Volume 3, Issue 3, 2025

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

PREVALENCE OF SURGICAL SITE INFECTION IN ELECTIVE AND EMERGENCY SURGERIES IN TERTIARY CARE HOSPITAL

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DOI: https://doi.org/10.5281/zenodo.15479297

Keywords
Prevalence, Surgical Site Infection, Emergency and Tertiary, Hospital

Article History
Received on 13 April 2025
Accepted on 13 May 2025
Published on 21 May 2025

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Abstract

Surgical site infections are one of the maximum not common postoperative complications and a significant challenge to patient recovery, in particular in high-convention hospitals where optionally available and emergency surgical treatment is often available. Such infections create additional morbidity, hospital stay, clinical fees, and, in some instances, extended mortality. Hazard and occurrence of SSIS are recognized to differ between selective and emergency surgery because of various affected person balance, urgency of the technique, compliance with sterile practice, and perioperative management. The existing have a look at endeavored to examine and evaluate the incidence of SSIs in select and emergency companies to ensure insight into hazard styles and precautions. A descriptive cross-sectional take a look at became carried out with a quantitative approach. An examination was conducted at the Ghurki Teaching Clinic, Lahore, and involved a sample of one hundred and fifty patients present to process optional or emergency surgery. Statistics were collected using a structured, updated questionnaire to assess various hazard factors and infection effects. Findings recognized the occurrence of surgical website online infections in patients who present emergency surgical procedures compared to those present process non-emergency surgical procedures. This finding warrants stringent, stringent measures to limit infection, especially in emergency business settings wherein practice time and patient optimization may be suboptimal. More desirable perioperative delivery protocols, employee schooling, and real-time infection tracking can successfully lessen SSI rates and basic surgical outcomes.

INTRODUCTION

Surgical website infections (SSIs) continue to be a vast problem in surgical practice worldwide despite being often a kind of medical institution contamination, which causes prolonged health center remains, increased healthcare costs, and giant affected person morbidity and mortality. The superiority of SSIs varies considerably between elective and emergency surgeries, signaling the importance of differentiating these conditions so that a specific method to save them can be pursued. This study looks at the volume of SSIs in elective and emergency operations completed at tertiary care hospitals, with an emphasis on wound sorts, infection stages, in addition to associated risk factors.

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ISSN: (e) 3007-1607 (p) 3007-1593

Surgical wounds are graded by the degree of microbial contamination, which is the main determinant of the infection threat. SSIs are defined as infections happening at or near the surgical incision within 30 days of the method or twelve months if a prosthetic device is implanted [1]. They're divided into superficial incisional, deep incisional, and organ/area infections according to the volume and area of the contamination [2]. Smooth wounds: those are the ones that can be inflamed or contaminated for the duration of the surgical operation without extending into the respiratory, gastrointestinal, or genitourinary tracts. In addition, they have the lowest rate of infection. Smooth-infected wounds: those arbitrarily seeping out of surgical procedures are the ones, for example, the gastrointestinal or breathing tract, which are controlled, underlying, and the main source of dissemination. Contaminated wounds: these are specifically resulting from gross pollutants or spillage via the gastrointestinal tract or inflammatory methods in surgical procedures. Grimy or inflamed wounds: these are those which are inflamed, or are perforated viscera, regularly met in emergency tactics [3]. Optional surgery is cautiously deliberate and finished in the highest quality situations, thereby permitting proper preoperative coaching together with management of prophylactic antibiotics, aseptic practices, and widespread patient evaluation. Emergency surgery is conducted on a spontaneous basis with less than ideal conditions, with a number of them including a lack of proper education previous to the intervention, and the usage of an unsterilized environment where contamination enhancement is favored. Those elements all make contributions to an excessive rate of occurrence of surgical site infections (SSIs) for emergency surgeries. Elective surgical tactics normally represent clean and easy-infected wounds, with emergency surgeries being common in the management of infected or grimy wounds in trauma, perforation, or a prior infection. Variations in the training of wounds significantly contribute to the occurrence rates and outcomes of SSIs. Smooth-contaminated tactics are typically encountered in the route of optional in addition to emergency surgeries and pose serious demanding situations in preliminary infection management and subsequently stringent SSI prevention and control. Such processes, hence, require controlled exposure of the microorganism, preferably inside the context of gastrointestinal or genitourinary conditions. Non-obligatory smooth-infected approaches, as soon as very well planned, accompanied by a rigorous regime of perioperative exercise, result in fewer incidences of SSIs. SSI prevalence rises in conditions wherein these tactics are poor, as in the emergency surgical exercise. For example, non-compulsory laparoscopic cholecystectomy, classified as an easy-infected technique, usually suggests a low prevalence of SSI due to enough planning and proper observation of operation situations. Emergency surgery is hugely exclusive in methods such as in appendectomies carried out following a ruptured appendix, wherein the presence of infection is distinctly predictive of a drastically elevated rate of SSIs with a historical past as a consequence of the pathological circumstance and not the best surgical treatment practices. Although the intentions of the personnel are correct, [7]. The occurrence of SSIs in tertiary hospitals is higher than in all other hospital types seeing since SSC personnel in tertiary care hospitals are referral centers; they perform the most complex and emergent surgeries. The studies conducted have shown that the purchase of SSIs in such environments is relatively excessive between 5% and 30%, with emergency surgeries being greater dominant [8]. Such aspects as excessive numbers of cases, the absence of sources, as well as the lifestyles of multidrug-resistant organisms, make the conditions at SSI-remedy hospitals only worse [9].as an example, the charge of SSIs is drastically higher in diabetic and immunocompromised sufferers present process emergent surgical procedures as compared to healthful sufferers that go through non-obligatory surgeries [10]. Time strain can be a chief impediment to the proper execution of recurring SSI prevention, i.e., sterilization of a surgical site online, especially in emergency surgical procedure processes, where the instruction time is restricted. Surgical procedures where the wounds are not sterilized or were already infected (grimy wounds) have high numbers of germs. Moreover, a large number of emergency surgical procedures involve invasive devices, extended operative times, and accelerated blood flow, all of which make contributions to the growth of SSIs [11].

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ISSN: (e) 3007-1607 (p) 3007-1593

As a consequence, in one tertiary sanatorium, an observer, by evaluating the percentage of SSIs in emergency and elective surgeries with the aid of a careful study, documented the fact that the said SSIs had a 25% upward thrust in emergency surgeries and in non-compulsory surgical procedures that had a 5% decrease. SSI management in optional and emergency surgeries is an exceedingly important area in which the fitness of an affected person may be improved and the healthcare cost may be decreased. Although planned surgeries allow the possibility for complete and adequate utilization of all SSI preventive measures, emergency surgeries additionally should devise progressive measures to reduce the risk of infection under unavoidable circumstances. The interventions may also contain the application of wide-spectrum antibiotics, top-quality surgical strategies, and postoperative care measures for wounds [13]. When you consider that they've a holistic method and are well-equipped to deal with sufferers, SSIs are pleasantly dealt with in Tertiary care hospitals. Hence, it'll be beneficial to recognize the reasons at the back of their occurrence so that a few research-backed protocols can be advanced in that setting and patient care is delivered forward. It is sure, even though there may be a lot of literature on SSIs, quite little research on the proportion of SSIs in non-obligatory and emergency surgical procedures exists, in particular in low- and center-earnings international locations where the sickness burden is irritated with the aid of a lack of resources. Therefore, this thesis might fill in the gap because it analyzes the fees of incidence, causatives, and effects of SSIs on optional and emergency surgeries as executed in a tertiary clinic. This discovery will go a long way in formulating the most appropriate strategy for the prevention of surgical site infections (SSIs) and the treatment of infected patients. From the combination of the data on risk elements and the range of the SSI prices amongst diverse hospitals, we will say that focused interventions for SSIs are important to improve surgical results, especially amongst big, technologically sophisticated hospitals in which resources are not a problems.

2. Objective of the Study

The primary objective of this study is to analyze the various factors that contribute to the development of surgical web page infections (SSIs) and to understand the unique circumstances under which they may be most in all likelihood to occur. Using figuring out those contributing factors, they look at targets to help the implementation of techniques that reduce contamination risks, improve the well-being of healthcare people, and enhance the overall quality of patient care. Furthermore, the research seeks to examine coverage development in healthcare settings with the aid of presenting evidence-based insights into infection manipulation. A key focus is also located at the prevention of SSIs via the development of knowledge, attitudes, and practices amongst healthcare experts, emphasizing the significance of training and adherence to standard protocols in minimizing postoperative headaches.

3. Result and Discussion

Surgical site infections (SSIs) are commonplace complications after surgical procedures, leading to longer hospital stays, higher healthcare charges, and increased morbidity. The superiority of SSIs varies based on surgery type, the affected person's condition, and the healthcare setting. Tertiary care hospitals, which treat complicated and high-hazard patients, provide insight into SSI costs for each non-compulsory and emergency surgery. Optional surgical procedures commonly have lower infection rates (2%-five% %), while smooth processes like hernia repair and stomach surgical treatment are less vulnerable to contamination. However, patient factors, which include diabetes, weight problems, and immunocompromised states, in addition to surgical factors like method period, can increase SSI risk. Preoperative care, consisting of the choicest nutrients, blood sugar manipulation, and antibiotic prophylaxis, is important in decreasing infection rates. Even as our study has a 150-patient sample, in which sixty (7% are elective surgery and 33.3% are surgical procedures that are Emergency, 69.3% are identified in emergency surgical operations, and 30.7% are recognized in optional surgical procedures [9].

Emergency surgical procedures, inclusive of those for trauma, bowel perforations, or appendicitis, have a

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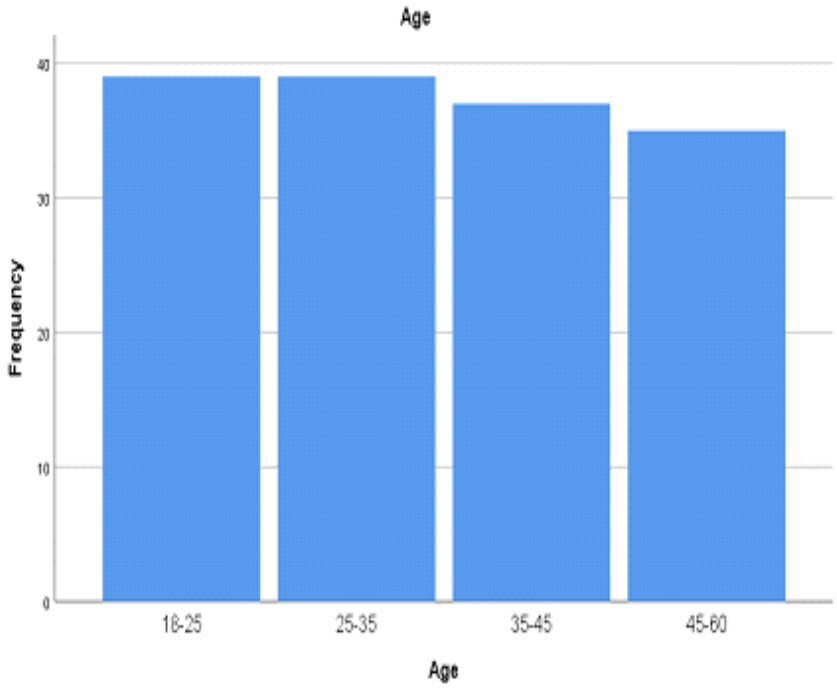
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better SSI prevalence (10%-30%) as compared to elective surgical procedures. This is because of elements like surgical procedure timing, patient instability, and poorly managed conditions. Emergency surgeries often involve malnourished or immunocompromised patients and infected surgical fields, increasing the contamination hazard.

5.1 Assessment

Age	Frequency	Percentage	Cumulative Percentage
18-25	39	26%	26%
25-35	39	26%	52%
35-45	37	24.7%	76.7%
45-60	35	23.3%	100%
Total	100	100%	

The table 5.1 illustrates the distribution of age groups; the sample is fairly evenly distributed, with 26% of participants in both the 18-25 and 25-35 age groups, each comprising 39 individuals. The 35-45 age group represents 24.7% of the sample, with 37 individuals, while the 45-60 age group, which includes 35 individuals, accounts for 23.3% of the total sample. The cumulative percentage reaches 100% by the end of the 45-60 age group, indicating that all participants are accounted for. Overall, the data suggests a balanced representation across age groups, with the majority of participants falling within the 18-45 age range.

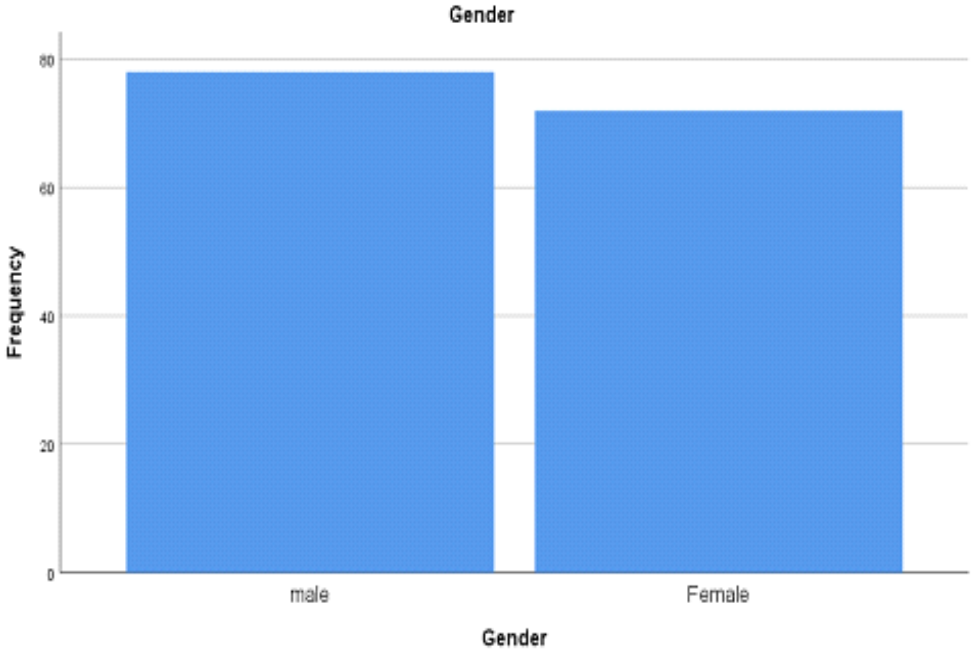


Gender	Frequency	Percentage	Cumulative Percentage
Male	78	52%	52%
Female	72	48%	100%
Total	150	100%	

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The table 5.2 presents the gender distribution within a sample of 150 individuals. Of the total sample, 52% (78 individuals) are male, while 48% (72 individuals) are female. The valid percent for each gender is the same as the frequency percentage, as there are no missing or invalid responses, and the total adds up to 100%. The cumulative percentage reaches 100% by the end of the female category, confirming that all participants are accounted for. Overall, the gender distribution is relatively balanced, with a slightly higher proportion of males in the sample compared to females.

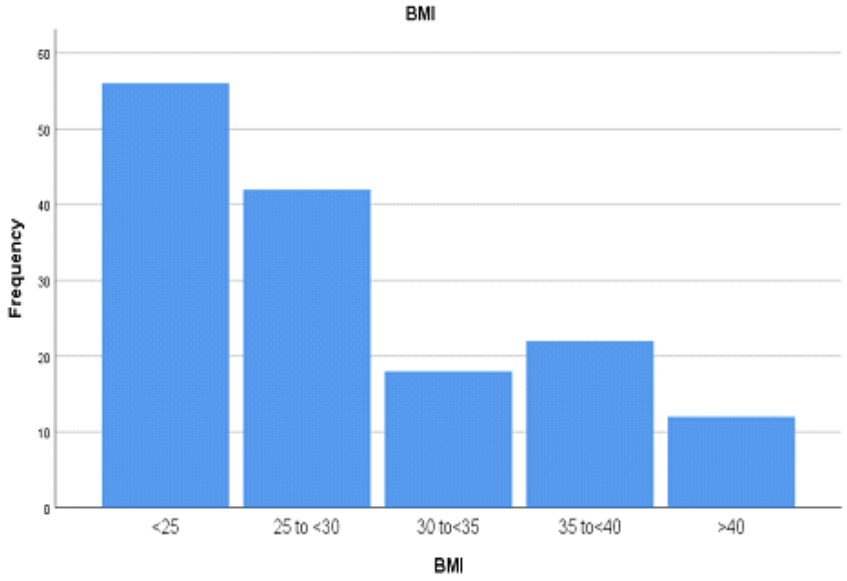


BMI	Frequency	Percentage	Cumulative Percentage
<25	56	37.3%	37.3%
25 to <30	42	28%	65.3%
30 to <35	18	12%	77.3%
35 to <40	22	14.7%	92%
>40	12	8%	100%
Total	150	100%	

Table 5.3 outlines the distribution of Body Mass Index (BMI) categories within a sample of 150 individuals. Among the participants, 37.3% (56 individuals) have a BMI of less than 25, indicating they are within the normal weight range. The next largest group, 28% (42 individuals), falls within the BMI range of 25 to less than 30, which classifies them as overweight. A smaller portion of the sample, 12% (18 individuals), has a BMI between 30 and less than 35, categorizing them as obese. Additionally, 14.7% (22 individuals) fall into the BMI range of 35 to less than 40, and 8% (12 individuals) have a BMI greater than 40, indicating severe obesity. The cumulative percentage reaches 100%, confirming the inclusion of all participants in the dataset. Overall, the majority of the sample has a BMI under 30, with a significant portion classified as overweight or obese, suggesting a higher prevalence of weight concerns in the sample.

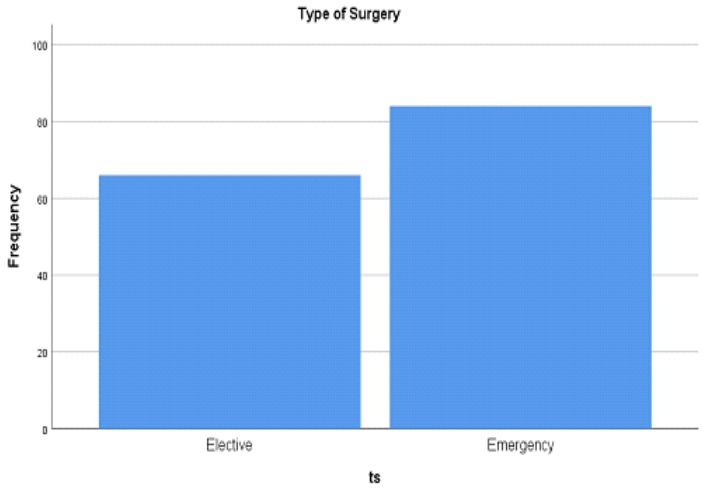
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Type of surgery	Frequency	Percentage	Cumulative Percentage
Elective	66	44%	44%
Emergency	84	56%	100%
Total	150	100&	

The Table 5.4 distribution of surgeries by kind, there are more emergency surgeries than elective procedures. 84 (56%) of the 150 surgeries performed were emergency procedures, while 66 (44%) were elective procedures. This means that the sample population has a higher frequency of emergency surgery compared to elective surgeries. The cumulative proportion indicates that all surgeries are classified by the time all cases are counted, with emergency procedures accounting for a large number of cases.

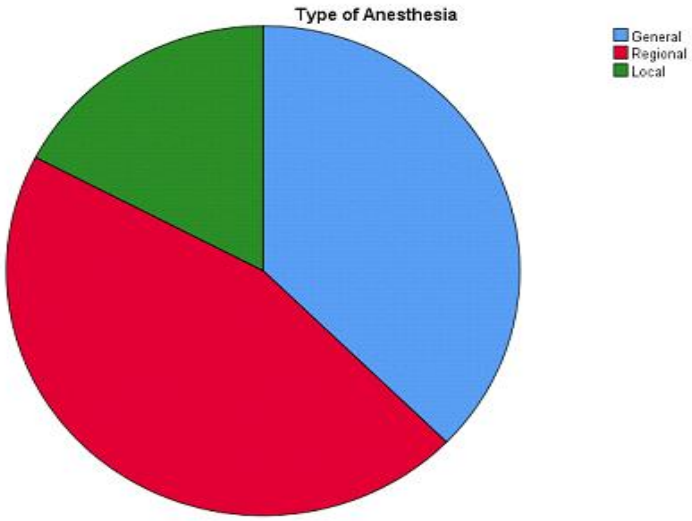


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Types of anesthesia	Frequency	Percentage	Cumulative Percentage
General	56	37.3%	37.3%
Regional	68	45.3%	82.7%
Local	26	17.3%	100%
Total	150	100%	

The table 5.6 shows the distribution of participants based on the type of anesthesia used within a sample of 150 individuals. The majority of participants, 45.3% (68 individuals), received regional anesthesia, making it the most common choice. General anesthesia was used for 37.3% (56 individuals) of the sample, while 17.3% (26 individuals) underwent procedures with local anesthesia. The cumulative percentage reaches 100%, confirming that all participants are accounted for. Overall, regional anesthesia is the most frequently used type, followed by general and local anesthesia, indicating a preference for regional anesthesia in the sample.



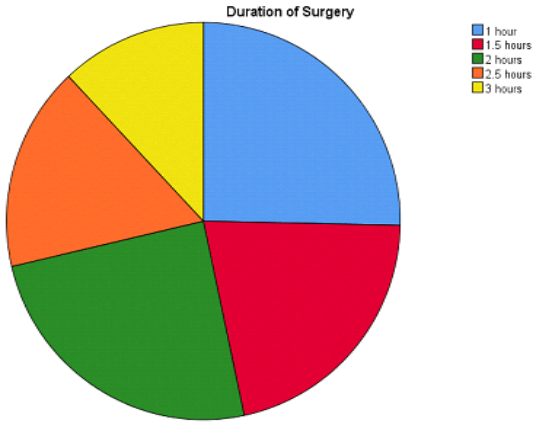
Duration of surgery	Frequency	Percentage	Cumulative Percentage
1 hour	38	25.3	25.5%
1.5 hours	32	21.3	46.7%
2 hours	37	24.7	71.3%
2.5 hours	25	16.7	88%
3 hours	18	12	100%
Total	150	100%	

Table 5.7 presents the distribution of participants based on the duration of their surgery within a sample of 150 individuals. The largest group, 25.3% (38 individuals), experienced surgeries lasting 1 hour, followed closely by 24.7% (37 individuals) with surgeries lasting 2 hours. A smaller portion of the sample, 21.3% (32 individuals), underwent surgeries lasting 1.5 hours. The remaining participants were divided into those with surgeries lasting 2.5 hours (16.7%, 25 individuals) and 3 hours (12%, 18 individuals). The cumulative percentage reaches 100%, indicating that all participants are accounted for. In summary, most surgeries in the sample were relatively short, with the majority lasting between 1

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and 2 hours, while a smaller proportion had longer surgery durations.



Conclusions

This study affords valuable insights into the superiority of surgical site infections (SSIs) in both elective and emergency surgical procedures conducted in tertiary care hospitals. The findings suggest that SSIs are a giant challenge, with a superb percentage of sufferers developing infections post-surgical procedure, in particular in those undergoing emergency methods. The data found various factors influencing the incidence of SSIs, such as the kind of surgery, period of medical institution stay, and presence of comorbidities. While most patients confirmed advantageous final results with complete restoration, a sizable wide variety skilled prolonged hospitalization or even mortality due to those infections.

The high occurrence of SSIs underlines the need for rigorous infection management measures, proper preoperative antibiotic prophylaxis, and timely identification and treatment of infections. It's also essential for healthcare establishments to beautify affected person education, improve hygiene protocols, and enforce standard surveillance to minimize the risk of SSIs, particularly in excessive-risk affected person populations. Typically, the take a look at emphasizes the critical significance of addressing and preventing surgical site infections to enhance patient outcomes and reduce healthcare-associated complications in each elective and emergency surgeries.

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