

TO FIND THE INCIDENCE OF POST OPERATIVE WOUND INFECTION IN UNCOMPLICATED ACUTE APPENDICITIS CASES USING SINGLE DOSE PREOPERATIVE ANTIBIOTIC

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Abstract

Background: The current practice in our hospital after appendectomy for uncomplicated acute appendicitis is continuation of antibiotics post operatively for 3- 5 days. No study regarding the duration of antibiotic use after appendectomy for acute uncomplicated appendicitis has been done in this institution before.

Methods: This randomized control prospective study was conducted in IGMC SHIMLA from August 2017 to July 2018. Cases of uncomplicated acute appendicitis undergoing emergency open appendectomy were included in this study.

Results: Out of 50 patients in group A, 5 (10%) developed wound infection. Out of 50 patients in group B, 4 (8%) patients developed wound infection. Over all incidence of wound infection was 9%.

Conclusion: Frequency of post operative wound infection is generally very low in uncomplicated appendicitis and single dose pre operative antibiotics are effective in preventing post operative wound infection.

Keywords: Uncomplicated appendicitis, SSI, Wound.

Introduction

The most frequent complication after appendectomy is surgical site infection (SSI). Surgical site infection may manifest as fever, erythema, pus discharge, intra-abdominal collection, wound dehiscence within 30 days of surgery.

The efficacy of antibiotic prophylaxis in patients undergoing appendectomy has been examined in several randomized and observational studies showing that appropriate use of antibiotics reduces the risk of SSI following appendectomy by 40-60%¹⁻². These antibiotics are continued in postoperative period with different courses and combinations according to each case.

This seems logical and necessary for perforated cases due to peritoneal and wound contamination. There is 3 times increase in wound infection, 15 fold increase in intra-abdominal abscess and mortality may be 50 times greater in complicated appendicitis³.

In non-perforated cases, however their usage is controversial. Many studies have supported the use of single pre-operative dose of antibiotic to reduce the rate of SSI in non-perforated uncomplicated appendectomy⁴⁻⁵.

The current practice in our hospital after appendectomy for uncomplicated acute appendicitis is continuation of antibiotics post operatively for 3- 5 days. No study regarding the duration of antibiotic use after appendectomy for acute uncomplicated appendicitis has been done in this institution before.

Material and Methods

This randomized control prospective study was conducted in IGMC SHIMLA from August 2017 to July 2018. Cases of uncomplicated acute appendicitis undergoing emergency open appendectomy were included in this study.

Inclusion Criteria: All patients aged 10-60 years undergoing emergency open appendectomy for acute uncomplicated appendicitis, in the Department of General Surgery, IGMC Shimla were included in this study.

Exclusion Criteria: The following patients were excluded from the study:-

1. Complicated appendicitis cases (appendicular mass, gangrene, perforation and abscess).
2. Patients with pregnancy
3. Patients with other co morbidities like immune compromised state, diabetes, carcinoma and patients on steroids.
4. Co morbid conditions requiring antibiotics.
5. Patients who had received antibiotics within 72 hours of admission
6. History of symptoms more than 3 days
7. Cases lost to follow up
8. Allergic to the respective antibiotics
9. Refused to give consent

Ethical approval was taken from the ethical committee of IGMC Shimla.

A detailed history was taken and thorough clinical examination was done in each case. Appropriate investigations were done as per Performa. Written informed consent was taken in each case.

Patients who were diagnosed with uncomplicated appendicitis and fulfilled the inclusion criteria were randomized alternatively in two groups A and B. Pre operatively Intravenous Cefuroxime 1.5 gm and Metronidazole 500 mg were given to patients of both groups at induction of spinal anaesthesia. Group A patients received no antibiotics in the post operative period and Group B patients received cefuroxime and metronidazole post operatively for 5 days.

Patients in group B were given i.v. antibiotics until they could tolerate semi-solid or solid diet when i.v. antibiotics were substituted by oral formulae, Cefuroxime 500 mg twice/ day and Metronidazole 400 mg three times/day.

Open appendectomy was performed by senior residents / consultants through right lower quadrant incision (McBurney Incision) by muscle-splitting approach and appendix was removed in the standard fashion. Peritoneum was mopped dry with no peritoneal washing after the appendix was removed. The peritoneum, oblique muscles were closed with 2/0 chromic catgut sutures. External oblique apponeurosis closed with vicryl no 1 and the skin was closed with skin stapler. No wound lavage or local antibiotics were given. Operating time was recorded from the time of first incision to the finishing of the final skin staple. Operative findings were noted. Specimen of appendix was sent for histo pathological confirmation in each case.

The results were statistically evaluated and analysed by Chi Square test.

Results

This study is comprised of 100 cases of uncomplicated acute appendicitis undergoing emergency open appendectomy from August 2017 to July 2018 in IGMC Shimla.

Table 1: Comparison of age distribution between two groups

VARIABLE	Range	Group A		Group B	
		%	(number)	%	(number)
Age	Below 20	54%	27	52%	26
	21-40	34%	17	32%	16
	41-60	12%	6	16%	8

The age of the patients in both the groups ranged from 10 to 60 years. Mean age in group A was (23.3±10) years and in group B was (26.6±12) years. The youngest patient in

group A was 10 years of age, whereas in group B was of 11 years. The oldest patient in group A was 52 years old and in group B was of 60 yrs. Most of the patients in both the groups were in the age group of 10 to 20 years. There was no statistically significant difference between the two groups (p value- 0.846).

Table 2: Comparison of sex distribution between two groups)

VARIABLE	Options	Group A		Group B	
		%	(number)	%	(number)
Sex	Male	56%	28	48%	24
	Female	44%	22	52%	26

In group A, the total males were 28(56%) and total females were 22(44%). Similarly in group B, there were 24 (48%) male and total females were 26(52%). There was no statistically significant difference between the two groups (p-value - 0.423).

Table 3: Comparison of wound infection between two groups

VARIABLE	Options	Group A		Group B	
		%	(number)	%	(number)
Wound Infection	Yes	10%	5	8%	4
	No	90%	45	92%	46

Out of 50 patients in group A, 5 (10%) developed wound infection. Out of 50 patients in group B, 4 (8%) patients developed wound infection. Over all incidence of wound infection was 9%. Out of 5 patients in group A who developed wound infection all had increased total leukocyte count with a mean of 14.8 thou/ul. Out of 4 patients in group B who developed wound infection all had increased total leukocyte count with a mean of 15.2 thou/ul. There was no statistically significant difference between the two groups (p value- 0.727).

Discussion

This randomized control prospective study was conducted in IGMC SHIMLA from August 2017 to July 2018. 100 patients of uncomplicated acute appendicitis undergoing emergency open appendectomy were included in this study.

Patients were divided alternatively in two groups i.e. group A and group B. Each group had 50 patients each. Pre operatively Intravenous Cefuroxime 1.5 gm and Metronidazole 500 mg were given to patients of both groups at induction of spinal anaesthesia. Group A patients received no antibiotics in the post operative period and Group B patients received cefuroxime and metronidazole post operatively for 5 days.

Out of 50 patients in group A, 5 patients (10%) developed wound infection. Out of 50 patients in group B, 4 patients (8%) patients developed wound infection.

Overall incidence of wound infection in our study was 9%. This observation is consistent with the study performed by Ali K et al⁶ who observed wound infection in 7% of cases of uncomplicated appendicitis who underwent open appendectomy.

In our study there was no statistically significant difference between rate of wound infection between two groups (10% vs 8%).

This observation is consistent with the study performed by Mui et al⁷ who compared the rate of wound infection for non perforated appendicitis in three groups. A total of 269 patients aged 15–70 years with non perforated appendicitis undergoing open appendectomy were included in the study. All patients received cefuroxime and metronidazole.

Conclusion

Frequency of post operative wound infection is generally very low in uncomplicated appendicitis and single dose pre operative antibiotics are effective in preventing post operative wound infection.

References

1. Hussain MI, Mohammed KA, Harnad HA-Q, Role of postoperative Antibiotics after appendicectomy in non perforated appendicitis. *J Coll Physicians Surg Pak* 2011;22;756-9
2. Fraser JD, Aguayo P, Leys CM, Keckler SJ, Jewland JG, Sharp SW, et al. A complete course of intravenous antibiotics vs a combination of intravenous and oral antibiotics for perforated appendicitis in children ; a prospective, randomized trial. *J Podiatry Surg* 2010;45;1198-202.
3. Ein SH, Nasr A, EinA, Open appendectomy for paediatric ruptured appendicitis, a historical clinical review of the prophylaxis of wound infection and postoperative intra abdominal abscess. *Can J Surg* 2013;56:7-12
4. Bauer T, vennits B, Holm B, et al; Danish Multicenter Study group III. Antibiotic prophylaxis. *Ann Surg* 1989;209:307-11.
5. Winslow RE, Dean RE, Harley JW. Acute non perforating appendicitis. Efficacy of brief antibiotic prophylaxis. *Arch Surg* 1983;118:651-5.
6. Ali K, [Latif H](#), Ahmed S Frequency Of wound infection in non-perforated appendicitis with use of single dose preoperative antibiotics.
7. Mui Lik, Calvin S, Simon K, H Wong. Optimum duration of prophylactic antibiotics in acute non perforated appendicitis. *ANZ JSurg* 2005 ;75:425-28.