ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 6, Issue – 3, June – 2021 , Page No. : 01 - 04

To compare the culture and sensitivity in single dose intravenous antibiotic prophylaxis over no antibiotic prophylaxis in the prevention of wound infection following Lichtenstein tension free inguinal hernioplasty

[1]Dr. Prteet Negi, MS, Department of General Surgery, Dr. Rajender Prasad Medical College Kangra Tanda H.P India

[2]Dr. Priyanka Thakur , MD, Department of Anaesthesia, Indira Gandhi Medical College, Shimla HP India

[3]Dr. Ramesh Bharti, MS, Department of General Surgery, Dr. Rajender Prasad Medical College Kangra, Tanda H.P India

[4]Dr. Amar Verma, MS, Department of General Surgery, Dr. Rajender Prasad Medical College Kangra , Tanda H.P India

[5]Dr. Rajesh Sharma, MS, Department of General Surgery, Dr. Rajender Prasad Medical College Kangra, Tanda H.P India

[6]Dr. Abhinav Sharma, MS, Department of General Surgery, Dr. Rajender Prasad Medical College Kangra ,Tanda H.P India

Corresponding Author: Dr. Priyanka Thakur , MD, Department of Anaesthesia, Indira Gandhi Medical College, Shimla HP India

Citation this Article: Dr. Prteet Negi, Dr. Priyanka Thakur, Dr. Ramesh Bharti, Dr. Amar Verma, Dr. Rajesh Sharma, Dr. Abhinav Sharma,"To compare the culture and sensitivity in single dose intravenous antibiotic prophylaxis over no antibiotic prophylaxis in the prevention of wound infection following Lichtenstein tension free inguinal hernioplasty", IJMSIR- June - 2021, Vol – 6, Issue - 3, P. No. 01 – 04.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: We conducted a study to compare the culture and sensitivity in single dose intravenous antibiotic prophylaxis over no antibiotic prophylaxis in the prevention of wound infection following Lichtenstein tension free inguinal hernioplasty

Methods: This prospective study was conducted in the Department of Surgery, Dr. Rajendra Prasad Government Medical College Kangra at Tanda from May 2018 to December 2019after being approved by institutional protocol review committe and ethics committee.50 patients were included in the study. These patients were randomised into two groups i.e. Group A (Antibiotic Group) and Group B (Non-antibiotic Group).

Results: In antibiotic group one patient developed DSSI, which was noted on 7th POD. It was in the form of purulent discharge coming from deeper layers below the external oblique aponeurosis. Sutures were removed in this patients and pus was thoroughly drained. Culture and sensitivity of pus revealed staphylococcus aureus which was sensitive to clindamycin. Initially patient was started on amoxicillin+ clavulanate, however later on patient was given clindamycin according to the sensitivity response. Later, the condition of wound improved and secondary suturing was done on 17th POD. Patient was discharged on 19th POD. The wound healed over a period of one month. There was no need for mesh removal.

Conclusion: One patient had DSSI, which belongs to Antibiotic Group (Group-A).Pus was drained and sent

for culture sensitivity. Culture sensitivity of pus revealed staphylococcus aureus sensitive to clindamycin.The wound healed over a period of one month. There was no need for mesh removal.

Keywords: Culture, Sensitivity, Antibiotic

Introduction

The Lichtenstein technique is a tension-free repair of a weakened inguinal floor using an apolypropylene mesh [1]

Perioperative antibiotic prophylaxis is defined as a single administration of antibiotics shortly before a surgical intervention. A so-called prolonged prophylaxis including the postoperative period (e.g., 1–3 days postoperatively) should be avoided as it does not reduce the number of wound infections and is associated with an increased risk of antimicrobial resistance and side effects [2] Of the various methods for adult inguinal hernia repair, mesh repair is rapidly becoming the most popular technique [3]

Surgical-site infection (SSI) is a major potential complication of any surgical procedure. The relative reduction in risk appears to be consistently around 60% across many different forms of surgery, ranging from clean to heavily contaminated procedures [4]

Material And method

This prospective study was conducted in the Department of Surgery, Dr. Rajendra Prasad Government Medical College Kangra at Tanda from May 2018 to December 2019after being approved by institutional protocol review committe and ethics committee.50 patients were included in the study.These patients were randomised into two groups i.e. Group A (Antibiotic Group) and Group B (Non-antibiotic Group).

Inclusion criteria

- All Patients of both gender above the age of 18yearswith unilateral or bilateral inguinal hernia.

Exclusion criteria

- Patients with recurrent or strangulated inguinal hernia.
- Femoral hernia and giant scrotal hernia with massive defect.
- Below 18 years of age.
- Allergic to injection Amoxicillin+ Clavulanic acid.
- With systemic diseases like diabetes mellitus.
- Liver or renal impairment.
- Patients on steroid or antibiotic therapy within a week before surgery.
- Pregnant or lactating women.
- Immunocompromised patients will be excluded from the study.

Characteristics of the study

- Participants: 50 patients who underwent inguinal mesh hernioplasty.
- Group: Group A (Antibiotic Group) and Group B (Non-antibiotic Group)
- Type of study: Randomized control clinical study.
- Randomization: By alternate method
- Intervention: Surgery-Lichtenstein tension freeinguinal mesh hernioplasty
- Medication: Group A (Antibiotic Group): Injection Amoxicillin+ Clavulanic acid 1.2gram single dose was given within one hour before skin incision in antibiotic group. The administration of the drug was done intravenously in the pre- operating room. No more antibiotic was given to these patients in the post-operative period.

- Group B (Non -antibiotic group):10millilitre normal saline was given in non-antibiotic group.

Statistical analysis

Data were expressed as frequency, percentage, mean and standard deviation. Diagnostic values were calculated using MedCalc for Windows, version 19.1.17(Med Calc Software, Ostend, Belgium).

Results

The socio-demographic variable in both groups were comparable

Table 1: Details of the patients with surgical site infection.

Group	No.	Type of SSI	POD	Organism in Culture	Antibiotic
Antibiotic group (Group-A)	1	DSSI	7th POD	Staph Aureus	Clindamycin
Non-antibiotic group (Group-B)	1	SSSI	2nd POD	Not Done	Amoxicillin + clavulanate
	2	SSSI	2nd POD	Not Done	Amoxicillin + clavulanate

SSI: surgical site infection, SSSI: superficial surgical site infection, DSSI: deep surgical site infection, POD: postoperative day.

In the Non-antibiotic group (Group-B) two patients developed SSI, which were noted on 2nd POD in the form of erythema. Thus, it was SSSI in both the patients.

In antibiotic group one patient developed DSSI, which was noted on 7th POD. It was in the form of purulent discharge coming from deeper layers below the external oblique aponeurosis. Sutures were removed in this patients and pus was thoroughly drained. Culture and sensitivity of pus revealed staphylococcus aureus which was sensitive to clindamycin. Initially patient was started on amoxicillin+ clavulanate, however later on patient was given clindamycin according to the sensitivity response. Later, the condition of wound improved and secondary suturing was done on 17th POD. Patient was discharged on 19th POD. The wound healed over a period of one month. There was no need for mesh removal.

Discussion

The present study was aimed to evaluate the role of single dose antibiotic prophylaxis in elective open inguinal mesh hernioplasty to prevent surgical site infection in the patients admitted in department of surgery, Dr. Rajendra Prasad Government Medical College Kangra at Tanda, during 1year period from May 2018 to December 2019. Total50 patients were enrolled into the study after fulfilling the inclusion and exclusion criteria.

Bidur et al. [2] reported that from a total of 60 patients (59 men and one woman), 30 in each group were enrolled. During the first follow-up, one (3.3%) patient developed wound infection from group B, whereas none (0%) of the patients developed wound infection from group A, with a P value of 0.365, which is not significant. [2]

Similarly, Aufenacker et al. reported that among 1040 patients, the number of wound infections was eight (1.6%) in the antibiotic prophylaxis group and nine (1.8%) in the placebo group, with a P value of 0.82, which is not significant [6]

Similarly, Ijaz et al. [7] reported that from a total of 100 patients who were equally divided into two groups of 50 patients each, out of one hundred patients, wound infections were found in a total of seven (7%). All the patients were equally divided into two groups of 50

each, the results showed that two (4%) patients of the antibiotic prophylaxis group had wound infection compared to five patients (10%) in the placebo group. Statistical analysis showed no significant difference in the number of wound infections in both groups (P = 0.240)

Ullah et al. [7] reported that a total of 166 cases of inguinal hernia mesh repair were recorded during the study period. In the antibiotic group, SSI was observed in six (7.2%) patients, whereas 77 (92.8%) had a healthy scar. In the placebo group, SSI was observed in 15 (18.1%) patients and 68 (81.9%) had healthy scars. The difference between the two groups was significant (P = 0.036) and it was concluded that antibiotic prophylaxis is the preferred option for mesh plasty.

Conclusion

One patient had DSSI, which belongs to Antibiotic Group (Group-A). Pus was drained and sent for culture sensitivity. Culture sensitivity of pus revealed staphylococcus aureus sensitive to clindamycin. The wound healed over a period of one month. There was no need for mesh removal

References

1. Russel RC, Williams NS, Bulstrode CJ. Bailey & love short practice of surgery. London: Hodder Arnold; 2004. pp. 1272–1293.
2. Bidur Kc, Regmi R, Agrawal C, Pathania O. Role of single dose antibiotic prophylaxis in prevention of wound infection following lichtenstein inguinal hernioplasty: a randomized clinical trial. Nepal Journal of Medical Sciences, 2013; 2:108–113.
3. Hagel S, Scheuerlein H. Perioperative antibiotic prophylaxis and antimicrobial therapy of intra-abdominal infections. Viszeralmedizin 2014; 30:310–316.
4. Bay-Nielsen M, Kehlet M, Strand L, Malmstrøm J, Andersen FH, Wara P, et al. Quality assessment of 26304 herniorrhaphies in Denmark: a prospective nationwide study. Lancet 2001; 358:1124–1128.
5. Aiken AM, Haddow JB, Symons NR, et al. Use of antibiotic prophylaxis in elective inguinal hernia repair in adults in London and south-east England: a cross-sectional survey. Hernia 2013; 17:657–664.
6. Aufenacker TJ, van Geldere D, van Mesdag T, Bossers AN, Dekker B, Scheijde E, et al. The role of antibiotic prophylaxis in prevention of wound infection after Lichtenstein open mesh repair of primary inguinal hernia. Ann Surg 2004; 240:955–961.
7. Ijaz A, Amer MS. Post-operative wound infection prevention: the role of antibiotic prophylaxis in Lichtenstein. Professional Med J 2010; 17:174–179
8. Ullah B, Khan SA, Ahmed S, Pasha T. Efficacy of preoperative single dose antibiotic in Patients undergoing mesh repair for inguinal hernia. J Ayub Med Coll Abbottabad 2013; 25:103–105.