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RESEARCH ARTICLE

INTERVAL APPENDICECTOMY CAN BE PERFORMED WITHOUT ANTIBIOTIC PROPHYLAXIS

[1]Hemanth Sureshwara Ghalige, *[1]Karthik, K., [1]Sanjeev Somashekar Rathod, [1]Zochampuia Ralte, [2]Manohar S. K., [3]Prasad V. N., [1]Birkumar M Sharma and [1]Sudhir Chandra Singh, Th

[1]Department of Surgery, Regional Institute of Medical Sciences, Imphal, Manipur, India – 795004
[2]Anesthesia, Regional Institute of Medical Sciences, Imphal, Manipur, India – 795004
[3]Pharmacology, Regional Institute of Medical Sciences, Imphal, Manipur, India - 795004

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ABSTRACT

Background: The most common and significant cause for morbidity following appendicectomy is surgical wound infection. There are conflicting reports regarding the optimal duration of antibiotic prophylaxis in interval appendicectomy. The efficacy of prolonged prophylactic antibiotic treatment in preventing wound infection for appendicectomy is poorly defined.
Objective: The objective of this study was to compare length of hospital stay, the rate of wound infections, post-operative fever for open interval appendectomy between no antibiotic group(A) and antibiotic group(B).
Design: Randomized Controlled trial.
Duration of study: 1st June 2012 to 31st May 2013.
Patients and Methods: The patients were divided into A and B groups and their age, time of discharge, wound infection rates were compared and analysed.
Results: Total of 100 patients were included in the study, 50 in each group. There were 58% male and 42% female patients. Mean age was 22.78 years (±6.2). The length of hospital stay in group A and group B was almost same. Wound infection was seen in 1 patient in both groups. One patient had fever in group A which was attributed to malaria.
Conclusions: with good aseptic and antiseptic precautions antibiotics can be omitted for interval Appendicectomy (clean contaminated surgery)

INTRODUCTION

Antibiotic abuse is rampant in India. Although emergency appendicectomy is gold standard treatment for symptomatic appendicitis, interval appendicectomy is performed in complicated appendicitis like appendicular lump, abscess due to delayed presentation. Presentation to the emergency room is often late owing to scarce health-care resources and ignorance of patients, emergency appendicectomy in those cases might not be feasible. Interval appendicectomy after a gap of 6 – 8 weeks is ideal in such cases. To curtail the antibiotic abuse and to know whether interval appendicectomy can be performed without a prophylactic antibiotic this study was undertaken.

Aims and objects

To study role of antibiotics in interval open appendicectomy with emphasis on post operative wound infection and length of hospitalization

MATERIALS AND METHODS

Type of study: Prospective study
Study period: 12 months

***Corresponding author: Karthik, K.** Department of Surgery, Regional Institute of Medical Sciences, Imphal, Manipur, India - 795004*

Interval appendicectomy was defined as appendicectomy Performed after a minimum interval of 6 weeks from the acute episode of symptomatic appendicitis.

Inclusion criteria

1. Symptomatic appendicitis at least 6 weeks back
2. Age group : 15-75 years

Exclusion criteria

1. Immunocompromised
2. Diabetes mellitus
3. Patient on steroid therapy
4. Leukocytosis
5. Urinary tract infection
6. Antibiotics use 7 days prior to study
7. Abnormal renal and hepatic functions
8. Allergy to cephalosporins

The patients were told about the study and possible risks of surgical site infection (SSI) and other complications before being included in the study and informed consent was taken. The patients were divided into group 1(with antibiotic) and group 2 (without antibiotic). They were allotted into groups by lottery chit method. It was a double blind study – neither the

patient nor the operating Surgeon knew which patient got antibiotic or not. All the patients were given skin test dose: group 1 with antibiotic and group 2 with distilled water.

Surgical technique

Appropriate aseptic and antiseptic precautions were followed. Skin was prepared with povidine iodine 10% and spirit. Right grid iron incision 4-5 cm was made. All surgeries were performed by single surgeon. Group1 received single dose of antibiotic (ceftriaxone and sulbactum 1.5G intravenously) preoperatively during induction of anaesthesia. Wound was opened on post operative day 3 and graded according to Southampton scoring system (Bailey *et al.,* 1992).

Southampton scoring system

Grade	Appearance of Wound
0	Normal Healing
1	Normal healing with mild bruising
2	Erythema
3	Clear discharge
4	Purulent discharge
5	Deep wound infection

Wound was classified as normal for grades 0-2, mild SSI for grade 3 and major SSI for grade 4,5. For minor SSI cases regular dressing alone was done and for major SSI cases pus culture was sent and treated accordingly. Discharge of patient was decided by the operating surgeon.

Study parameters

Demographic data: age
Wound grade
Length of hospital stay

Statistical analysis: SPSS version 16.0

RESULTS

In our study 100 patients who underwent interval appendicectomy were included and randomized into 2 groups. Mean age in group 1 was 38 years and in group 2 was 42 years. Difference in age was not statistically significant ($p>0.05$). Duration of surgery was 30 -60 minutes. In group 1(50 cases), it was observed that 8% (n=4) of cases showed evidence of SSI all of whom belonged to mild category. In group 2 (50cases), it was observed that 10% (n=5) of cases showed evidence of SSI. Of them 3 patients (6%) had mild SSI whereas 2 (4%) Patients had major SSI. Overall 9% of cases (n=9) included in the study were infected. Ninety-one patients were discharged on post-operative day 3, except 9 patients (4 in group 1 and 5 in group 2). 7 patients were discharged on post operative day 5(4 in group 1and 3 in group 2). Only 2 patients were discharged on post-operative day 9 because of major SSI.

DISCUSSION

Lack of protocol about antibiotic prophylaxis at our institution has continued for decades. The same holds true for many institutes and It is observed that in 25 to 50% of general elective surgeries, there is inappropriate antibiotic use (Silver *et al.,* 1996). Our view is supported by Cochrane systematic review which states that for patients with uncomplicated appendicitis antibiotic use was superior to placebo in reducing postoperative complications but no recommendations were made regarding the duration of antibiotic use (Andersen *et al.,* 2005). Verschuur HP concluded that there is no strong evidence that the large scale use of prophylactic antibiotics in clean and clean contaminated ear surgery was helpful in reducing postoperative complications such as wound infection, discharge from the outer ear canal, labyrinthitis and graft failure (Verschuur *et al.,* 2004). Keeping this in mind, the authors designed a study protocol to justify not using antibiotic prophylaxis in interval appendicectomy.

There is a controversy regarding the duration of antibiotic prophylaxis in acute non-perforated appendicitis. Single-dose cefazolin was equally effective as multiple-dose cefazolin in preventing postoperative wound infection in patients undergoing open appendicectomy for nonperforated acute appendicitis (Abdullah *et al.* 2012). Mui *et al*. (2000) in a randomized controlled study observed that single dose of preoperative antibiotic is adequate to prevent infective complications of wound in patients undergoing appendicectomy for uncomplicated appendicitis (Mui *et al*., 2000). Their conclusion was that prolonged antibiotic administration was cost-ineffective and led to unnecessary complications. Hence the authors made the study protocol to evaluate the effect of removing the antibiotic prophylaxis in interval appendicectomy setting. Appendicectomy wound is classified as clean contaminated wound and one dose of prophylactic antibiotic is advocated and practiced for appendicectomy. Although the intrinsic risk of infection is low for uncomplicated appendicitis, the preoperative status of the patient's appendix is typically not known. For uncomplicated appendicitis, coverage need not be extended to the postoperative period.

According to the recommendations of The American Society of Health System Pharmacists (ASHP), Cephalosporins are drug of choice for prophylaxis for nonperforated appendicitis and gentamicin with metronidazole reserved for cases with allergy to penicillin (ASHP 1999). In our study, we have used ceftriaxone and sulbactum combination for prophylaxis in group 1 and no antibiotic was given in group 2. Infection rate <10 % is documented with use of prophylactic antibiotics in various studies (Abdullah *et al.,* 2012). The present study documents infection rate of 9% in either group viz with or without prophylactic antibiotics. Infection rates are comparable with other studies. We have also observed that the duration of hospital stay were similar between 2 groups and the difference was not statistically significant.

Limitations of study

1. Small sample size
2. Cannot be generalized to emergency setting
3. Culture was not done to document SSI

Conclusion

Result from our study shows that preoperative antibiotic prophylaxis can be omitted for elective open appendicectomy if adequate aseptic and antiseptic techniques were followed.
Hospital stay and post-operative wound infection were almost same irrespective of antibiotic prophylaxis

Conflicts of interest: None

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