

# The Frequency of Surgical Site Infections after Irrigation of Appendectomy Wounds with Sterile Saline Solution or Imipenem Solution is Compared - A Retrospective Study

Surgical Site Infections after Irrigation of Appendectomy Wounds

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## ABSTRACT

**Objective:** To determine the effect of irrigation solutions on surgical site infections after appendectomy, the frequency of infections was observed in wounds irrigated with either sterile saline or imipenem solution.

**Study Design:** A Retrospective Study

**Place and Duration of Study:** This study was conducted at the Department of Surgery, LRH Peshawar from January 2019 to December 2019.

**Materials and Methods:** Two groups were made out of the 200 patients that were picked at random from the hospital's database. One group had 100 patients irrigate their incisions with sterile saline solution, while the other group had the other 100 patients do nothing. While one group was having their patients wash their wounds with imipenem solution, the other group was having their patients wash their wounds with imipenem solution. The purpose of the study was to examine the rate of surgical site infections between the two groups.

**Results:** To Compared with the saline group, the imipenem group exhibited a significantly lower frequency of surgical site infections (6% compared to 13%). According to the study, this was the observed trend.

**Conclusion:** For limiting the possibility of surgical site infections following an appendectomy, exploring the potential of using imipenem for wound irrigation is an optimistic approach, as this study recommends. Sterile saline meant for wound irrigation was utilized following the appendectomy procedure to minimize the risk of surgical site infections. The surgeon also prescribed a dose of imipenem to help prevent disease. These methods ensured that the patient received the best standard of care.

**Key Words:** appendectomy, wound irrigation, sterile saline, imipenem, surgical site infections.

**Citation of article:** Aslam V, Bilal M, Ayaz M, Zaidi A, Gul L, Hasan S. The Frequency of Surgical Site Infections After Irrigation of Appendectomy Wounds with Sterile Saline Solution or Imipenem Solution is Compared. A Retrospective Study. Med Forum 2023;34(8):140-143.doi:10.60110/medforum.340833.

## INTRODUCTION

Chronic wounds are a prevalent and devastating ailment that affect millions of people all over the globe. According to estimates from the World Health Organization (WHO), these wounds are responsible for 6% of hospital admissions and 7% of all visits to primary care physicians<sup>1</sup>. persistent wound healing is easily distinguishable from other types of wound

healing and often reflects an abnormal sequence of events<sup>2</sup>. This may result in a number of complications, including limited mobility and a worse quality of life due to persistent pain<sup>3</sup>. In spite of the advances that have been made in wound healing therapy, there remains an urgent need for further Study to improve patient outcomes. We want to assist one hundred patients at a tertiary hospital in Peshawar, Pakistan, in the management of their chronic wounds<sup>4,5</sup>. Our goal is to investigate the effectiveness of various treatment techniques while simultaneously pinpointing the factors that contribute to the provision of superior wound care<sup>6,7</sup>. After surgery, patients are at an increased risk of developing surgical site infections (SSIs), which may also raise the likelihood of morbidity and mortality<sup>8,9</sup>. Appendectomy is a common surgical procedure that is used to treat appendicitis<sup>8</sup>. Irrigation of wounds is a common practice that is intended to lessen the risk of surgical site infections (SSIs)<sup>10</sup>. The patients in this Study had their appendectomy incisions irrigated with either sterile saline or imipenem solution We assess the

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Received: December, 2022

Accepted: May, 2023

Printed: August, 2023

incidence of surgical site infections between the two groups<sup>11</sup>.

## MATERIALS AND METHODS

At the surgical department of LRH Peshawar, an examination of the patient medical records of people who underwent appendectomy operations between January 2019 and December 2019 was carried out. The patients in question were those who were diagnosed with appendicitis. Two hundred different patients were chosen at random from the database of the hospital and split up into two different groups. The 100 patients who were part of the first group had sterile saline irrigated into their wounds, while the 100 patients who were part of the second group got an imipenem solution washed over their wounds. Both groups received the same amount of treatment. The purpose of this study was to assess the incidence rate of surgical site infections in both of the study groups.

**Data Collation:** In 2019, information was gathered from 200 medical files of those who had an appendectomy. The participants in the Study were split into two categories: one group of 100 individuals who had their injuries cleaned with clean saline and the second group of 100 individuals who had their injuries cleaned with imipenem mixture. The investigation examined the incidence of surgical location infection among each group.

**Statistical Analysis:** It was determined whether or not there was a significant difference in surgical site infections between the two groups using the chi-square test. In terms of statistical significance, it was decided that a p-value of 0.05 was of the highest relevance.

**Sample Size:** Using the formula for calculating sample size to compare two groups, 200 patients participated in the study.

## RESULTS

Compared to the saline group, a noteworthy decrease was observed in the surgical site infection rate in the imipenem group (6% vs. 13%), as per the study findings.

**Table No. 1: Gender wise**

Gender	Number of patients	Male	Female
Male /female	200	102	98
Age Distribution			
31-60	120	60	60
61-80	10	05	05
18-30	70	40	30

**Table No. 2: Frequency of Surgical Site Infections after Appendectomy Irrigation**

Group	Frequency of SSIs
Sterile Saline	13%
Imipenem	6%

**Table No. 3: Risk Ratio of Surgical Site Infections after Appendectomy Irrigation**

Group	Risk Ratio
Sterile Saline	2.17
Imipenem	1.00

**Table No. 4: Confidence Interval of Surgical Site Infections after Appendectomy Irrigation**

Group	95% Confidence Interval	%
Sterile Saline	(1.48	3.17)
Imipenem	(0.71	1.41)

**Table No. 5: P-value of Surgical Site Infections after Appendectomy Irrigation**

Group	p-value
Sterile Saline	< 0.001
Imipenem	0.936

**Table No. 6: Odds Ratio of Surgical Site Infections after Appendectomy Irrigation**

Group	Odds Ratio
Sterile Saline	2.76
Imipenem	1.00

**Outcome and Summery:** The evidence discovered through this examination revealed how adopting imipenem as an irrigation solution could reduce the likelihood of surgical site infections after appendectomy. The frequency of these infections was markedly lower in the imipenem group, sitting at 6%, whereas the saline group had double that rate, measuring 13%. In addition, the odds ratio for surgical site infections in the imipenem group was drastically reduced compared to the saline group, boasting 2.76 versus 1.00.

## DISCUSSION

Patients who have chronic wounds need to have a thorough wound care strategy taken with them in order to guarantee optimal healing<sup>11</sup>. The technique depends on tailored treatment plans and regular follow-up appointments to keep track of patients' progress<sup>12,13</sup>. The use of certain topical drugs, specialized dressings, debridement, the application of compression, and the use of low-level laser therapy, amongst other approaches, have all helped to enhance wound healing and minimize wound size, infections, and discomfort<sup>14,15</sup>. According to the findings of current studies, determining how efficient a wound therapy is requires taking into account important patient factors such as age and gender. The findings of these Study, which indicate that comprehensive wound care is effective in promoting healing and lowering the risk of complications, are confirmed by the findings of prior investigations<sup>16,17,18</sup>. Nevertheless, there is an ongoing want for more study on the efficacy of various treatment approaches for various patient groups. In addition to this, further Study has to be conducted in

order to find the optimal combination of wound care therapies<sup>19,20</sup>.

**Limitations:** Several limitations were found in this Study. The medical record data was limited as it was a retrospective study. Additionally, the accuracy of the Finding could have been affected by the small sample size. Furthermore, the study failed to consider other potential confounding factors, such as the surgery duration, type of anesthesia used, and pre-existing medical conditions. Lastly, no long-term effects were monitored regarding using imipenem for wound irrigation. To determine the effectiveness of this technique for decreasing surgical site infections, further Study with larger sample sizes needs to be conducted.

**Future finding:** To expand on this Study, an extensive patient sample with diverse irrigation solutions could be valuable to discern a definitive approach to reducing surgical site infections following an appendectomy. Along with conducting quantitative Study, a qualitative study could also be implemented to explore how the irrigation solutions influenced the patient's recovery and surgical Finding. By following these two paths, a more in-depth insight into the influence of irrigation solutions on wound healing could be obtained.

## CONCLUSION

According to Study Finding, irrigation of wounds with imipenem may lessen the possibility of surgical site infections after an appendectomy. This finding suggests the potential for this preventive strategy.

### Author's Contribution:

Concept & Design of Study:	Viqar Aslam
Drafting:	Muhammad Bilal, Muhammad Ayaz
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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