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Title	Routine clean surgery in children without antibiotic cover is safe
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Keywords: no antibiotic, routine surgery, clean surgery

Abstract:

Background:

Routine clean surgery in children carries insignificant risk of surgical site infection and can be carried out without antibiotic cover. Rational use of antibiotic is important as injudicious use can adversely affect the patient, cause emergence of antibiotic resistance and increase the cost of health care.

Methods:

We performed 69 procedures without antibiotic cover and 72 procedures with single dose of antibiotic. All patients were operated by a single surgeon in a large public hospital from March 2016 to Dec 2016.

Results:

1 patient in the antibiotic group developed stitch abscess after 10 weeks. No patient in either group developed infection in the week following surgery. No patient in “no antibiotic” group developed surgical site infection

Conclusion:

We found no difference in incidence of surgical site infection. There were no late complications.

Introduction:

Surgical site infection is something the surgeon worries about. From the days of laudable pus to asepsis, then antibiotics, we can go back to no antibiotic routine without putting patient to risk of infection.

Overuse of antibiotics, unindicated, unnecessary, prolonged antibiotic therapy leads to-

- Waste of resources
- side effects
- taxes nursing staff
- causes emergence of resistant flora

Children undergoing routine clean surgery like herniotomy, orchiopexy, circumcision, chordee correction have been receiving antibiotics for varied duration. In spite of wide knowledge about the effectiveness of antibiotic prophylaxis, administrative regimens are often inappropriately practiced.

Ashcroft pediatric surgery mentions that use of antibiotics for clean surgery in children is left to discretion of the surgeon. Hasan et al have reported that antibiotics are not necessary in routine, clean procedures in children. Antibiotic prophylaxis is considered optional for clean procedures, by Woods and Dellinger. Nandi, Soundarrajan, Mak et al have recommended that if risk of infection is less than 2%, prophylactic antibiotics are not necessary. So we decided to omit antibiotics in a group of children undergoing clean procedures and observe if the risk of infection increased.

Aims and Objectives:

1. To find out whether single dose antibiotic coverage in routine clean surgery is safe
2. To find out whether no antibiotic coverage in routine clean surgery is safe

Material and methods:

An observational study was done in Department Of Surgery, Pravara Institute of Medical Sciences, Loni from March 2016 to Dec 2016. Total 141 patients were operated by a single surgeon.

Inclusion Criteria:

- Patients within the age group 3 months to 12 years
- Patients guardian willing for the participation in the study

Exclusion Criteria:

- Patient suffering from any co-morbid condition

Patients were divided in two groups:

- Group 1- single dose antibiotic recipient
- Group 2- no antibiotic

Patients were selected randomly

Sample size- 141

Study duration – 10 months (March 2016 to Dec 2016)

Pre operative preparation and care:

- Patients were admitted day before surgery mostly
- All necessary investigations were done
- Anesthetic fitness obtained
- The operative site was marked one day prior surgery and any skin infection was ruled out
- All patients were asked to take body wash with soap on the day of surgery

Aseptic precautions in the operation theatre:

- Asepsis maintained
- All the instruments were checked for sterility from CSSD department
- Standard surgical scrub for 3-5 minutes was mandatorily followed by the surgical team
- All the surgeries were performed by single surgeon

Preparation of operated site:

- Removal of all dirt with savlon
- Drying of skin
- Painting with betadine solution
- Draping with cotton drapes

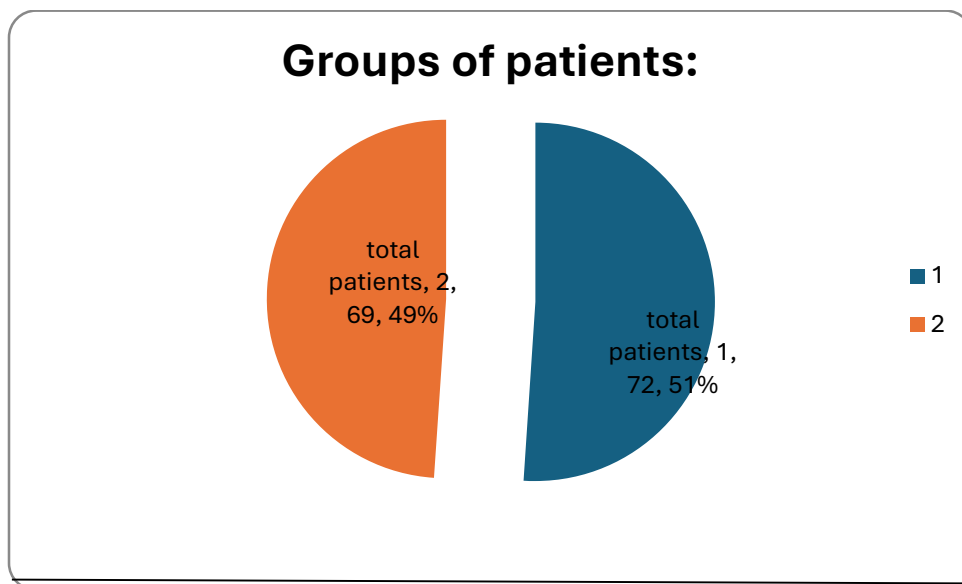
- Patients chosen in “antibiotic group” were given single dose of same antibiotic (Inj. Citax) according to their body weight, immediately before start of surgery
- There were no brakes in surgical technique during the procedure.

Post operative care:

- Temperature and vitals were monitored periodically and charts were maintained strictly
- Patient was discharged on Post operative day 1, if no complaints were present
- Patients were followed up by telephone interview at 6 and 12 weeks.

Observation and Results:**Table 1:**

Group 1 (antibiotic)	72 patients
Group 2 (no antibiotic)	69 patients
total	141



There were total 141 patients who were randomly divided in two groups and were operated and were observed for any kind of post operative complications.

- Age ranged from 3 months to 12 years. 125 were male and 16 were female.

Table 2:

male	125
female	16

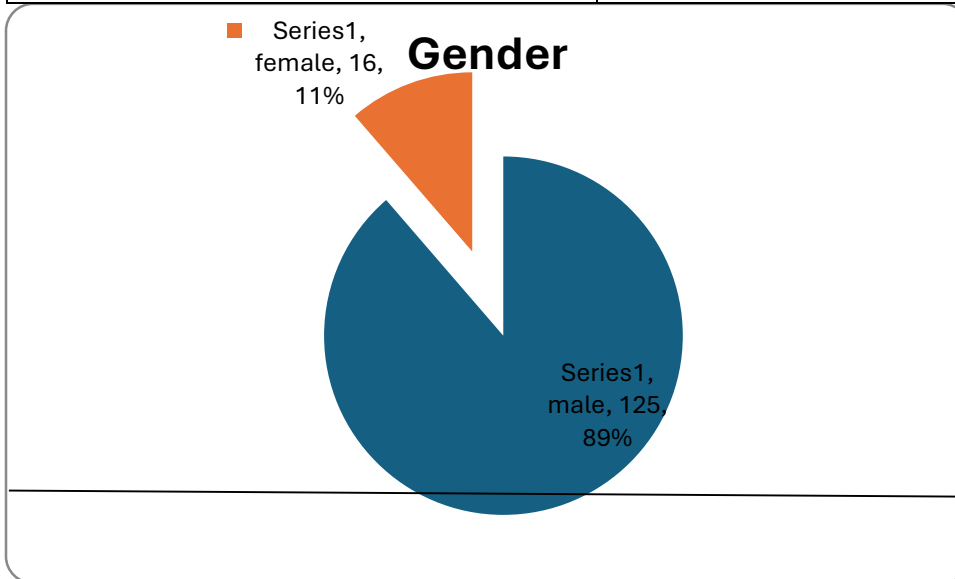
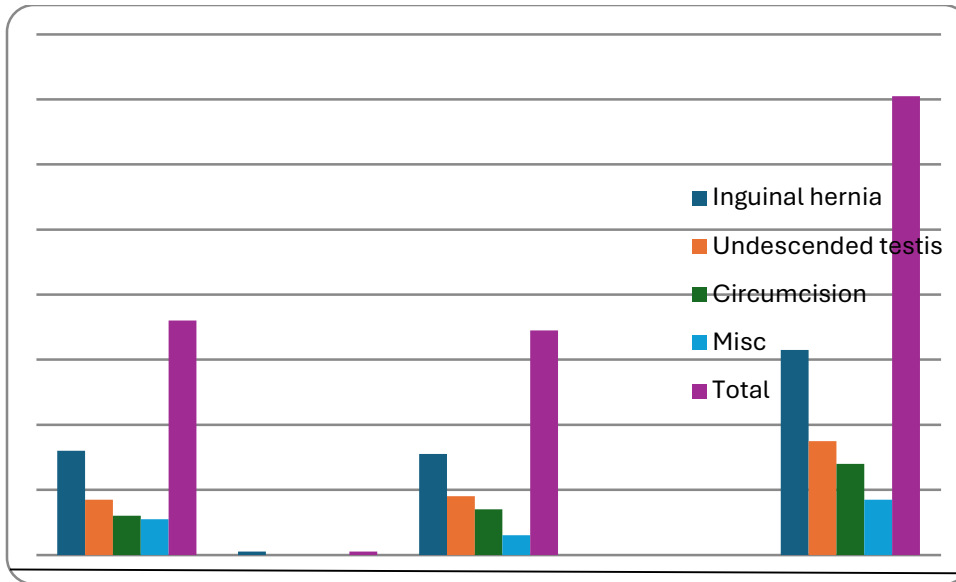


Table no 3:

	Antibiotic	Infection	No antibiotic	infection	Total	
Inguinal hernia	32	1	31	0	63	
Undescended testis	17	0	18	0	35	
Circumcision	12	0	14	0	28	
Misc	11	0	6	0	17	
Total	72	1	69	0	141	



- Patients were operated for various clean surgeries and 1/72 patient who was given antibiotic prophylaxis developed stitch abscess 10 weeks after the procedure.
- None of the Patient in either group developed infection in the week following surgery.
- None of the patient in “no antibiotic” group developed surgical site infection

Discussion:

Surgical site infections are the third most reported nosocomial infectionsⁱ. Postoperative wound infections have a significant impact on patients' quality of life and substantially increase the cost of patient care^{3, ii}.

Incidence of SSI is reported to be between 4% and 30%ⁱⁱⁱ in various studies. Lilani et al reported a 3% incidence of SSI in clean cases.⁶ Surgical site infections can occur many days after patient leaves hospital, hence long follow-up is necessary before concluding that infection did not occur.^{iv}.

The goal of prophylactic antibiotics is to reduce the incidence of postoperative wound infection^v.

Some factors believed to increase incidence of SSI are, prolonged pre surgery hospital stay, and duration of surgery⁶.

- Most of our patients were admitted a day prior to surgery.
- Procedure rarely lasted more than 45 minutes.
- Almost all the patients were discharged next day

The above mentioned factors reduced the risk of hospital acquired infection. This may be responsible for low rate of infection.

There are few published reports about clean surgery being performed without antibiotic cover.

We evaluated this protocol and found no increase in infection rate, in fact, infection occurred in those who received prophylactic antibiotics.

With so much advancement in the strict asepsis of the environment and hygiene of the operation theaters which is being practiced widely, it was questioned in many surgical settings on the need of antibiotic at all for clean surgeries. However, in high turnover hospitals especially in government run hospitals, even while all sterile precautions are practiced, the surgical procedures can imbibe bacteria or other microbial agents in the blood and can lead to bacteraemia.

Conclusion:

We recommend that prophylactic antibiotics may be omitted in pediatric patients undergoing clean surgery, provided

- The patient does not have a prolonged stay in hospital before surgery
- There is no concurrent infection anywhere else
- Procedure is completed in short time
- Patient to be discharged early

Referances:

¹ Surgical Wound Infection: A General Overview

Professor O. M. Oluwatosin, Annals of Ibadan Postgraduate Medicine. Vol.3 No 2 December, 2005

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Surgical site infection: rates, etiology and resistance patterns to antimicrobials among strains isolated at Rio de Janeiro University Hospital. Infection 1997;25:217-20.

⁴ Antibiotic prophylaxis in surgery, Orlando regional medical centre,

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