

## Study of Surgical Site Infection in Surgical Ward of P.M.C.H. Patna in the Year 2016

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### Abstract

### Original Research Article

Surgical site infection (SSI) is the third most common nosocomial infection which are usually encountered in surgical indoor of hospitals [1]. It shows adverse impact on both hospital as well as patients. The Aims and objectives of this study was to find out the common bacteria causing SSI and its sensitivity to commonly used antibiotics, its incidence and common risk factors of SSI in our hospital. For this purpose 100 patients were selected undergoing routine and emergency surgery. The swabs from infected site were taken and sent for culture and sensitivity. The duration and type of surgery performed were also taken into consideration. From this study we concluded that E. Coli (30.5%) was the commonest pathogen followed by staph aureus (24.67%) and pseudomonas aeruginosa (20%). These organisms were found to be sensitive to commonly used antibiotics. It was also found that prolonged surgery (> 2hrs) and undergoing stoma procedure were significantly associated with occurrence of SSI [3]. Routine and clean surgery was associated with minimal risk of SSI.

**Keywords:** Surgical site infection, infection, SSI, surgery, antibiotics.

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## INTRODUCTION

Surgical site infection are the third most common nosocomial infection reported in surgical indoor of hospitals [1]. It has adverse impact on both hospitals as well as on the patient. It is responsible for increasing length of stay of patient which results in social and economic loss to the patient and the family. Host factors, wound factors and surgery related factors are implicated in the causation of SSI. The aim of this study was to know the common cause of SSI, its sensitivity to drugs and its causative factors.

## AIM AND OBJECTIVES

- To know the common causative agent of SSI.
- Its sensitivity to antibiotics.
- Relation of its incidence with duration and type of surgery.

## MATERIALS AND METHODS

### Study area

Study was conducted in surgical indoor of Patna Medical College and Hospital Patna in the year 2016 for a duration of 1 year. Total 100 patients were selected none randomly undergoing either emergency surgery or routine surgery in general surgical

department. Patient of age group from 7 years to 65 years, both male and female were included in this study. Certain risk factor like type of surgical wound, elective or emergency, antibiotic prophylaxis, duration of surgery, presence or absence of drain and underlying or predisposing condition were noted. Swabs were obtained from the post-operative infected wounds and subjected to culture and sensitivity to conventional antibiotics. CDC criteria [1]. Were used to define the surgical wound type –

- Class 1 – Clean
- Class 2 – Clean contaminated
- Class 3 – Contaminated
- Class 4 - Dirty

Data was analysed and results were obtained

## RESULTS

1. SSI incidence was more in emergency Patient undergoing emergency surgery.
2. SSI incidence was more in Patient undergoing any form of stoma.
3. SSI incidence was more ( 13% increase ) in Patient having prolonged duration of surgery ( > 2 hrs)[4]

4. SSI incidence was also more in Patient with poor socioeconomic status and poor nutritional status.
5. SSI was more in Diabetic patient.
6. The commonest organism causing SSI was E.Coli (30.5%) followed by staph aureus (24.67%) and pseudomonas 20 %.This result was comparable with study conducted at centre for disease control [2].
7. In our study it was found that E.Coli was most sensitive to Amikacin (74%) followed by Gentamycin, Fluroquinolones and Cephalosporine .This result was comparable with study conducted at CLSI [1].
  - Staph aureus was highly sensitive Linezolid, Gentamycin, Cephalosporin and Vancomycin.
  - Pseudomonas was highly sensitive to Piperacilin + Tazobactam [1,3].
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## DISCUSSION

The incidence of SSI in our study was 13% which was a bit higher than other study [4]. However infection rate varying from 20% to as high as 75% have also been reported [4]. Prolonged duration of operation results in increase exposure of operation site to air, prolonged trauma and anesthesia and even blood loss [5]. Rate of infection was highest in contaminated followed by clean contaminated and least in clean wound. This result was quite comparable with results of other studies. Incidence of infection was more in emergency surgery, surgery requiring drain and in patient requiring prolonged stay in hospital. The most common organism causing nosocomial infection was E.Coli. These findings were found consistent with other studies.

## CONCLUSION

- After study of 100 patient we come to a conclusion that incidence of SSI was more in patient undergoing emergency surgery, is having stoma and prolonged duration of surgery.
- The common cause of SSI was E. coli, followed by Staph aureus and Pseudomonas.
- These bacteria were sensitive to commonly used antibiotics like Amikacin, Cephalosporin, Fluoroquinolones, piperacilin + Tazobactam and Linezolid.

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