

Single Shot of Antibiotic in Laparoscopic Appendicectomy

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Abstract

Laparoscopic appendicectomy has gained considerable popularity, both among surgeons and patients as well for the advantage of being minimally invasive, less post operative pain and faster recovery and faster return to normal routine life. In this retrospective study 30 cases (19 male, 11 female, age range 5 to 60 year) were selected and laparoscopic appendicectomy in shri mp shah medical college, Jamnagar during 2016 to 2018 including patient came for interval appendicectomy and emergency appendicectomy (ultrasonography suggested non perforated, non gangrenous appendix). This study aims to reduce irrational antibiotic use and reduce post operative hospital stay of patient. In this study single shot of Piperacillin+Tazobactam given during operation. Overall surgical site infection rate was 10% and average hospital stay was 2.0 ± 0.4 days.

Keywords: laparoscopic; appendicectomy; single dose antibiotic.

Introduction

Appendicitis is known to mankind since ages. For the advent of laparoscopic surgery it has gained considerable popularity, both among surgeons and patients as well [6]. Laparoscopic approach has the advantage of being minimally invasive, less post operative pain and faster recovery and faster return

to normal routine life. Moreover, it also has specific role when there is any diagnostic dilemma [7]. Infection of the post operative wound site, also known as surgical site infection is also a common problem faced by most surgeons. Many factors affect the incidence of SSI, including endogenous and exogenous factors, irrational use of antibiotics leading to the emergence of resistant strains of micro organisms, leading to a longer stay in the hospital, which leads to post operative wound site infection (surgical site infection) [8]. It is also a common practice to use antibiotics when patient came for interval appendicectomy surgery.

This study aims to evaluate whether laparoscopic surgery can be performed safely on patients presenting for interval surgery with selected emergency appendicectomies (non perforated, non gangrenous) with using single dose antibiotics, thus helping to reduce the hospital stay, incidence of nosocomial infections and also reducing the cost of treatment.

Aims of Study

1. To study the rate of infection in cases of laparoscopic appendicectomy with single dose antibiotics.
2. To reduce unnecessary use of antibiotic during pre and postoperative period.
3. Avoidance of toxicity of antibiotics drug reaction, superinfection, emergence of resistant strains of micro organisms.
4. Rapid postoperative recovery of the patient, no injection pricks and no Gastro Intestinal Tract complications of antibiotics.

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5. Reduce the hospital stay and thus reducing the cost of hospitalization and reducing economical stress of the patient. We are reducing the chances of cross infection which is major factor of wound infection.

Materials and Method

This study was performed on 30 patients (19 male, 11 female) over a period of 2 years. The mean age was 24 years.

We thoroughly investigated all the patients with proforma based data collection. This includes clinical history, haematological investigations, radiological investigations chest x-ray, Ultrasonography (USG) and barium scan. CECT abdomen scan was performed in selected case only.

Single shot of Piperacillin+Tazobactam antibiotic was given during operation.

Inclusion criteria

- Patient who undergone planned laproscopic appendicectomy.
- Patient who underwent emergency laproscopic appendicectomy excluding those whose per operative findings were perforated appendix, gangrenous appendix

Exclusion criteria

- Patient those who went emergency laproscopic appendicectomy having perforated appendix, gangrenous appendix.
- Patient undergoing open standard appendicectomy.
- Patient on multiple dose of antibiotic.
- Patient treated conservatively.
- Pregnant female

Results

In this study of 30 cases of laparoscopic appendicectomy performed in Guru Gobind Singh Government Hospital in various surgical units using single dose antibiotic. This study included cases of interval laparoscopic appendicectomy as well as cases of emergency laparoscopic appendicectomy excluding those whose per operative findings were perforated appendix, gangrenous appendix. In a little word according to this study:

1. Most of the patient, whom appendicitis episode happened, belongs to 31-40 year age group (40%) (Fig. 1).
2. Appendicitis episode more occurred in male patient (63.33%) than female one (36.66%) (Fig. 2).
3. In this study majority of patients belongs to lower and upper lower socioeconomic group. (Fig. 3).
4. In this study most consistent symptom is right illiac fossa pain. (67%) followed by nausea (33.33%)(Table 2).
5. As most of patients came for interval appendicectomy, it found most of patients had normal appendix (66.67%) during operation, which leads to easier dissection, and less chances of postoperative pain and surgical site infection. In this study surgical site infection in such patients was nil (Fig. 4).
6. Patient whom peroperative observation was appendix tip inflamed or adherent (33.33%), required extensive dissection which later on results in more post operative pain episode and more hospital stay time. Also such patients have more surgical site infection rate. In this study overall surgical site infection rate (10%) (Fig. 5).
7. In this study observed that when preoperative appendix is normal, it required less dissection time, such that average duration of surgery is just 34.50 ± 9.20 minute (Table 3).
8. Most of post operative patient were discharged as soon as their pain subsides and patients tolerating orally, all because of normal preoperative appendix, less dissection, newer technology of dissection and peroperative higher antibiotic (piperacillin + tazobactam) use, which states in average postop hospital stay duration which is 2.0 ± 0.4 days.
9. In this study, half of the patients required hospitalization for only one post operative day and none of them got infected. One third of patient required hospitalization for 2 days because of pain, surgical site infection rate among them is 11.1%. One sixth of patients whom appendix dissection required more time, required hospitalization for more than 2 days for pain relief and infection rate among them is 40.00% (Fig. 6).

Table 1: Comparison with other authors study

	Soon Min Choi et al. [3]	Liberman et al. [2]	Seyed-Mohammad-reza Sadraei Moosavi et al.[1]	Himabindu et al. [4]	Yogendra D. Shah et al. [5]	Our Study
Age group	21-30	21-40	21-40	21-30	21 -30	31-40
Sex	Male	Male	Male	Male	Male	Male
Operation type	Elective -70.0% Emergency-30.0%	Elective -66.67% Emergency-33.33%			Elective-71.67% Emergency-28.33%	Elective- 73.33% Emergency-26.66%
Surgical site infection Rate	Emergency Operate-38.50% Overyall-12.5%	Emergency Operate- 32.21% Overall-11.11%	Emergency Operate-42.15% Overall - 15.6%	Emergency Operate- 39.45% Overall-13.8%	Emergency Operate Patient- 45% Overall- 11.97%	Emergency Operate- 37.5% Overall -10%
Antibiotic Used	Cefoxitin	Cefoxitin	Cefoxitin	Cefoxitin	Piperacillin+ Tazobactam	Piperacillin+ Tazobactam
Post op hospital Stay	2.5 ± 0.7 Days	3.0 ± 0.4 Days	3.1 ± 0.3 Days	2.9 ± 0.3 Days	2.0 ± 0.7 Days	2.0± 0.4 Days

Table 2: Clinical Features

Clinical Features	No.of Patient	Percentage
Fever	06	20.00%
Nausea/ Vomiting	10	33.33%
Pain In Rif	20	66.67%

Table 3: Duration of surgery

Duration in Minute	Case (n = 30)	SSI
20-40	23	1
40-60	07	2
Total	30	3

(*SSI- Surgical Site Infection)

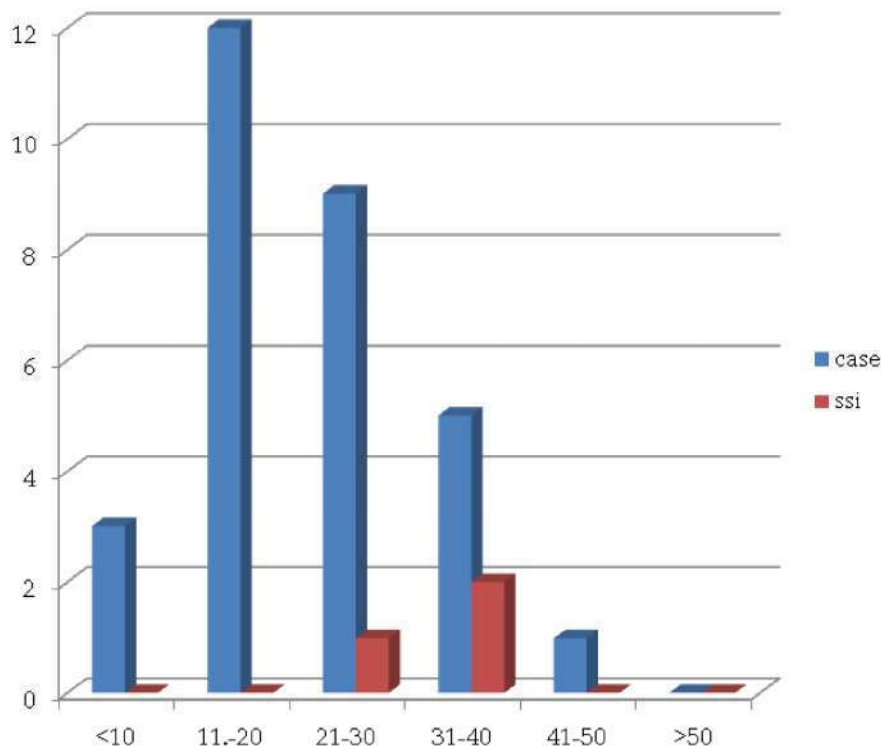


Fig. 1: Age Incidence
(*SSI- Surgical Site Infection)

Sex Incidence

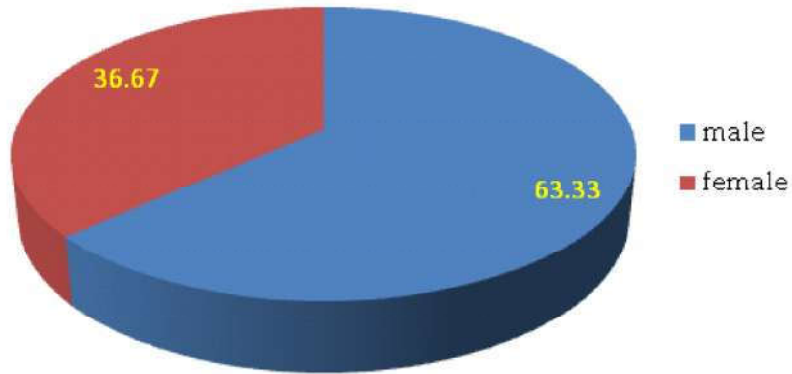


Fig. 2: Sex Incidence

Socioeconomic Class

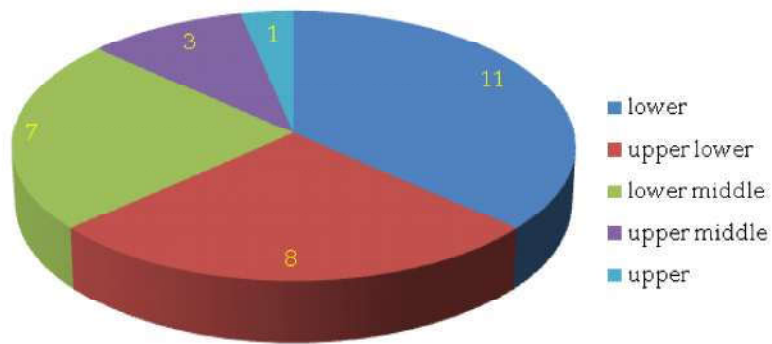


Fig. 3: Socioeconomic Class
(Kuppuswamy's Socioeconomic Status Scale)

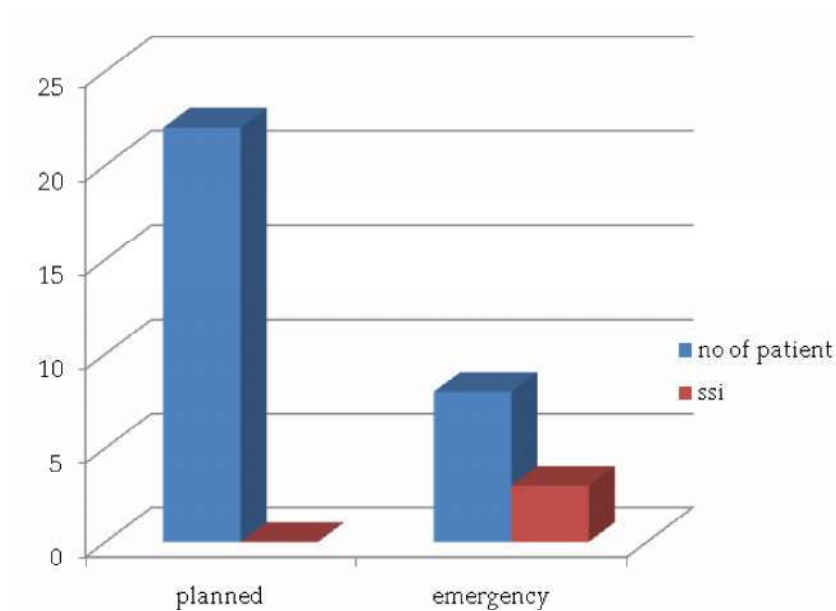


Fig. 4: Type of Operation
(*SSI- Surgical Site Infection)

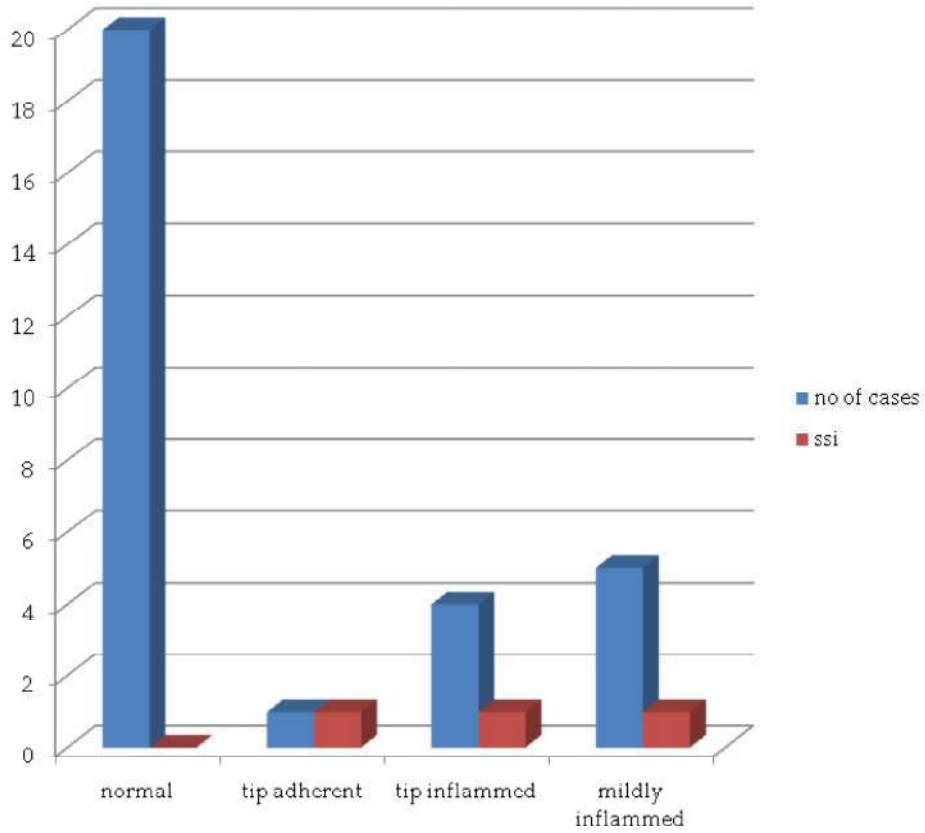


Fig. 5: Per Operative Condition of Appendix
(*SSI- Surgical Site Infection)

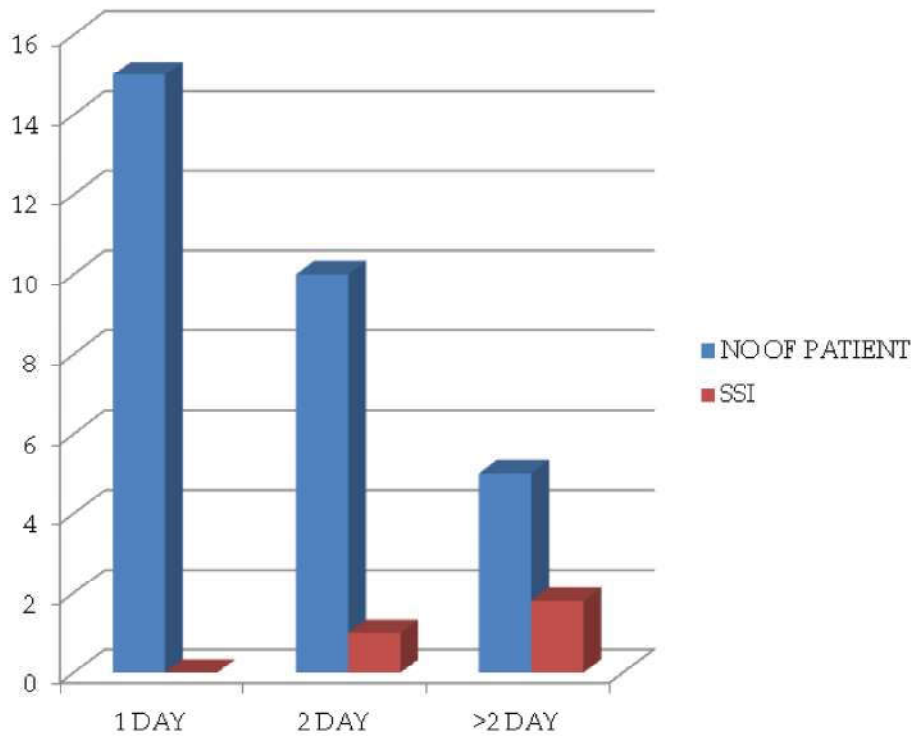


Fig. 6: Post Operative Hospital Stay
(*SSI- Surgical Site Infection)

Discussion

Most of the patient whom appendicitis episode happened, belongs to 31-40 year age group (40%), and were male as like other authors study.

Patient, whom either appendix tip inflamed or adherent (33.33%) was found, required extensive dissection which later on results in more post operative pain episode and more hospital stay time. Also such patients have more surgical site infection rate. In this study overall surgical site infection rate (10%), which is much lesser than other author study, seyed mohammadreza et al. (15.6%), himabindu et al. (13.8%) yogendra et al. (11.97%) soon min et al. (12.5%) and liberman et al. (11.11%).

In this study when peroperative appendix is normal, it required less dissection time. Such that our average duration of surgery is just 34.50 ± 9.20 min, much lesser than other authors avg 42.34 ± 8.30 min.

Our post operative patient were discharged as soon as their pain subsides and patients tolerating orally, all because of normal preoperative appendix, less dissection, newer technology of dissection and preoperative higher antibiotic (piperacillin + tazobactam) use, which states in our average postop hospital stay duration which is 2.0 ± 0.4 day compared to seyed et al 3.1 ± 0.3 days, himabindu et al. 2.9 ± 0.3 days, yogendra et al 2.0 ± 0.7 days, soon min et al. 2.5 ± 0.7 days, liberman et al. 3.0 ± 0.4 days.

Conclusion

Appendicitis is most common in the 3rd decade of life, in male than female. Most consistant complaint was pain in right iliac fossa than vomiting. The average operating time is around 35 minutes. Incidence of prolonged post operative pain is low; most patients had post operative pain for one day. Wound infection found in 10% of cases.

Thus it can be concluded that laparoscopic appendectomy is safe and effective alternative to open surgery. It can be done with the use of single dose antibiotic in selected group of patients if certain criteria's are fulfilled. Restricting the unnecessary use of antibiotic would definitely help to reduce the emergence of resistant strains of micro-organisms, chances of thrombophlebitis and associated pain, leads to less post operative hospital stayv which reduces the cost of treatment to patients as well as

decreases the economic burden on society.

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