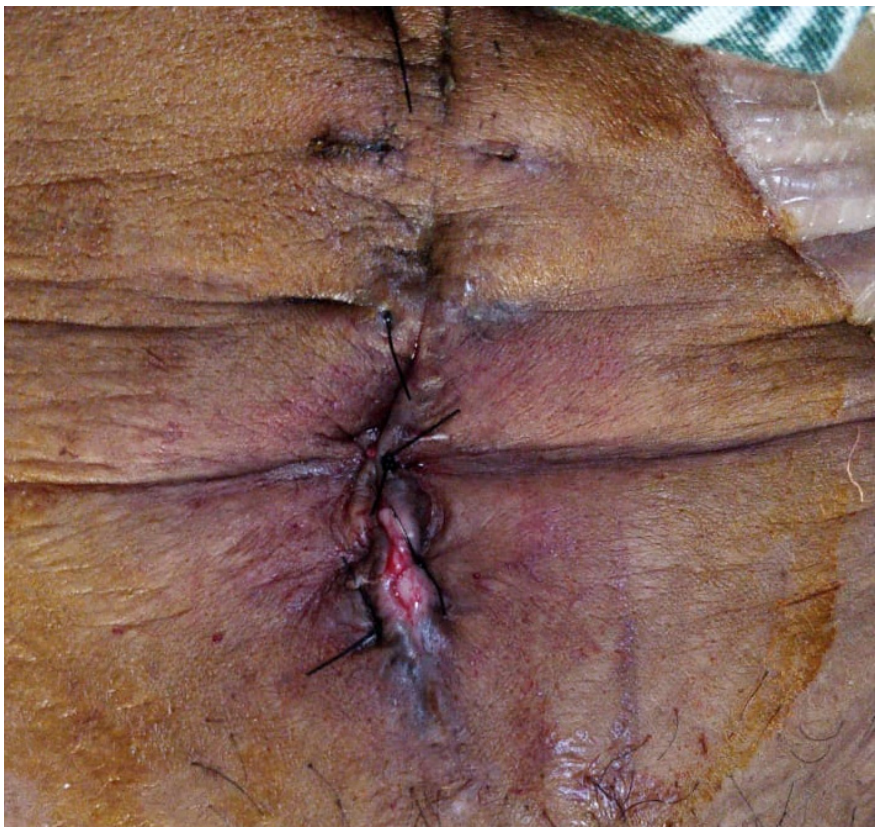
Picture 2 : Satisfactory wound healing



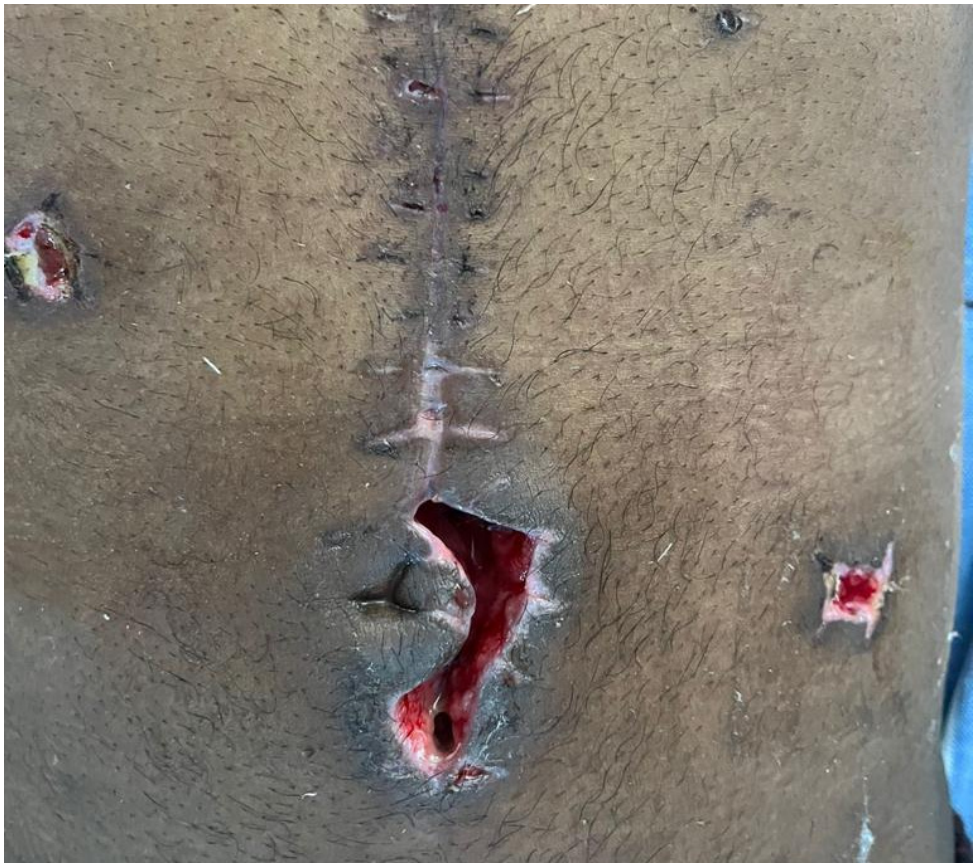
Picture 3 : Wound dehiscence with serous discharge involving lower 10% of surgical site



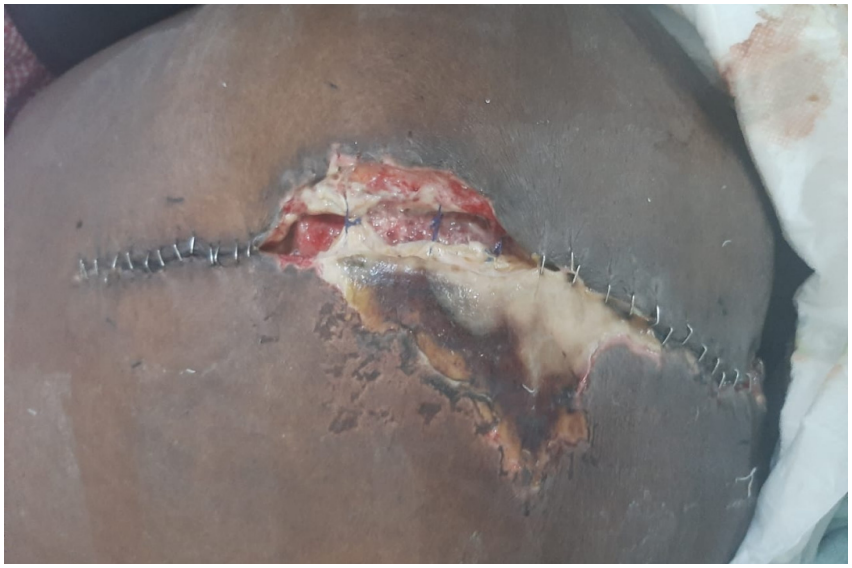
Picture 4 : Seropurulent discharge from lower end of surgical site



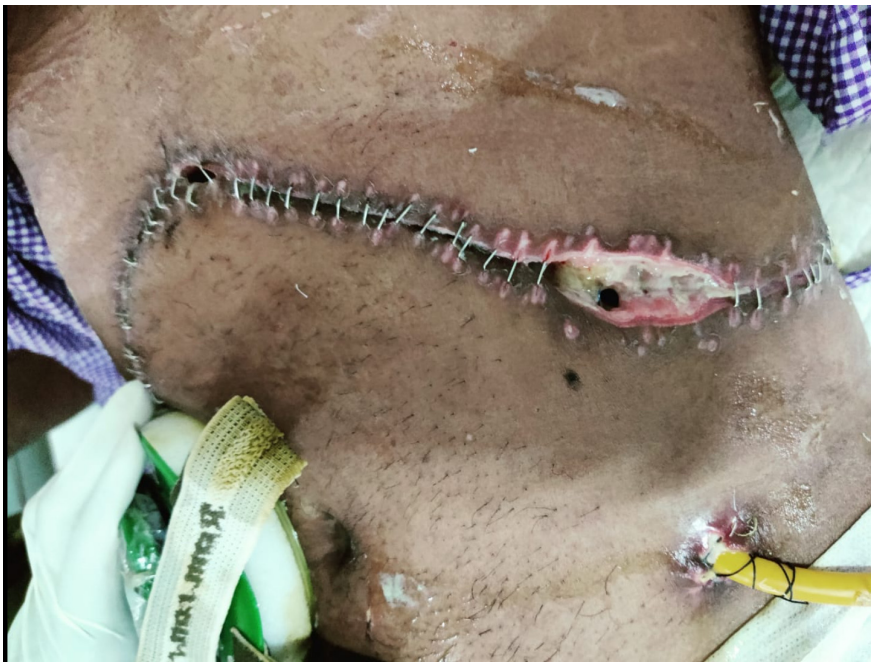
Picture 5 : Erythema around the surgical site



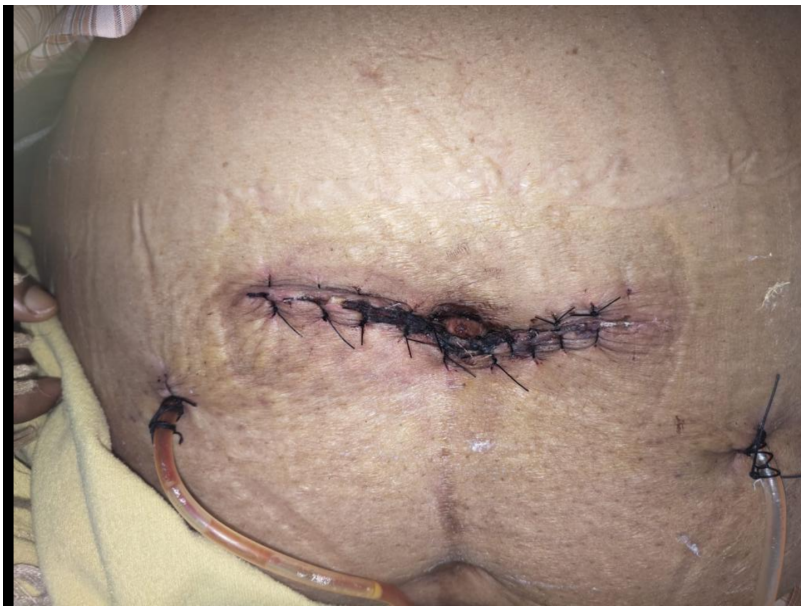
Picture 6 : Wound dehiscence noted involving lower 20% of the surgical site



Picture 7 : Wound edges showing necrosis on post op day 7



Picture 8 : Wound dehiscence noted



Picture 9 : Erythema present around the surgical site

Table 28 Research participants as per Number of days in Hospital stay

Measure	Number of days in Hospital stay
Mean	13.78
Median	12
Std. Deviation	6.431
Minimum	5
Maximum	34

The mean duration of hospital stays among the study participants was 13.78 ± 6.4 days following abdominal surgeries.

Table 29 Research participants as per type of surgery and positive culture from surgical site infection

Type of surgery	Surgical site Infection				Total	
	Yes		No			
	N	%	N	%	N	%
Elective	4	8.30	44	91.7	48	100
Emergency	8	11.1	64	88.9	72	100
Total	12	10	108	90	120	100

Chi-square value = 0.247, P value = 0.761

The prevalence of surgical site infection with positive wound culture was higher among the patients those had emergency surgery (11.1%) on comparison to elective surgery (8.30%). The difference between these two proportions was not statistically significant by chi-square test where the p value is 0.761.

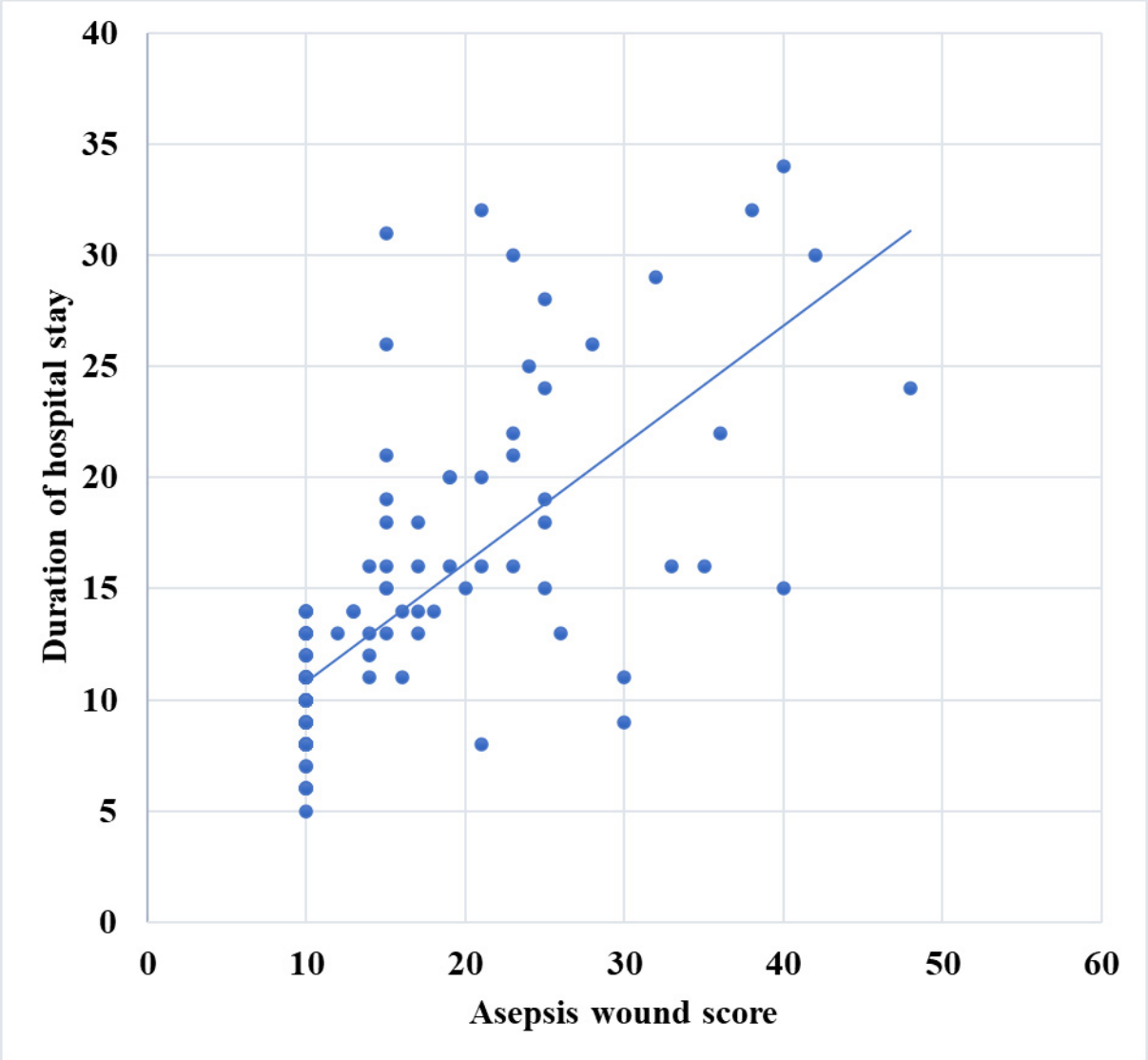
Table 30 Correlation between total score of Asepsis wound score and stay in Hospital in days

Variables	Correlations	Total score	Number of days in Hospital stay
Total score	Pearson Correlation	1	.701**
	Sig. (2-tailed)		0.000
	Number	120	120
Number of days in Hospital stay	Pearson Correlation	.701**	1
	Sig. (2-tailed)	0.000	
	Number	120	120

** Correlation is significant at the 0.01 level (2-tailed).

By Pearson correlation test it was found to have strong positive correlation between the total asepsis wound score and the duration of hospital stay (p value = 0.000). As the total asepsis wound score increases the duration of hospital stay also increases.

Figure 18 Correlation between total score of Asepsis wound score and stay in hospital in days



DISCUSSION

An increasing financial burden on system of, including longer postoperative stay in hospital and higher expenses, is brought on by surgical site infections. Clinical practise places a high focus on preventing postoperative infections since they can increase morbidity, necessitate additional surgery and hospitalisation, and, in some situations, result in fatality. Programs for hospital infection control and quality enhancement are not complete without SSI surveillance, and SSI reduction methods heavily rely on feedback on SSI rates.

The current study's sample populations had an average age of 42.55 ± 16.12 years. Same type of results were seen in the cross-sectional study carried out in Nepal by Ghimire et al., where the study participants' average age was 42.06 ± 21.92 years.[77] In the study carried out by Sattar et al. in Pakistan, the patients' mean age was 35.73 ± 19.73 years.[78]

In the current study, about 60% of the study participants underwent urgent abdominal surgery, whereas 40% underwent elective abdominal surgery. In the cross-sectional study carried out by Ghimire et al in Nepal, 40 cases (61.54 percent) were performed as emergency cases and 25 cases (38.46 percent) were operated as elective cases.[77] Contrary to what we discovered, a study by Sattar et al in Pakistan included 95 patients, of which 58 (61.1 percent) underwent elective surgery and 36 (37.9 percent) underwent emergency surgery.[78]

Peritonitis due to perforation was the most frequent reason for abdominal surgery among study participants (25%) followed by appendicitis (20.8%), ventral hernia (19.2%), and abdominal cancer (19.2 percent).

Ten percent of the individuals in the current study had surgical site infections with positive wound culture. In 384 post-operative patients who had undergone abdominal surgery, a cross-sectional study by Ghimire et al in Nepal found an incidence of surgical site infection of 16.92 percent.[77] Our centre's SSI percentage is lower than the 33.68 percent identified in research conducted in Pakistan.[78] It is nevertheless comparable to the 12 percent and 10.50 percent revealed in studies conducted in Saudi Arabia.[79,80]

E coli (4.2%) and Klebsiella Pneumoniae were the two most frequent microorganisms identified in the surgical site wounds in the samples used for this study (1.7 percent). Wang and Dong conducted a research among 188 patients having abdominal hysterectomy at 2 grade A tertiary institutions in China, which contrasts with our findings. They discovered that Staphylococcus epidermidis (37.37%) and Enterococcus faecalis were the two most prevalent pathogenic microorganisms (19.19 percent).[81]

In contrast to our findings, a cross-sectional study by Ghimire et al in Nepal found that Staphylococcus aureus was the most frequently isolated organism from wound swabs in 29 (44.61 percent) patients, followed by Escherichia coli

in 18 (27.69 percent) patients, and Streptococcus epidermidis in 9 (13.84 percent) patients.[77]

Acinetobacter (32.03 percent) was the most prevalent microbe recovered in the study by Rawabdeh et al. in Saudi Arabia, followed by Escherichia coli and Klebsiella species, which were each responsible for 18.75 percent and 14.8 percent of SSIs.[79] The most frequently isolated bacteria in the study by Khairy et al. in Riyadh were E. coli, Pseudomonas aureginosa and Staphylococcus aureus.[80]

Following abdominal surgery, more than half of the study participants (55.8%) experienced acceptable wound healing, while one-fourth (20.8%) experienced healing disturbances. 15 % of the patients had a minor wound infection followed by 7.5% showing a moderate wound infection. Just 0.8% of patients experienced a severe wound infection.

Contrary to our findings, a cross-sectional study by Ghimire et al in Nepal found that minor wound infections made up 43.07 percent of the samples, moderate wound infections made up 27.69 percent of the samples, and disturbances of healing following abdominal surgery affected only 4.61 percent of study participants. One-fourth suffered a serious wound infection (24.61 percent).[77]

Table 31 : Comparison among various studies

Study/Author	No. of cases	Incidence if SSI	Percentage
Ghimire(2021)77	384	65	16.92
Sattar(2019)78	95	32	33.68
Rawabdeh(2016)79	1611	184	11.4
Khairy (2011)80	131	9	6.8
Siddique J(2016)82	1196	132	11
This study	118	28	23.7

Following abdominal surgeries, hospital stays for study participants averaged 13.78 ± 6.4 days. The duration of the hospital stays, and the overall asepsis wound score were found to be strongly positively correlated by Pearson correlation analysis (p value = 0.000). In the current study, the length of hospital stay likewise increases as the overall asepsis wound score does. Patients and healthcare facilities are heavily burdened financially by SSI, particularly as hospital stays get longer. Most urban tertiary care settings have SSI surveillance systems, while information from other health facilities with limited resources is missing.

Reduction in risk of SSI would improve outcome of patient health which would further be cost-effective and to achieve this an improved surveillance and reporting system of SSIs is advised. It is advised that administration use more preventive measures, such as maintaining good hand hygiene before and

immediately following interaction with patients, efficient aseptic procedures, material cleaning, and timely removal of unnecessary catheters to reduce the likelihood of NCIs.

The researchers made a lot of effort to get more information about the increase in expenses as per length of hospital stay (extra stay), medicines, and time spent by health care personnel, but they were unsuccessful.

To control such life-threatening illnesses effectively and efficiently, this article advocated thorough care in nursing, sterilisation, and disinfection of devices and equipment along with proper handling of intense surgeries. Incidence and prevalence rates of surgical site infections (SSIs) should be efficiently reduced to minimum levels based on international standards using both conventional and automated (recommended) surveillance systems. The conventional techniques of surveillance become insufficient, if not erroneous, because majority of infections become apparent after discharge from the hospital and patients with infections rarely come back to the hospital. Therefore, it is strongly advised that along with the conventional method used throughout the hospital, post discharge surveillance strategy for SSIs which is automatic should be used to produce a better image of SSIs.

CONCLUSION

Our study was conducted and analyzed using the ASEPSIS scoring system taking into consideration purulent exudate, wound dehiscence, isolation of organism from surgical site and amount of hospital stay following abdominal surgery.

Among the participants included in our study, 25.8% developed purulent exudate from surgical site. Among these 74.2 % of patients underwent emergency surgery and 25.8% of underwent elective surgery. 22.5 % of total participants were noted to have wound dehiscence. Among the patients who developed wound dehiscence 70.4 % of patients underwent emergency surgery and 29.6 % of patients underwent elective surgery. Among the participants 10% had positive culture from the surgical site. Out of these patients 58.3% of patients underwent emergency surgery and 41.7 % of patients underwent elective surgery. Based on the ASEPIS score more than half of the study participants (55.8%) were found to have acceptable wound healing, while one-fifth (20.8%) showed healing disturbances. Our study showed surgical site infection in around 23.7 % of the total participants. Among the patients with SSI, 64.3 % had a minor wound infection, 32.1 % had a moderate wound infection and 3.6 % had severe wound infection. As mentioned earlier the incidence of surgical site infection with positive wound culture in our study population is 10%, which was found to be slightly higher. E coli was the most

frequent pathogen discovered in the surgical site wound followed by Klebsiella pneumoniae. In elective surgeries Escherichia coli is found to be be the most frequently isolated. In emergency surgeries Enterobacter and Escherichia coli are the most commonly isolated pathogens. The overall asepsis wound score increases as the number of days in which the patient stays in hospital increase. It can be concluded from this study that emergency surgeries are more prone for surgical site infections when compared to elective surgeries.

For the implementation of preventive measures to lower infection rates, studies assessing the risk of acquiring SSI in patients undergoing abdominal surgeries should be studied further. Additionally, fresh research utilising various approaches under various conditions is needed to advance our understanding of SSI in abdominal surgeries.

RECOMMENDATION

A multicentric prospective study, considering all the risk factors, would yield superior results with a bigger sample size and a minimum of six months of follow-up.

Consider the following measures to avoid wound infection:

1. The right information and guidance should be given to patients and their caregivers regarding how to care for their wound after discharge, how to identify an SSI, and who to call if they are concerned.
2. When necessary, appropriate antibiotic prophylaxis should be administered.
3. To avoid contaminating the wound, medical professionals such as surgeons and other operating room staff should adhere to proper aseptic procedures.
4. Nurses with the appropriate training should change wound dressings and provide for them.
5. The day before or the day before operation, patients should be instructed to take a bath with soap.

LIMITATION

The fact that this study was restricted to a single centre meant that its findings might not generalise to other patient populations. This was one of its main weaknesses. Only a small number of variables were gathered and examined. In our analysis, the complexity of surgery and its indications were not taken into account. Risk factors like BMI, whether the patient had chemotherapy, the size of the incision, the amount of blood lost during surgery, the length of the procedure, the need for a second surgery, the insertion of a wound drainage tube, and the use of delayed suturing in the wound were not considered. Additionally, we did not record the number of surgeries the patient had before or the degree of adhesions, two well-known variables that affect how surgical approaches are planned.

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ANNEXURE - I

CLINICAL STUDY OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERIES

PROFORMA

Name:

Age:

Sex:

Occupation:

UHID number:

Phone number:

Address:

Date of Admission:

Date of Operation:

Date of Discharge:

Complaints with duration:

Previous history:

Family history:

Past history:

Personal history:

GENERAL PHYSICAL EXAMINATION:

- Built and nourishment:
- Pallor/Cyanosis/Icterus/Clubbing/edema/Generalized lymphadenopathy

VITAL DATA:

Pulse: BP:

Temperature: Respiration rate

Systemic examination

Per abdomen:

Respiratory system:

Cardio vascular system:

Central nervous system:

INVESTIGATIONS:

Routine: Blood investigation

Erect x ray abdomen:

Diagnostic peritoneal tapping:

Specific: Peritoneal fluid culture and sensitivity

Culture and sensitivity of discharge from operated wound

USG and CT scan if done

FOLLOW UP- ERYTHEMA DISCHARGE WOUND DEHISCENCE

DAY 2

DAY 3

DAY 4

DAY 5

DAY 6

DAY 14

DAY 21

DAY 28

ANNEXURE - II

PATIENT INFORMATION SHEET

STUDY TITLE: CLINICAL STUDY OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERIES

STUDY CONDUCTED BY DR. PUJITHA ARTHIMALLA

Study location: R L Jalappa Hospital and Research Centre attached to Sri DevarajUrs Medical College, Tamaka, Kolar.

Details- Surgical site infections are defined as infections that occur within 30 days in surgery with no implant, or within 1 year if an implant is placed and infection appears to be related to surgery. Infections are classified as either incisional or organ/space infections to differentiate those that occur at the incision site from those related to the organ or space manipulated during surgery. Incisional infections are further classified as superficial or deep.

SSI is one of the most common post-operative complications and causes significant post-operative morbidity and mortality.SSI is a serious postoperative medical concern that increases the financial burden for both the healthcare system and the patient.

By doing this study we are trying to observe common factors contributing to development of SSI and bacteriology and help in dealing effectively with SSI and update our knowledge about choice of our antibiotics and help us arrive at choosing antibiotics for specific types of SSI's. The patient will pay for the investigations done during the course of study as they are routine investigations.

The purpose of the study is explained in detail to us and that all information collected is for study purpose only. The data collected is submitted to the

department of surgery, SDUMC, Kolar and confidentiality ensured is .The merits and demerits of the study have been explained to us.

Standard of the care will be maintained throughout the study.

Please read the following information and discuss with your family members. You can ask any question regarding the study. If you agree to participate in the study, we will collect information (as per proforma) from you or a person responsible for you or both. Relevant history will be taken. This information collected will be used only for dissertation and publication.

All information collected from you will be kept confidential and will not be disclosed to any

outsider. Your identity will not be revealed. This study has been reviewed by the Institutional Ethics Committee and you are free to contact the member of the Institutional Ethics Committee.There is no compulsion to agree to this study. The care you will get willnot change if you don't wish to participate. You are required to sign/ provide thumb impression only if you voluntarily agree to participate in this study.

For further information contact :

Dr. Pujitha Arthimalla

PG General Surgery

SDUMC

Phone Number
8431649449

Name of patient -

Age-

UHID number-

Left thumb impression /
signature of the patient

Left thumb impression/
signature of witness

ANNEXURE - III

CONSENT FORM

Title : CLINICAL STUDY OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERIES

Principal investigator : Dr.Pujitha Arthimalla

I, Ms/Mr/Mrs. …….. have been explained in my own understandable language, that I will be included in a study which is CLINICAL STUDY OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERIES

RL Jalappa Hospital.

I have been explained that my clinical findings, investigations, preoperative and post-operative findings will be assessed and documented for study purpose.

I have been explained my participation in this study is entirely voluntary and I can withdraw from the study any time and this will not affect my relation with my doctor or treatment for my ailment.

I have been explained about the risk/benefit of the study.

I understand that the medical information produced by this study will become part of institutional records and will be kept confidential by my said institute.

I agree not to restrict the use of any data or result that arise from this study provided such a use is only for scientific purpose(s).

I have principal investigator mobile number for enquiries.

I have been informed that standard of care will be maintained throughout the treatment period.

I, in my sound mind, give full consent to be added in the part of this study.

Investigator: Dr.Pujitha Arthimalla

Phone number : 8431649449

Participant’s signature/ thumb impression

Name:

Signature/thumb impression of the witness: Date:

Name:

Relation to patient

ANNEXURE - III

ಒಪ್ಪಿಗೆ ಪತ್ರ

ಶೀರ್ಷಿಕೆ : ಕಿಬ್ಬೊಟ್ಟೆಯ ಶಸ್ತ್ರಚಿಕಿತ್ಸೆಗಳಲ್ಲಿ ಶಸ್ತ್ರಚಿಕಿತ್ಸಾ ಸೈಟ್ ಸೋಂಕಿನ ಕ್ಲಿನಿಕಲ್ ಅಧ್ಯಯನ

ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿ : ಡಾ.ಪೂಜಿತ ಅರ್ಥಿಮಲ್ಲ

ನಾನು, ಶ್ರೀಮತಿ/ಶ್ರೀ/ಶ್ರೀಮತಿ..... ಕಿಬ್ಬೊಟ್ಟೆಯ ಶಸ್ತ್ರಚಿಕಿತ್ಸೆಗಳಲ್ಲಿ ಶಸ್ತ್ರಚಿಕಿತ್ಸಾ ಸೈಟ್ ಸೋಂಕಿನ ಕ್ಲಿನಿಕಲ್ ಅಧ್ಯಯನದ ಅಧ್ಯಯನದಲ್ಲಿ ನನ್ನನ್ನು ಸೇರಿಸಿಕೊಳ್ಳಲಾಗುವುದು ಎಂದು ನನ್ನ ಸ್ವಂತ ಅರ್ಥವಾಗುವ ಭಾಷೆಯಲ್ಲಿ ವಿವರಿಸಲಾಗಿದೆ.

ಆರ್.ಎಲ್.ಜಾಲಪ್ಪ ಆಸ್ಪತ್ರೆ.

ನನ್ನ ಕ್ಲಿನಿಕಲ್ ಸಂಶೋಧನೆಗಳು, ತನಿಖೆಗಳು, ಪೂರ್ವಭಾವಿ ಮತ್ತು ಶಸ್ತ್ರಚಿಕಿತ್ಸೆಯ ನಂತರದ ಸಂಶೋಧನೆಗಳನ್ನು ಮೌಲ್ಯಮಾಪನ ಮಾಡಲಾಗುತ್ತದೆ ಮತ್ತು ಅಧ್ಯಯನ ಉದ್ದೇಶಕ್ಕಾಗಿ ದಾಖಲಿಸಲಾಗುತ್ತದೆ ಎಂದು ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯು ಸಂಪೂರ್ಣವಾಗಿ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ ಮತ್ತು ನಾನು ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯಬಹುದು ಮತ್ತು ಇದು ನನ್ನ ವೈದ್ಯರೊಂದಿಗಿನ ನನ್ನ ಸಂಬಂಧ ಅಥವಾ ನನ್ನ ಕಾಯಿಲೆಯ ಚಿಕಿತ್ಸೆಯ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವುದಿಲ್ಲ ಎಂದು ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ.

ಅಧ್ಯಯನದ ಅಪಾಯ/ಪ್ರಯೋಜನದ ಬಗ್ಗೆ ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ.

ಈ ಅಧ್ಯಯನದಿಂದ ಉತ್ಪತ್ತಿಯಾಗುವ ವೈದ್ಯಕೀಯ ಮಾಹಿತಿಯು ಸಾಂಸ್ಥಿಕ ದಾಖಲೆಗಳ ಭಾಗವಾಗುತ್ತದೆ ಮತ್ತು ನಾನು ಹೇಳಿದ ಸಂಸ್ಥೆಯು ಗೌಪ್ಯವಾಗಿಡುತ್ತದೆ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಈ ಅಧ್ಯಯನದಿಂದ ಉಂಟಾಗುವ ಯಾವುದೇ ಡೇಟಾ ಅಥವಾ ಫಲಿತಾಂಶದ ಬಳಕೆಯನ್ನು ನಿರ್ಬಂಧಿಸದಿರಲು ನಾನು ಸಮ್ಮತಿಸುತ್ತೇನೆ, ಅಂತಹ ಬಳಕೆಯನ್ನು ಕೇವಲ ವೈಜ್ಞಾನಿಕ ಉದ್ದೇಶ(ಗಳಿಗೆ).

ವಿಚಾರಣೆಗಾಗಿ ನಾನು ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿಯ ಮೊಬೈಲ್ ಸಂಖ್ಯೆಯನ್ನು ಹೊಂದಿದ್ದೇನೆ.

ಚಿಕಿತ್ಸೆಯ ಅವಧಿಯುದ್ದಕ್ಕೂ ಆರೈಕೆಯ ಗುಣಮಟ್ಟವನ್ನು ನಿರ್ವಹಿಸಲಾಗುವುದು ಎಂದು ನನಗೆ ತಿಳಿಸಲಾಗಿದೆ.

ನಾನು, ನನ್ನ ಉತ್ತಮ ಮನಸ್ಸಿನಲ್ಲಿ, ಈ ಅಧ್ಯಯನದ ಭಾಗದಲ್ಲಿ ಸೇರಿಸಲು ಸಂಪೂರ್ಣ ಒಪ್ಪಿಗೆಯನ್ನು ನೀಡುತ್ತೇನೆ.

ತನಿಖಾಧಿಕಾರಿ: ಡಾ.ಪೂಜಿತ ಅರ್ಥಿಮಲ್ಲ

ದೂರವಾಣಿ ಸಂಖ್ಯೆ : 8431649449

ಭಾಗವಹಿಸುವವರ ಸಹಿ/ಹೆಬ್ಬೆರಳಿನ ಗುರುತು

ಹೆಸರು:

ಸಾಕ್ಷಿಯ ಸಹಿ/ಹೆಬ್ಬೆರಳಿನ ಗುರುತು: ದಿನಾಂಕ:

ಹೆಸರು:

ರೋಗಿಗೆ ಸಂಬಂಧ

MASTER CHART

SNO	UHID	AGE	SEX	CO MORBIDITIES	DIAGNOSIS	PROCEDURE	TYPE	PRE OP	POST OP	PF ORG	PF AB	SER EXUD	ERYTHEMA	PUR EXUD	SEP OF TIS	PUS DRAIN	DEBRIDE	ORGANISM	USE OF ANTIBIOTICS	SCORE FOR HS	HOSP STAY	WOUND ORG	WOUND SENSI
1	895278	22	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFOTAXIME	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
2	19393	28	F	BA	PARA UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE + METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
3	894356	55	M	NONE	CICATRISING DUODENAL ULCER	TRUNCAL VAGOTOMY AND GASTROJEJUNOSTOMY +	ELECTIVE	CEFUROXIME	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	12	0	0
4	68088	36	F	NONE	ACUTE INTESTINAL OBSTRUCTION SECONDARY TO JEJUNO JENUNAL	RESECTION OF INTRAMURAL LIPOMA AND ANASTOMOSIS	EMERGENCY	CEFUROXIME	CEFAPERAZONE + SULBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
5	123657	40	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFTRIAXONE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	ENTEROBACTER	AMPICILLIN, CEFOTAXIME, CHLORAMPHENICOL, CIPROFLOCACIN,	0	1	2	2	0	0	0	10	0	13	0	0
6	892530	64	F	AV VALVE REPLACEMENT	INCISIONAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME,AMIKACIN, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
7	890096	72	M	HTN	EPIGASTRIC HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFAPERAZONE + SULBACTUM	NO	NO	0	0	0	0	0	0	0	10	0	13	0	0
8	897656	23	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFAPERAZONE + SULBACTUM	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	6	0	0
9	130387	30	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFAPERAZONE + SULBACTUM	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	MODERATE PUS CELLS, NO ORG	NO	0	0	0	0	0	0	0	10	0	10	0	0
10	120916	50	M	HTN, COPD	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	MODERATE PUS CELLS, NO ORG	NO	0	0	0	0	0	0	0	10	0	13	0	0
11	948215	35	F	NONE	PERITONITIS SECONDARY TO PRE ILEAL PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	E COLI	PIPERACILLIN + TAZOBACTUM	2	2	0	0	0	0	0	10	0	16	0	0
12	133541	31	F	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME,AMIKACIN, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
13	920580	27	M	NONE	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFTRIAXONE, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	NO ORG	NO	0	0	0	0	0	0	0	10	0	10	0	0
14	19589	42	M	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE	NO	NO	0	0	0	0	0	0	0	10	0	14	0	0
15	89422	53	M	NONE	PENETRATING INJURY TO ABDOMEN FOLLOWING ASSAULT	RESECTION AND ANASTOMOSIS OF JEJUNUM WITH PRIMARY CLOSURE OF JEJUNAL	EMERGENCY	CEFUROXIME	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE, AMIKACIN	NO	NO	2	2	0	0	0	0	0	10	5	16	0	0
16	905792	50	F	NONE	PERITONITIS SECONDARY TO GASTRIC PERFORATION (CA STOMACH)	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE, AMIKACIN	NO ORG	NO	2	2	4	2	5	0	10	10	5	19	ENTEROBACTER	PIPERACILLIN,TAZOBACTUM, CEFTAZIDIME, CEFIPIME, AMIKACIN, LEVOFLOXACIN, MEROPENEM,CHLORAMPHENICOL
17	896085	35	F	RHD, HTN	EPIGASTRIC HERNIA	ANATOMICAL REPAIR	ELECTIVE	CEFTRIAXONE	AMOXICILLIN + CLAVULINIC ACID, METRONIDAZOLE	NO	NO	1	1	0	0	0	0	0	10	5	18	0	0
18	952179	47	M	DM	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFTRIAXONE	INJ TAXIM, INJ METROGYL, INJ PIPTAZ	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
19	97646	45	M	NONE	PERITONITIS SECONDARY TO DUODENAL PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFTRIAXONE	INJ CEFAPERAZONE + SULBACTUM	NO GROWTH	NO	0	0	0	0	0	0	0	10	0	10	0	0
20	133107	22	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFTRIAXONE, METROGYK	INJ PIPTAZ, INJ AMIKACIN, INJ METROGYL	NO	NO	2	2	0	0	0	0	0	10	0	11	0	0
21	86455	65	F	HTN	CARCINOMA OF RIGHT OVARY	STAGING LAPAROTOMY WITH TAH AND BSO	ELECTIVE	CEFUROXIME	CEFTRIAXONE	NO	NO	3	3	0	4	0	0	0	10	5	19	0	0
22	93141	56	F	NONE	RECURRENT INCISIONAL HERNIA	MESHPLASTY	ELECTIVE	TAXIM	TAXIM	NO	NO	0	0	0	0	0	0	0	10	5	19	0	0
23	947949	72	M	HTN,DM	CARCINOMA STOMACH	SUB TOTAL GASTRECTOMY WITH D2 LYMPHADENECTOMY	ELECTIVE	CEFUROXIME, METRONIDAZOLE	PIPERACILLIN+ TAZOBACTUM, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	12	0	0
24	42807	45	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFTRIAXONE, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, AMIKACIN, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
25	58782	40	F	NONE	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	MEROPERNEM, METRONIDAZOLE	STREPTOCOCCUS A	CLINDAMYCIN, ERYTHROMYCIN, GENTAMICIN, LEVOFLOXACIN, LINEZOLID,	0	0	0	0	0	0	0	10	0	10	0	0
26	904642	21	F	NONE	RECURRENT APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME	CEFAPERAZONE + SULBACTUM	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
27	899617	30	M	NONE	PENETRATING INJURY TO ABDOMEN FOLLOWING ASSAULT	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME + METROGYL	PIPTAZ+METROGYL		NO	0	0	0	0	0	0	0	10	0	9	0	0
28	67944	23	F	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	PIPERACILLIN+ TAZOBACTUM, METRONIDAZOLE, AMIKACIN	NO ORG	NO	2	2	0	2	5	0	0	10	0	8	0	0
29	897232	19	M	NONE	APPENDICULAR ABSCESS	EXTRAPERITONEAL ABSCESS DRAINAGE	EMERGENCY	CEFTRIAXONE, METROGYL	PIPERACILLIN+TAZOBACTUM, METRONIDAZOLE, AMIKACIN	E.COLI	CEFTAZIDIME-CLAVULANIC ACID, GENTAMICIN, TOBRAMYCIN, AMIKACIN,	3	3	0	0	0	0	0	10	0	11	0	0
30	115966	38	F	HYPOTHYROIDISM	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	MONOCEF, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
31	127371	31	M	NONE	ACUTE INTESTINAL OBSTRUCTION SECONDARY TO ADENOCARCINOMA OF	DIVERSION TRANSVERSE LOOP COLOSTOMY	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	PIPERACCILLIN+TAZOBACTUM, METRONIDAZOLE	NO ORG	NONE	2	2	2	2	0	0	0	10	5	22	0	0
32	929794	22	F	NONE	PERITONITIS SECONDARY TO UTERINE PERFORATION	PRIMARY SUTURING OF UTERINE PERFORATION WITH RESECTION AND	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	PIPERACILLIN+TAZOBACTUM, METRONIDAZOLE, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
33	942164	45	F	HTN	PARA UMBILICAL WITH SUPRA UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFTRIAXONE	CEFOTAXIM, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	0	14	0	0
34	904603	35	F	BA	VENTRAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME,AMIKACIN, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
35	112259	52	F	HTN	CARCINOMA TRANSVERSE COLON	RIGHT EXTENDED HEMICOLECTOMY	ELECTIVE	CEFUROXIME,METRONIDAZOLE	CEFUROXIME, METRONIDAZOLE	NO	NO	0	0	0	0	0	0	0	10	5	31	0	0
36	938968	40	F	HIV	INCISIONAL HERNIA OVER RIGHT ILIAC FOSSA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
37	62491	70	F	SEIZURE DISORDER	RIGHT RENAL CELL CARCINOMA	RIGHT PARTIAL NEPHRECTOMY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE	NO	NO	0	0	0	0	0	0	0	10	5	26	0	0
38	936045	21	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN + TAXOBACTUM, METROGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	5	0	0
39	58625	32	M	NONE	PERITONITIS SECONDARY TO PENETRATING INJURY TO ABDOMEN WITH JEJUNAL	RESECTION AND JEJUNO JEJUNAL ANASTOMOSIS	EMERGENCY	CEFUROXIME , METROGYL	PIPERACILLIN + TAZOBACTUM, METROGYL, AMIKACIN			2	2	2	2	2	0	0	10	5	28	0	0
40	890660	45	M	HTN	BLUNT TRAUMA TO ABDOMEN WITH GRADE 4 SPLENIC INJURY	SPLENECTOMY	EMRGENCY	CEFUROXIME, METROGYL	MEROPENEM, PIPERACILLIN + TAZOBACTUM, VANCOMYCIN,	NO	NO	0	0	0	0	0	0	0	10	5	18	0	0
41	905791	25	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME	CEFUROXIME, MEREOGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	6	0	0
42	928268	36	M	HIV	PERITONITIS SECONDARY TO SMALL BOWEL PERFORATION	PRIMARY CLOSURE OF SMALL BOWEL PERFORATION	EMERGENCY	CEFUROXIME, METEOGYL	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
43	906029	27	M	NONE	UMBILICAL HERNIA	MESHPLASTY	EMERGENCY	CEFUROXIME	CEFAPERAZONE + SULBACTUM	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
44	947065	37	M	NONE	APPENDICULAR PERFORATION	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME , METROGYL	CEFAPERAZONE + SULBACTUM , METEOGYL	KLEBSIELLA PNEUMONIAE	AMOXYCLAV, CEFOTAXIME, GENTAMYCIN, LEVOFLOXACIN, MEROPENEM, ERTAPENEM,	2	2	2	2	2	0	10	10	0	11	ESCHIRICIA COLI	CEFOXITIN, PIPERACILLIN + TAZOBACTUM, AMIKACIN, CHLORAMPHENICOL, IMIPENEM, MEROPENEM, ERTAPENEM
45	46954	28	M	NONE	PERITONITIS SECONDARY TO SIGMOID COLON PERFORATION	RESECTION OF SIGMOID COLON PERFORATION WITH COLOSTOMY	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+ TAZOBACTUM , METROGYL, AMIKACIN, LEVOFLOXACIN	NO	NO	2	2	2	2	0	0	0	10	5	30	0	0
46	46954	29	M	NONE	COLOSTOMY FOR SIGMOID TRANSECTION SECONDARY TO BLUNT TRAUMA ABDOMEN	STOMA REVERSAL	ELECTIVE	CEFUROXIME, METROGYL	PIPERACILLIN + TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	2	2	4	2	0	0	0	10	5	18	0	0
47	880994	42	M	NONE	PERITONITIS SECONDARY TO GASTRIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN + TAZOBACTUM , METROGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	5	21	0	0

48	61469	74	M	NONE	CA STOMACH WITH RENAL CELL CARCINOMA	SUB TOTAL GASTRECTOMY + RIGHT RADICAL NEPHRECTOMY	ELECTIVE	CEFUROXIME, METROGYL	PIPERACILLIN + TAZOBACTUM , METROGYL	NO	NO	2	2	2	0	0	0	0	10	5	32	0	0
49	110519	50	M	HTN, DM	INCIDENTAL CARCINOMA OF GALL BLADDER S/P CHOLECYSTECTOMY	REVISION RADICAL CHOLECYSTECTOMY WITH LYMPHADENECTOMY	ELECTIVE	CEFUROXIME, METROGYL	CEFUROXIME, METEOGYL	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
50	86703	25	M	NONE	CARCINOMA STOMACH LIVER METASTASIS	GASTROJEJUNOSTOMY+JEJUNOJEJUNOSTOMY	ELECTIVE	CEFTRIAXONE, METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	5	16	0	0
51	885305	60	F	HTN, DM	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
52	884929	65	M	NONE	CARCINOMA STOMACH	DISTAL SUBTOTAL GASTRECTOMY WITH D2 LYMPHADENECTOMY WITH	ELECTIVE	CEFUROXIME, METROGYL	CEFUROXIME, METROGYL		NO	0	0	0	0	0	0	0	10	0	11	0	0
53	891338	68	M	NONE	ACUTE INTESTINAL OBSTRUCTION SECONDARY TO ADENOCARCINOMA O F	RESECTION OF DESCENDING AND SIGMOID COLON WITH COLOSTOMY	ENERGENCY	PIPERACILLIN+ TAZOBACTUM, METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL , AMIKACIN	NO	NO	1	1	2	0	0	0	0	10	5	20	0	0
54	933626	56	M	HTN	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	12	0	0
55	929782	55	F	NONE	PERIAMPULLARY CARCINOMA	CLASSICAL WHIPPLES PROCEDURE	ELECTIVE	CEFUROXIME , METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
56	104198	50	M	DM	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME , METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
57	55954	63	M	NONE	PERITONITIS SECONDARY TO DUODENAL PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
58	44542	45	M	NONE	PERITONITIS SECONDARY TO ILEAL PERFORATION FOLLOWING BLUNT TRAUMA	PRIMARY CLOSURE OF ILEAL PERFORATION	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+ TAZOBACTUM, METROGYL	NO	NO	2	2	2	2	0	0	0	10	5	21	0	0
59	935676	68	M	NONE	CARCINOMA STOMACH S/P NACT	SUB TOTAL GASTRECTOMY	ELECTIVE	CEFUROXIME, METROGYL	CEFUROXIME, METROGYL, LEVOFLOXACIN	NO	NO	0	0	0	0	0	0	0	10	0	13	0	0
60	848404	40	F	NONE	SUB ACUTE INTESTINAL OBSTRUCTION SECONDARY TO RADIATION INDUCED ILEAL	RESECTION AND ILEO-TRANSVERSE ANASTOMOSIS	ELECTIVE	CEFUROXIME, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	13	0	0
61	68159	24	M	NONE	JEJUNAL PERFORATION SECONDARY TO PENETRATING INJURY OVER ABDOMEN	JEJUNAL RESECTION AND JEJUNOJEJUNOSTOMY	EMERGENCY	CEFUROXIME , METROGYL	CEFUROXIME, METROGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
62	89928	55	M	TB	ILEAL PERFORATION FOLLOWING RTA	ILEAL RESECTION AND ANASTOMOSIS	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+ TAZOBACTUM, AMIKACIN, METROGYL, MEROPENEM	NO	NO	3	3	2	2	0	0	0	10	5	24	0	0
63	45624	21	F	NONE	POST OP C/O SIGMOID COLOSTOMY FOR RECTO VAGINAL FISTULA	STOMA REVERSAL	ELECTIVE	CEFUROXIME, METROGYK	PIPERACILLIN+TAZOBACTUM, METROGYL , AMIKACIN	NO	NO	2	1	0	0	0	0	0	10	0	14	0	0
64	900941	55	F	HTN	CARCINOMA SPLENIC FLEXURE S/P TRANSVERSE COLOSTOMY	LEFT HEMICOLECTOMY WITH WEDGE RESECTION OF STOMACH WITH LOOP	ELECTIVE	CEFUROXIME , METROGYL	CEFUROXIME, METROGYL, LEVOFLOXACIN	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
65	907056	35	F	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGNECY	CEFUROXIME, METROGYL	PIPERACILLIN+ TAZOBACTUM , METEOGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
66	118318	39	F	NONE	PARA UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME	CEFUROXIME	NO	NO	2	2	0	0	0	0	0	10	0	13	0	0
67	909091	19	F	NONE	ACUTE INTESTINAL OBSTRUCTION	ADHESIOLYSIS	EMERGENCY	CEFUROXIME, METROGYL	CEFUROXIME, METEOGYL, AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
68	948826	20	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFOTAXIME	CEFAPERAZONE + SULBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
69	947071	35	F	NONE	ACUTE INTESTINAL OBSTRUCTION	RESECTION OF GANGRENOUS DISTAL ILEUM AND ILEO TRANSVERSE ANASTOMOSIS	EMERGENCY	PIPERACILLIN+ TAZOBACTUM, METROGYL	PIPERACILLIN+ TAZOBACTUM, METEOGYL	NO	NO	0	0	0	0	0	0	0	10	5	15	0	0
70	113351	21	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME, METROGYL	CEFAPERAZONE+ SULBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	7	0	0
71	61383	35	M	NONE	LARGE CELL NEUROENDOCRINE TUMOUR OF APPENDIX	OPEN APPENDECTOMY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
72	129471	40	M	NONE	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	GRAHAM'S OMENTAL PATCH REPAIR	EMERGENCY	PIPERACILLIN+ TAZOBACTUMB	PIPERACILLIN+ TAZOBACTUM, METROGYL	CANDIDA	NO	2	2	4	4	5	0	0	10	5	29	0	0
73	897306	34	M	NONE	JEJUNAL PERFORATION SECONDARY TO BLUNT TRAUMA	PRIMARY CLOSURE OF JEJUNAL PERFORATION	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	2	2	4	2	0	0	0	10	5	15	0	0
74	127393	54	M	NONE	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL	NO	NO	2	2	4	0	0	0	0	10	5	16	0	0
75	905920	20	M	NONE	BILIARY PERITONITIS SECONDARY TO PRE-PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFTRIAXONE, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	2	2	2	0	0	0	0	10	5	16	0	0
76	136236	27	M	NONE	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL, AMIKACIN	NO	NO	3	2	4	2	0	0	10	10	5	22	KLEBSIELLA PNEUMONIAE	AMIKACIN, AMOXYCILLIN, CHLORAMPHENICOL,CIPROFLOXACIN, ERTAPENEM, GENTAMICIN, IMIPENEM, LEVOFLOXACIN,
77	47558	19	M	NONE	PENETRATING INJURY TO ABDOMEN	OMENTECTOMY	EMERGENCY	CEFTRIAXONE, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	6	0	0
78	898537	22	M	NONE	PERITONITIS SECONDARY TO GASTRIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN+ TAZOBACTUM, METROGYL, AMIKACIN		NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
79	929808	60	F	HEP B	ACUTE INTESTINAL OBSTRUCTION SECONDARY TO POST OP ADHESIONS WITH	PRIMARY CLOSURE OF ILEAL PERFORATION , ADHESIOLYSIS	EMERGENCY	PIPERACILLIN, TAZOBACTUM		NO	NO	0	0	0	0	0	0	0	10	0	14	0	0
80	120102	65	F	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	PIPERACILLIN+ TAZOBACTUM	PIPERACILLIN+TAZOBACTUM, METROGYL , AMIKACIN	NO	NO	1	1	2	2	0	0	0	10	5	20	0	0
81	903275	65	F	NONE	Moderately differentiated adenocarcinoma of recto SIGMOID junction	LOWER ANTERIOR RESECTION WITH DIVERSION TRANSVERSE COLON COLOSTOMY	ELECTIVE	CEFUROXIME, METROGYL	PIPERACILLIN+TAZOBACTUM, METROGYL	NO	NO	2	1	2	2	0	0	0	10	0	13	0	0
82	130924	43	F	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME, METROGYL	CEFUY, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	14	0	0
83	897225	48	M	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME, METROGYL	CEFAPERAZONE SULBACTUM, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
84	105920	31	F	NONE	UMBILICAL HERNIA	ANATOMICAL REPAIR	ELECTIVE	CEFUROXIME	CEFUROXIME, METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
85	894651	45	F	NONE	S/P DOUBLE BARRELL ILEOSTOMY FOR EXTENSIVE GANGRENOUS SMALL BOWEL	STOMA REVERSAL	ELECTIVE	CEFUROXIME	CEFAPERAZONE SULBACTUM	NO	NO	0	0	0	0	0	0	0	10	0	11	0	0
86	889158	68	M	NONE	PERITONITIS SECONDARY TO DUODENAL PERFORATION	PERFORATION CLOSURE	EMERGENCY	CEFUROXIME	CEFUROXIME METROGYL	NO	NO	2	1	2	2	0	0	0	10	0	14	0	0
87	950789	20	M	NONE	APPENDICULAR PERFORATION WITH MASS FORMATION	OPEN APPENDECTOMY	EMERGENCY	CEFOTAXIME METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
88	93623	36	F	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFTRIAXONE	CEFTRIAXONE METROGYL	NO	NO	2	1	0	0	0	0	0	10	0	14	0	0
89	931532	65	M	NONE	CARCINOMA STOMACH	SUB TOTAL GASTRECTOMY	ELECTIVE	CEFUROXIME	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
90	944251	62	M	NONE	PERITONITIS SECONDARY TO PRE-PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
91	47203	70	M	NONE	CARCINOMA STOMACH	SUB TOTAL GASTRECTOMY WITH D2 LYMPHADENECTOMY WITH	ELECTIVE	CEFTRIAXONE METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
92	60828	35	M	NONE	INCISIONAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	1	1	0	0	0	0	0	10	5	16	0	0
93	949845	24	F	NONE	REVURRENT APPENDICITIS	OPEN APPENDECTOMY	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	6	0	0
94	62400	14	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
95	90298	47	F	HYPOTHYROID	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME METROGYL	CEFUROXIME METROGYL AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	7	0	0

96	906025	22	F	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME METROGYL	CEFAPERAZONE SULBACTUM METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
97	59462	55	M	DM	PERITONITIS SECONDARY TO PRE-PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
98	885555	32	M	NONE	SELF INFLICTED INCISED WOUND OVER ABDOMEN WITH EXPOSED AND COMPLETE	RESECTION AND ANASTOMOSIS OF ILEUM	EMERGENCY	PIPERACILLIN TAZOBACTUM	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	3	3	2	2	0	0	10	10	0	9	ENTEROBACTER	PIPERACILLIN TAZOBACTUM CEFOXITIN
99	885975	55	F	NONE	CARCINOMA STOMACH	SUBTOTAL GASTRECTOMY WITH SPLENECTOMY WITH D2 LYMPHADENECTOMY	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL LEVOFLOXACIN	NO	NO	2	2	0	0	0	0	0	10	5	20	0	0
100	907184	55	F	NONE	UMBILICAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	1	1	0	0	0	0	0	10	0	13	0	0
101	931520	60	F	DM, HTN	RIGHT RENAL CELL CARCINOMA WITH LEFT ADNEXAL MASS	RIGHT RADICAL NEPHRECTOYMY WITH HYSTERECTOMY WITH BILATERAL SALPINGO	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
102	38582	70	F	NONE	ACUTE INTESTINAL OBSTRUCTION SECONDARY TO DESCENDING COLON	DIVERSION COLOSTOMY	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	3	2	2	2	0	0	0	10	5	25	0	0
103	886838	67	M	NONE	CARCINOMA BLADDER	RADICAL CYSTECTOMY WITH ILEAL CONDUIT WITH BILATERAL PELVIC NODE DISSECTION	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	10	0	0
104	70066	45	M	NONE	JEJUNAL PERFORATION WITH HEMOPERITONEUM	PRIMARY CLOSURE OF JEJUNAL PERFORATION	EMWRGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	9	0	0
105	130667	55	M	NONE	OBSTRUCTED INCISIONAL HERNIA	RESECTION AND ANASTOMOSIS OF JEJUNUM	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL	NO	NO	2	1	2	0	0	0	0	10	5	15	0	0
106	904786	51	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN		NO	0	0	0	0	0	0	0	10	0	8	0	0
107	892474	36	M	DM	INCISIONAL HERNIA	MESHPLASTY	ELECTIVE	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	5	15	0	0
108	53385	23	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME METROGYL	CEFUROXIME METROGYL	NO	NO	0	0	0	0	0	0	0	10	0	8	0	0
109	882604	45	M	NONE	CHRONIC CALCULOUS PANCREATITIS WITH PSEUDOCYST	DISTAL PANCREATECTOMY WITH PANCREATICOJEJUNOSTOMY WITH LEFT	EMERGENCY	PIPERACILLIN TAZOBACTUM METROGYL	PIPERACILLIN TAZOBACTUM METROGYL AMIKACIN	NO	NO	3	3	6	6	5	0	10	10	5	24	KLEBSIELLA PNEUMOIAE	COLISTIN
110	108965	63	F	NONE	ADENOCARCINOMA OF ILEO CAECAL JUNCTION	EXTENDED RIGHT HEMICOLECTOMY	ELECTIVE	CEFUROXIME, METROGYL	CEFAPERAZONE+ SULBACTUM, METROGYL , AMIKACIN, LEVOFLOX,	ENTEROCOCCUS	AMPICILLIN, CHLORAMPHENICOL, ERYTHROMYCIN, LINEZOLID, VANCOMYCIN	2	2	4	4	5	0	10	10	5	30	E.COLI	AMIKACIN, CHLORAMPHENICOL, IMIPENEM, MEROPENEM
111	39483	38	F	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME, METRONIDAZOLE	AMIKACIN, CEFUROXIME, METRONIDAZOLE	ESCHERICHIA COLI	AMIKACIN, CEFOXITIN, ERTAPENEM, IMIPENEM, MEROPENEM,	2	2	0	0	0	0	0	10	0	12	0	0
112	47303	70	F	DM,HTN	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN+TAZOBACTUM, METRONIDAZOLE	AMIKACIN, PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	ENTEROCOCCUS	AMIKACIN, CHLORAMPHENICOL, ERTAPENEM, GENTAMICIN, LEVOFLOXACIN, MEROPENEM,	3	3	0	0	0	0	0	10	0	14	0	0
113	51451	25	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	PIPERACILLIN/TAZOBACTAM, METRONIDAZOLE	PIPERACILLIN/TAZOBACTAM, METRONIDAZOLE	NO	NO	2	2	2	0	0	0	10	10	0	13	ENTEROCOCCUS	AMPICILLIN, LINEZOLID, VANCOMYCIN
114	70345	62	F	DM, HTN	CARCINOMA ESOPHAGUS	TRANS HIATAL ESOPHAGECTOMY	ELECTIVE	CEFUROXIME, METRONIDAZOLE	CEFUROXIME, METRONIDAZOLE, AMIKACIN	NO	NO	2	2	2	2	5	0	10	10	5		ACINETOBACTER- KLEBSIELLA	CIPROFLOXACIN, COTRIMOXAZOLE, ERTAPENEM, LEVOFLOXACIN, PIPERACILLIN, PIPERACILLIN/TAZOBACTAM-
115	76240	21	F	NONE	ACUTE INTESTINAL OBSTRUCTION	DOUBLE BARREL COLOSTOMY	EMERGENCY	PIPERACILLIN/TAZOBACTUM, METRONIDAZOLE	AMIKACIN, PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	ENTEROCOCCUS	AMPICILLIN, LEVOFLOXACIN, LINEZOLID, VANCOMYCIN	2	2	2	2	0	0	0	10	0	14	0	0
116	114780	60	M	HTN	PERITONITIS SECONDARY TO PRE PYLORIC PERFORATION	PERFORATION CLOSURE	EMERGENCY	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	DOXY, PIPERACILLIN +TAZOBACTUM +METRONIDAZOLE	ACITENO BACTER, ENTEROCOCCUS	PAN RESISTANT, CHLORAMPHENICOL, DOXY, COLISTIN, LINEZOLID, VANCOMYCIN	2	2	4	2	0	0	10	10	5	16	KLEBSIELLA OXYTOCA	COLISTIN E STRIP
117	76886	34	M	NONE	ACUTE APPENDICITIS	OPEN APPENDECTOMY	EMERGENCY	CEFUROXIME + METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METROIDAZOLE	ESCHERICHIA COLI	CHLORAMPHENICOL	2	2	2	2	0	0	10	10	0		ESCHIRICIA COLI	AMIKACIN, CHLORAMPHENICOL, COTRIMOXAZOLE, DOXYCYCLINE, GENTAMICIN, IMIPENEM, MEROPENEM,
118	84116	48	F	DM	CA CERVIX WITH RECTO VAGINAL FISTULA	TOTAL PELVIC EXPLORATION	ELECTIVE	CEFUROXIME, METRONIDAZOLE	PIPERACILLIN + TAZOBACTUM, METRONIDAZOLE	NO	NO	3	3	2	2	5	0	10	10	5	15	ESCHIRICIA COLI	AMIKACIN, AMOXICILLIN/CLAVULINIC ACID, CHLORAMPHENICOL, ERTAPENEM, GENTAMICIN, IMIPENEM,
119	76836	54	M	HTN	CARCINOMA RECTOSIGMOID	ANTERIOR RESECTION	ELECTIVE	CEFUROXIME, METRONIDAZOLE	CEFUROXIME, METRONIDAZOLE, AMIKACIN	NO	NO	2	2	2	2	0	0	10	10	5	16	ESCHIRICIA COLI	AMIKACIN, AMOXICILLIN/CLAVULINIC ACID, AMPICILLIN/SULBACTAM, CEFTAZIDIME, CHLORAMPHENICOL,