

**EVALUATION OF ADMINISTRATION OF PROPHYLACTIC ANTIBIOTICS IN MESH
REPAIR OF PRIMARY INGUINAL HERNIA**¹*Muhammed Jilani S. and ²Pratheesha Rachel Varughese

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ABSTRACT

Inguinal hernia repair is an extremely common operation performed by surgeons. More than 600,000 repairs performed annually. Most patients present with a bulge or pain in the groin. To avoid complications, healthcare specialists suggest that all symptomatic hernias be repaired. A prospective, randomized study was conducted to understand the role of prophylactic antibiotics in inguinal hernia repair, a total of 100 patients were included where single dose of prophylactic antibiotic half hour prior to mesh repair surgery was administered to 50 patients in study group and routine antibiotics to remaining 50 in control group. The study concluded that there were no clear acceptable benefit of antibiotics in the prevention of post operative wound infection in mesh repair of inguinal hernia.

INTRODUCTION

An inguinal hernia is a bulge in the groin region, which is located between the lower part of your abdomen and your thigh. Groin hernias are caused by a defect of the abdominal wall in the groin area and comprise inguinal and femoral hernias.^[1] Inguinal hernias are caused by a weakness in the muscles of the lower abdomen. Based on their location, groin hernias are classified as indirect, direct, or femoral. To avoid complications, healthcare specialists suggest that all symptomatic hernias be repaired. With the purpose of defect closure and tension-free repair, an open or laparoscopic method might be performed.^[2] A small percentage of individuals are asymptomatic; yet, even a wait-and-see approach leads in surgery for around 70% of these people within 5 years. In the vast majority of cases, surgical treatment is effective. Today, the predicted risk of recurrence after inguinal hernia repair is 11%. Only 57% of all recurrences of inguinal hernias occurred within 10 years of the previous hernia operation.^[3]

Inguinal hernia surgery is one of the most common techniques performed in a general surgical department, accounting for roughly one-third of total operations. This form of surgery is considered clean, and the rate of postoperative infection is believed to be less than 2%. Antibiotic prophylaxis is currently advised for elective open mesh inguinal hernia surgery. This approach, however, is not universally approved. In the absence of risk factors, antibiotic prophylaxis is not suggested for hernia repair that does not involve prosthetic material,

however disagreement emerges when wound infection rates surpass expected values.^[4]

MATERIALS AND METHODS

This prospective randomized study was conducted over a period of 6 months in the Department of surgery in a tertiary care teaching hospital. A total of 100 patients were enrolled in the study. These patients were equally divided in both groups that is antibiotics and placebo group. Consecutive patients attending surgical OPD with inguinal hernia and post operative hernia patients were included in the study. The patients with systemic disease, patients younger than 18 years, patients allergic to antibiotics, pregnant and lactating women were excluded from the study. Patient proforma included demographic data and all other relevant parameters. Informed consent was taken from all patients for participation in the study.

OBJECTIVES

To assess the impact of prophylactic antibiotics on reducing the surgical site infections after inguinal hernia repair.

RESULTS

Table 1: Age Distribution.

Age distribution (years)	Antibiotic group	Control group	Total
18-25	5	6	11
26-35	11	12	23
36-45	18	16	34
46-55	8	9	17
56-65	5	5	10
>65	3	2	5

Table 2: Hernia Classification.

Hernia Classification	Antibiotic group	Control group	Total
Right sided	35	28	63
Left sided	15	22	37
Direct	20	16	36
Indirect	30	34	64

Table 3: Wound Infection on Follow Up.

Time after surgery	Antibiotic group (Infection present)	Control group (Infection present)	Total
At discharge	2	3	5
At suture removal after one week of discharge	0	1	1
Two weeks after discharge	4	3	7

Table 4: Complications.

Complications	Antibiotic group	Control group	Total
Seroma formation	1	0	1
Scrotal edema	2	1	3
Urinary retention	0	1	1

There were 50 patients per group in both the antibiotics and control groups. Demographically, the two groups were equivalent to one another in their age, sex and type of hernia.

Out of total 50 patients in the antibiotic group, 35 patients had right sided hernia while 15 had left sided hernia. In the control group, 28 patients had right sided hernia and 22 patients had left sided hernia. When analysed with respect to the type of hernia, the antibiotic group had 30 patients with an indirect hernia and 20 patients with direct hernia whereas in the control group, 34 patients with an indirect hernia and 16 patients with direct hernia.

In both groups, the infection incidence at the time of discharge was examined. At the time of discharge, 3 patients in the control group and 2 patients in the antibiotic group were infected. After two weeks of discharge, patients were reassessed, and the rates of postoperative infection were likewise nearly identical in the two groups. In other words, four patients in the antibiotic group and three in the control group were infected.

Both study groups were also evaluated in terms of any other post-operative complications. Two patients in the antibiotic group developed scrotal edema, and one developed a seroma. One patient in the control group

developed urine retention, and another developed scrotal edema. In our study, no patient required mesh removal.

DISCUSSION

With more than 20 million patients annually, inguinal hernia repair is one of the most often performed surgical procedures worldwide. By developing evidence based guidelines and recommendations, the international hernia societies aim to improve the outcome of inguinal hernia repair due to standardization of care.

According to a study carried out at the Mahatma Gandhi Medical College and Research Institute in Puducherry, not every open inguinal hernioplasty requires the routine use of antibiotics. Antibiotics should only be prescribed to individuals who have a high risk of SSI.^[5] Antibiotic prophylaxis has a well-established role in reducing the risk of infectious complications, such as incision infection, during "clean-contaminated" procedures like colorectal resection. Additionally, "clean" surgeries involving the use of foreign material, such as hip or knee arthroplasties, cardiac or vascular grafts, should also consider antibiotic prophylaxis.^[5]

The effectiveness of antibiotic prophylaxis in preventing all types of postoperative wound infections following herniorrhaphy surgery is unknown when compared to placebo (or no treatment). Comparing antibiotic prophylaxis to a placebo (or no treatment), a Cochrane

meta-analysis showed that no evidence could be found to support or refute the beneficial effect of the medication on preventing wound infections.^[7]

Shrestha S. et al. evaluated the occurrence of surgical site infections (SSIs) in patients who had surgery in the Department of General Surgery in a different study. While there are numerous factors that lead to surgical site infections (SSIs), the most well-established risk factor is still the presence of pathogenic microbes at the incision site. In comparison to other studies findings, this one revealed a comparatively high rate of overall NATG compliance for SAP administration.^[8]

The results of our investigation's mesh infection incidence can be compared to that of Mukesh Kumar et al.'s study, which found that there was no incidence of deep SSI.^[9] No patient had their mesh removed because of an infection at the surgical site. During a three-month follow-up period, Aufenacker et al. reported an incidence of 0.3% for deep SSI in their study.^[10] Perez et al. found that one patient in the group had a deep infection, necessitating the removal of the mesh.^[11]

One significant potential risk associated with any surgical procedure is surgical site infection. Antibiotic prophylaxis is known to lower the risk of wound infection following surgery in the majority of cases. It seems that the overall risk reduction is approximately 60% for a wide variety of surgical procedures, from highly contaminated to clean. The best time to achieve optimal serum drug levels is 30 to 60 minutes prior to surgical incision, and routine practice now generally views post-operative antibiotic administration as being ineffective.

In contrary, a prospective, randomized, double blind study was conducted for the benefit of use of prophylactic antibiotic in mesh inguinal hernia repair and it concluded that the use of prophylactic antibiotic was seen to be as effective as routine preoperative and postoperative antibiotics.^[6]

There is ongoing discussion regarding the prophylactic use of antibiotics in hernia repair. The majority of double-blind randomised controlled trials (RCTs) fail to provide evidence that prophylactic antibiotic use lowers the incidence of SSI statistically. Antibiotic prophylaxis has undeniable advantages for both contaminated and clean wounds. Antibiotic treatment is administered to patients with dirty wounds instead of antibiotic prophylaxis.

CONCLUSION

The study ended up to the conclusion that there was no demonstrable advantage to using antibiotics to prevent wound infections following mesh repair for inguinal hernias. The study's findings imply that in patients having mesh repair for primary inguinal hernias, antibiotic prophylaxis by itself does not shield surgical

site infections. Both the antibiotic and placebo groups experienced nearly identical infection rates. The use of antibiotics did not significantly lower the frequency of wound infections. More research involving a large number of patients is necessary to comprehend and address the problem.

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