

# To Assess the Efficacy of Postoperative Antibiotics after Appendectomy in Patients with Non-Perforated Appendicitis

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## Abstract

**Background:** Appendicitis is the most common cause of acute abdominal pain, requiring surgical intervention and appendectomy is the most frequently performed emergency surgery. The present study was conducted to assess the efficacy of postoperative antibiotics after appendectomy in patients with non-perforated appendicitis. **Subjects and Methods:** The present study was conducted on 52 patients of appendectomy of both genders. Patients were divided into two groups. Group I patients did not receive post-operative antibiotic. Group II patients received postoperative antibiotic. **Results:** Age group 20-40 years had 12 patients in group I and 10 in group II, 40- 60 years had 9 in group I and 12 in group II and >60 years had 5 in group I and 4 in group II. The difference was non- significant ( $P > 0.05$ ). SSI positive was seen in 11 in group I and 2 in group II, SSI negative was seen in 15 in group I and 24 in group II. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that surgical site infection was relatively less in patients who received post operative antibiotics than those who did not receive antibiotics.

**Keywords:** Antibiotics, Perforated appendicitis, Surgical site infection.

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## Introduction

Appendicitis is the most common cause of acute abdominal pain, requiring surgical intervention and appendectomy is the most frequently performed emergency surgery. Up to 20% of the population has a lifetime risk of developing acute appendicitis.<sup>[1]</sup> Cases of non-perforated appendicitis (NPA) and perforated appendicitis (PA) are categorized as clean contaminated and contaminated, respectively. Several studies have proven the efficacy of preoperative prophylactic antibiotics in reducing postoperative infectious complications after appendectomy. Patients with perforated appendicitis after appendectomy are universally treated with a variable course of postoperative therapeutic antibiotics because of heavy contamination of wound and peritoneal cavity. However, the role of postoperative antibiotics in reducing infectious complications in NPA is still controversial.<sup>[2]</sup>

If untreated the acute appendicitis leads to perforation with abscess or secondary peritonitis with bacteraemia and septicemia. Several studies have been conducted to determine the efficacy of perioperative antibiotic use as a means of preventing post operative surgical site infections. Most of the studies support single preoperative dose of second generation cephalosporins and metronidazole to reduce the surgical site infection in non-perforated appendicitis.<sup>[3,4]</sup> The present study was conducted to assess

the efficacy of postoperative antibiotics after appendectomy in patients with non-perforated appendicitis.

## Subjects and Methods

The present study was conducted in department of General Surgery. It comprised of 52 patients of appendectomy of both genders. The study was approved from ethical committee. All patients were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was noted. Patients were divided into two groups. Group I patients did not receive post-operative antibiotic. Group II patients received postoperative antibiotic. Patients were subjected to RBS, USG abdomen, viral markers, protein status etc. All the patients received a pre-operative dose of cefuroxime sodium and metronidazole. Open appendectomy was performed by the standard operating technique through right lower quadrant incision. The wound was closed primarily in all the patients after washing with normal saline. All the appendices were sent for histopathological examination. P value  $< 0.05$  was considered significant.

## Results

[Table 1] shows that group I patients did not receive post-operative antibiotic. Group II patients received postoperative antibiotic.

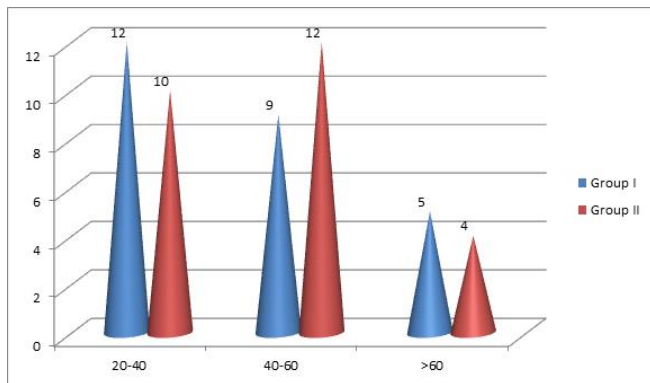
**Table 1: Distribution of patients**

Total- 52		
Group	Group I (No post-operative antibiotic)	Group II (No post-operative antibiotic)
Number	26	26

**Table 2: Age wise distribution of patients**

Age group (Years)	Group I	Group II	P value
20-40	12	10	0.41
40-60	9	12	0.05
>60	5	4	0.91

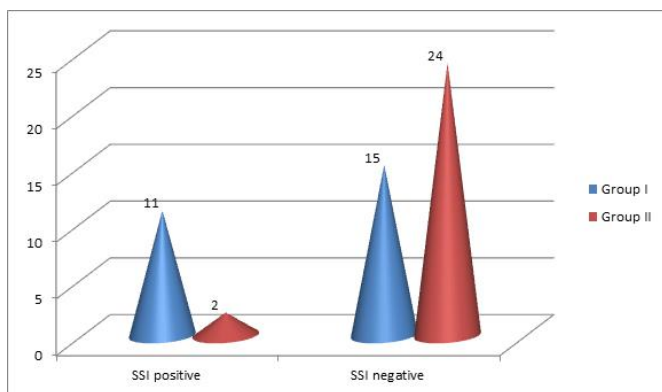
[Table 2, Figure 1] shows that age group 20-40 years had 12 patients in group I and 10 in group II, 40- 60 years had 9 in group I and 12 in group II and >60 years had 5 in group I and 4 in group II. The difference was non-significant ( $P > 0.05$ ).



**Figure 1: ?**

**Table 3: Surgical site infection in both groups**

Surgical infection site	Group I	Group II	P value
SSI positive	11	2	0.01
SSI negative	15	24	0.05



**Figure 2: Surgical site infection in both groups**

[Table 3 & Figure 2] shows that SSI positive was seen in 11 in group I and 2 in group II, SSI negative was seen in 15 in group I and 24 in group II. The difference was significant ( $P < 0.05$ ).

## Discussion

The role of postoperative antibiotics in reducing infectious complications in NPA is still controversial. The practice of prescribing postoperative antibiotics varies enormously around the globe and no consensus exists on whether postoperative antibiotics are beneficial for preventing infectious complications in NPA.<sup>[5]</sup> Patients with perforated appendicitis after appendectomy are universally treated with a variable course of postoperative therapeutic antibiotics because of heavy contamination of wound and peritoneal cavity. The incidence of postoperative SSIs after appendectomy in patients with NPA has been reported to range from 0% to 11%. The stage of the disease process at the time of operation and the use of appropriate prophylactic antibiotics significantly affects the risk for postoperative SSIs in addition to patient's factors.<sup>[6]</sup> The present study was conducted to assess the efficacy of postoperative antibiotics after appendectomy in patients with non-perforated appendicitis.

In present study, group I patients did not receive post-operative antibiotic. Group II patients received postoperative antibiotic. Ravari et al,<sup>[7]</sup> conducted a study in which one hundred and fifty two patients, who underwent appendectomy for non-perforated appendicitis (NPA) and fulfilled the selection criteria, were randomized into two groups. Group A patients received a single dose of preoperative antibiotics (ceftriaxone and metronidazole) and group B patients received the same regimen, in addition, antibiotics were administered 24 hours postoperatively. Patients of both groups were followed-up for 30 days to assess the postoperative infectious complications. Both groups comprised 76 patients, as well both groups were compared in baseline characteristics. Statistically, there was no significant difference in rates of SSIs between both groups. None of the patients developed intra-abdominal collection.

We found that SSI positive was seen in 11 in group I and 2 in group II, SSI negative was seen in 15 in group I and 24 in group II. Age group 20-40 years had 12 patients in group I and 10 in group II, 40- 60 years had 9 in group I and 12 in group II and >60 years had 5 in group I and 4 in group II. Mui and coworkers<sup>8</sup> conducted a randomized trial on 269 patients to define the optimum duration of prophylactic antibiotics in NPA. They found no significant difference in the wound infection rate between three study groups, who received varied period of prophylactic antibiotics. They concluded that single dose of pre-operative antibiotic could adequately prevent the postoperative infective complications.

Noaman et al,<sup>[9]</sup> conducted a study in which three hundred and seventy seven patients were randomized into two groups. The patients in group A received a single dose of pre-operative antibiotics, while the group B patients received one more dose of the same antibiotics postoperatively. Patients of both the groups were followed-up for 30 days to assess the postoperative infective complications. Group A had 195, while group B comprised

of 182 patients. The groups were comparable in the baseline characteristics. Statistically there was no significant difference in rates of SSIs between both the groups ( $p = 0.9182$ ). Mean hospital stay was  $2.29 \pm 0.81$  and  $2.35 \pm 0.48$  days for group A and B respectively ( $p = 0.4403$ ). None of the patients developed intra-abdominal collection. Le and associates,<sup>[10]</sup> retrospectively compared patients of NPA, who received a single dose of pre-operative antibiotics with those who were given postoperative antibiotics in addition to pre-operative prophylaxis. They observed no significant difference in SSIs rate between the groups (10% vs. 9%,  $p = 0.64$ ).

## Conclusion

Authors found that surgical site infection was relatively less in patients who received post operative antibiotics than those who did not receive antibiotics.

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