



## **A Study of post-operative wound infections**

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### **ABSTRACT**

*In some individuals, postoperative wound infections have become a problem, resulting in increased rheumatological, death, and expenditures. The goal of this research was to see how often patients at Sri Lakshmi Narayana Institute of Medical Sciences got postoperative wound infections after emergent abdominal surgery. In this research, 120 individuals who had emergency abdominal procedures were included. Records on wound type, surgical methods, and duration of operation, age, sex prevalence, preoperative treatment, co morbid diseases, common bacteria, antibiotic reaction, and SSI presentation were collected and statistically analyzed. This study found that abdominal injury (80%), age (20%), and surgical time (> 3.5h), as well as extended anaesthesia, all increased the risk of SSI. There was no link between gender and SSI development. The most prevalent problems linked with post-operative patients were an abdomen burst, abscess suppuration, enterocutaneous fistula, and hernia. The study also concluded that effective diabetes treatment lowers the incidence of SSI. Before performing any operation, the current investigation demonstrated the necessity for a strategic aim for optimal post-operative wound treatment based on essential criteria such as host, environmental, and microbial characteristics. Antibiotic use contributes to resistance; hence clinics should have an antibiotic policy for patients.*

**Keywords:** Wounds; treatments; Post-operative patients; Surgery policy; Diabetes management.

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### **INTRODUCTION**

Wound infection is a frequent surgical complication that increases postoperative morbidity and mortality while also lengthening hospital stays [1]. A century ago, infection was considered an unavoidable side effect of surgery [2]. The number of infections, which were once over 75-80%, has now dropped towards less than 10%. Despite this, taints associated with surgical operations now account for a large portion of morbidity and death<sup>3</sup>. Although it is impossible to completely eliminate wound infection, lowering the infection incidence to a manageable level might have significant assistances in relationships of patient ease and remedial means employed [4]. The surgical arsenal in battling infection now includes a clear thoughtful of microorganisms and their pathogenicity, improvements in the topic of asepsis, the introduction of antibiotics, and trustworthy suture materials [5]. As a result, the surgical community as a whole must maintain a continual awareness of the ever-present possibility of infection [6]. The major goal of the present work is to estimate the infection rate of postoperative wounds in emergency abdominal surgeries and to identify threat factors for proper wound care. Also, we aim to discover the most prevalent wound-causing factors in post-abdominal surgery patients. Further, the main focus of this research is to examine the efficacy of prophylactic antibiotics in reducing postoperative complications.

### **MATERIAL AND METHODS**

This progressive research was conducted on 120 individuals who had undergone emergent abdominal operations between July 2018 and November 2019 in the Surgical Units I and II of Sri Lakshmi Narayana Institute of Medical Sciences. Post-operative antibiotic medication was also given to patients who had emergency abdominal surgery. In this research, pus/wound swabs were submitted for SSI confirmation, and 5ml samples were obtained in a sterile dish for processing for SSI- patients. The essential data, including their biodata, clinical characteristics, probable threat factors, diagnosis, complications such as infections, entities isolated with antibiograms, clinical stay, and outcome, was entered into a specifically prepared proforma. The statistical analysis was performed on a computer using SPSS 10.0 version.

**Inclusion measures**

1. Age range from twenty five to sixty
2. Males and females
3. Individuals undergoing contaminated and dirty surgery
4. Comorbidities

**Exclusion measures**

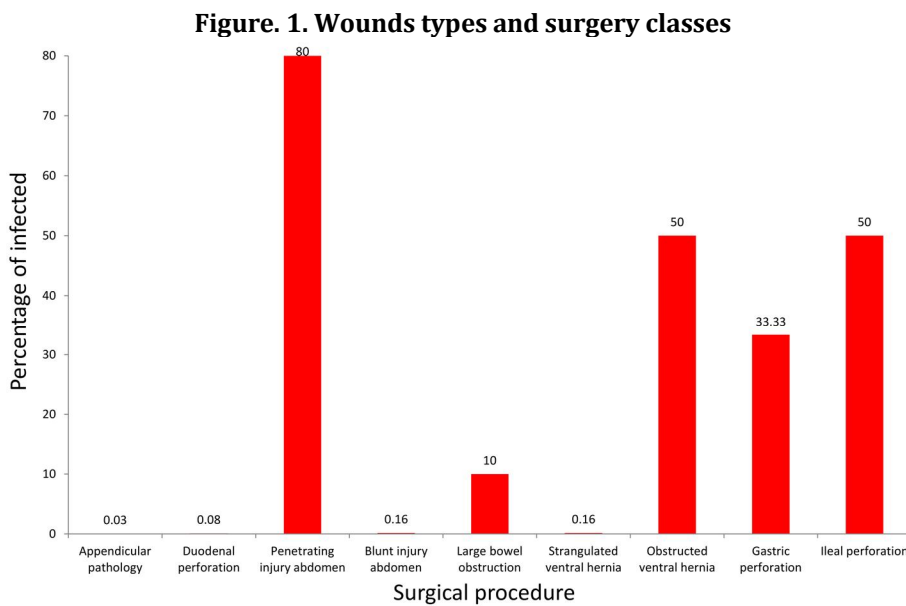
1. Age below 25
2. HIV patients
3. Operated cases.

**RESULTS AND DISCUSSION**

The current research examined at the frequency of urgent stomach injuries in post-operative patients. Only 16 individuals (13.4%) acquired post-operative SSI of the 120 study participants, with 104 (86.6%) having treated wounds. The research also revealed that infected wounds were much more common among patients (69.16 percent) than filthy wounds (30.83 percent), and that dirty wounded were more likely to get infected again.

**Surgery types**

The research also discovered that the surgical treatment was one of the most important variables in the development of wounds. In this investigation, traumatic trauma to the abdomen was linked to a high incidence of SSI, which was accompanied by intestinal perforation and an obstructed ventral hernia (Figure 1), which was consistent with prior findings [7].



The length of operation was also a major determinant in the development of wounds. The current investigation discovered a proportionate link between wound duration and the likelihood of SSI wounds. Wounds were a clear danger for prolonged procedures (>3h), and the conclusion was comparable in Simon et al investigation's [8].

**Age distribution and wound occurrence**

Among the most important risk factors for the infections was the person's age. The study found that older people were more likely than younger adults to have wounds (Figure 2), which was in line with Yunzhou et al findings [9].

**Gender**

In this research, we discovered that sex is not really a significant cause for surgical wounds. Our research has found that both male and female individuals have the same assessment stage, and that all of the individuals evaluated had a similar SSI rate. Alkaaki *et al.* made a similar claim [10].

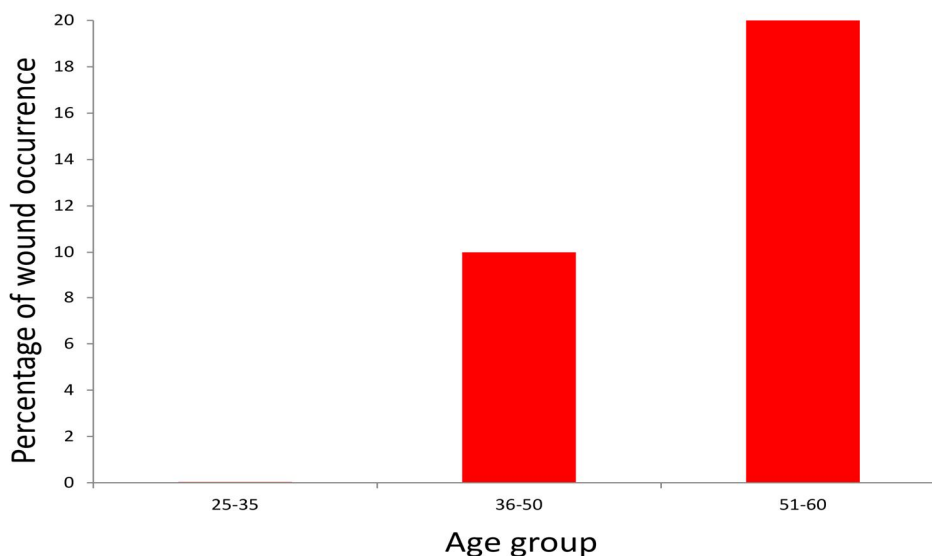
**Pre-operative preparation**

Hair elimination prior to operation (before an hour) lowered the likelihood of injury, according to the research. SSI wounds and preoperative hair care had the least connection.

### Antibiotic prophylaxis

All of the patients in this research received prophylactic antibiotic medication. However, there was no discernible effect of the drug's administration time on the occurrence of wound infection.

**Figure 2. Age range and wounds observed**



### Comorbid conditions

Comorbidities generally raise the danger of wounds in people treated abdominal surgery (Table 1). Individuals with anaemia and diabetes mellitus had a top rate of post-operative wound infection, which was consistent with the findings of a prior research by Derek *et al* [11, 12]. Individuals with concomitant illnesses such as smoking, diabetes, and anaemia had a greater incidence as those without. Numerous studies have found that smokers had a greater rate of surgical site infection than non-smokers. It has been suggested that smoking reduces tissue oxygenation, limiting healing of wounds and neutrophil defence against surgical infections [13]. Anaemia is not a known cause for wound infection after surgery. With overall lower haemoglobin levels, however, there was a greater prevalence of postoperative wound infections. Diabetes mellitus is a known risk factor because it obstructs the vasculature, resulting in decreased blood supply and oxygenation to the tissues. Masood Ahmed's investigation in Karachi backs up the findings of this study [14, 15].

**Table 1. Comorbidities and risk of wounds in abdominal surgery patients**

S no	Comorbidity	% infected
1	Anemia (Hb < 8 gm%)	14.282
2	Diabetes mellitus	16.665
3	Smoking	0.089

### Bacteriological surveillance

Microbial occurrence is one of the major risk factor for SSI occurrence in any type of surgery. Our results also revealed that the bacterial infections increased the risk of wound occurrence similar to previous study<sup>16,17</sup>. Our study also revealed that the gram positive bacteria increase the wound risk than the gram negative ones (Figure 3).

### COMPLICATIONS

Twelve of the 16 people who develop SSI experienced problems, such as Abscess with suppuration, Burst Abdomen enterocutaneous fistula, and incisional hernia (Table 2) and the wound repaired by direct extension in the other 25% of the individuals.

Figure 3. Microbial occurrence as risk factor.

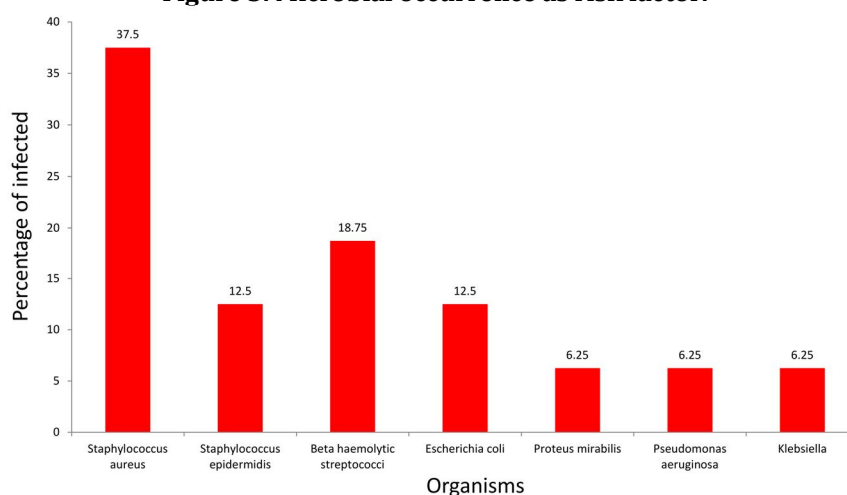


Table 2. Complications and occurrence of wounds

Sl no	Complication	No. of cases	%
1	Burst Abdomen	4	33.33
2	Abscess with suppuration	3	25
3	Enterocutaneous fistula	2	16.67
4	Incisional hernia	3	25

## CONCLUSION

In conclusion, the latest research shown that early recognition and planned treatment can prevent post-operative wounds. The age of the subjects, operation duration, comorbidities such as diabetes, and the best anti-biotic regimen were all critical factors in the study. An early and active second look is required if anaerobes are identified in necrotizing fasciitis. Simultaneously, a strong level of scepticism is the foundation of timely therapy, and no diagnostic instrument can replace clinical judgement.

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