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STUDY OF WOUND INFECTION AFTER CAESEREAN SECTION IN MEDICAL COLLEGE, KOLKATA, WEST BENGAL

Community Medicine

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ABSTRACT

Introduction: A caesarean section is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver her baby. Caesarean section (C-section) may be necessary when vaginal delivery might pose a risk to the mother or baby when there is prolonged labor, fetal distress, or when the baby is presenting in an abnormal position. **Aims:** To find out the incidence of wound infection after caesarean section and its correlation with its associated risk factors. **Material and Methods:** This study was conducted on the women who underwent caesarean section and follow up in Medical College Hospital during the study period. This study was carried for 3 months October 2018 - Dec 2018 at Department of Obstetrics and Gynaecology, Medical college, West Bengal. **Result:** We found that 19(4.9%) patients had wound infection. **Conclusion:** Caesarean section has become one of the commonest surgical procedures in obstetric practice. The incidence of wound infections after caesarean section in this study was 4.9%.

KEYWORDS

Cesarean Section, Wound Infection and Antibiotics.

INTRODUCTION

A caesarean section is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver her baby. Caesarean section (C-section) may be necessary when vaginal delivery might pose a risk to the mother or baby when there is prolonged labor, fetal distress, or when the baby is presenting in an abnormal position. However, caesarean section can cause significant complications, disability or death, particularly in settings that lack the facilities to conduct safe surgeries or treat potential complications.[1]

Since 1985, the international healthcare community has considered the ideal rate for caesarean section to be between 10% and 15%. Since then, caesarean sections have become increasingly common in both developed and developing countries. Due to this the worldwide continuous rise in the incidence of C-sections, the number of women with postpartum infection is expected to increase.[1]

Pregnant women are at increased risk of infection during labor and delivery. Among surgical patients in obstetrics; Surgical Site Infections (SSIs) are the most common nosocomial infections, accounting for 38% of hospital acquired infections.[2-3]

Most caesarean sections heal uneventfully within a predictable timeframe. However, for a small proportion of patients, the wound will develop complications. As a result, SSI's are the most common postoperative complications even in hospitals with most modern facilities and standard protocols of preoperative preparation and antibiotic prophylaxis. [4]

The average expected SSI's rate being 6–27% after C-section. These rates are increased in the presence of other risk factors such as gross contamination of the operative site, prolonged and premature rupture of membranes, obstructed labor, prolonged operative time, emergency operations, altered immune status, which are common in resource poor countries. [5]

Risk of SSI's in developing countries is more than the developed countries due to malnutrition, anaemia, poverty and environmental pollution; poor preoperative preparation, wound contamination, poor antibiotic selection, or the inability of an immunocompromised patient to fight against the infection. These are avoidable in most circumstances by altering host, microbial and environmental factors in favour of the host.[6]

C-section carries a risk of infection 5 to 20 times that of normal delivery. It is the single most important risk factor for postpartum maternal infection which account for approximately 10% of pregnancy related mortality. Contamination of the wound is present to some extent in all incisions thus adding significant morbidity and mortality.[7]

AIMS AND OBJECTIVES

AIM

To find out the incidence of wound infection after caesarean section and its correlation with its associated risk factors.

OBJECTIVES

- To find out the incidence of wound infection after caesarean section.
- To study the association of risk factors with the development of the wound infections following C-sections.
- To evaluate the important factors in the prevention of caesarean wound infection.

MATERIAL AND METHODS

Study Area

Department of Obstetrics and Gynaecology, Medical college, West Bengal

Study Period

This study was carried for 3 months October 2018 - Dec 2018

Study Population

This study will be conducted on the women who underwent caeserean section and follow up in Medical College Hospital during the study period.

Inclusion Critera

Women with Emergency Caeserean section with pfannensteil incision and lower transverse segment incision.

Exclusion Criteria

1. Women with CS and those needed further surgical expertise like obstetric hysterectomy, stepwise devascularisation etc.

2. Women with co-morbid obstetric complications such as

A. APH
B. PPH
C. Gestational Diabetes
D. Gestational hypertension with HELLP (haemolysis, elevated liver enzymes, low platelet) syndrome
E. Multiple Gestation
F. Gestation less than 37 weeks
G. Chorioamnionitis
H. Haemoglobin less than 8 gm/dl
I. Oxytocin induction or augmentation of labor

J. Hydramnios
K. Coagulation Abnormalities.

3. Women with medical illness such as HIV, hepatitis B, syphilis, or infective hepatitis/leptospirosis/dengue/documented urinary tract infection or any other complications of respiratory system, cardiovascular system, gastrointestinal system or central nervous system.

RESULT AND DISCUSSION

We found that the mean age (mean± s.d.) of patients was 21.7969± 4.6496years with range 16.00-36.00 years and the median age was 20.00 years.

It was found that 212(55.2%) patients had ≤20 years, 166(43.2%) patients had 21-34 years and 6(1.6%) patients had ≥35 years.

It was found that 253(65.9%) patients had ≤24.9 Kg/m2, 80(20.8%) patients had 25.0-29.9 Kg/m2 and 51(13.3%) patients had >29.9 Kg/m2.

It was found that 129(33.6%) patients had multigravida and 255(66.4%) patients had primigravida. The wound infection rates after caesarean section vary from 2.8-26.8% reported in literature, the incidence of wound infection in present study was 4.9%. The study conducted by Tran TS et al showed an incidence of 8.6%.[49] We found that 19(4.9%) patients had wound infection. The mean rate of infection after CS for hospitals in the USA was reported to be 3.15%.[8] A review of the literature revealed much higher rates of wound infection after CS such as 8.5%, 16.2%, 19%, and 25.3% from other centers. [9] The wound infection rate(4.2%) after LSCS found in this study correlates well with 3.7%, 4.5%, and 5%, found in recent studies reported in the literature. [10]

We found that 356 (92.7%) patients had given antibiotics porophylaxis. Previous studies identified a number of risk factors associated with increased rate of wound infection like younger age group, obesity, DM, chorioamnionitis, unbooked patients, PROM, emergency delivery, longer operative time and absence of antibiotic prophylaxis. [8] Age of the patient was not found to be a risk factor for wound infection.[10]

Our study found that 6(31.6%) patients with BMI ≤24.9 Kg/m^2, 3(15.8%) patients with BMI 25.0-29.9 Kg/m^2 and 10(52.6%) patients with BMI ≥30 Kg/m^2 had wound infection. Wound infection had found significantly higher in obese patients compare than others (p<0.00001). Obesity is an important risk factor for wound infection. The relative avascularity of adipose tissue, increase of wound area, and the reduced penetration of antibiotics in adipose tissue attribute to this relationship of risk.

The wide variation of described independent risk factors for wound infection may be due to the selection variability of possible risk factors for analysis. [8] Factors that significantly increase the risk of wound infection such as obesity and prolonged labor found in this study conform with previous reports.

We showed that 17(89.5%) primigravida patients had wound infection and that was significantly higher than multigravida (p=0.02899). Our study found that 15(78.9%) patients with premature rapture of membrane had wound infection which was significantly higher (p<0.00001).

We found that 16(84.2%) patients with ≥ 1 hour duration of surgery had wound infection which was significantly higher (p<0.00001). 18(94.7%) wound infection patients had pre surgery hospital stay ≥ 24 hours and 1(5.3%) wound infection patient had pre surgery hospital stay < 24 hours. This was statistically significant (p<0.00001).

18(94.7%) wound infection patients had done surgery by resident and 1(5.3%) wound infection patient had done surgery by resident. This was statistically significant (p<0.00001). Some studies have shown significant reduction of endometritis and total postoperative maternal infectious febrile morbidity rate after CS by the use of prophylactic antibiotics,15–17 while others did not find such association.[10] The Committee on Obstetric Practice of The American College of Obstetricians and Gynecologists (ACOG) has recently recommended antimicrobial prophylaxis for all cesarean deliveries unless the patient is already receiving appropriate antibiotics (eg, for chorioamnionitis) and that prophylaxis should be administered within 60 minutes of the start of the procedure. When this is not possible (eg, need for emergent delivery), prophylaxis should be administered as soon as possible.[11] Prophylactic antibiotics were not routinely used in all CS patients in the present study.

We found that 17(89.5%) wound infection patients had not taken antibiotics prophylaxis and 2(10.5%) wound infection patients had taken antibiotics prophylaxis (p<0.00001). This was statistically significant (p<0.00001).

CONCLUSION

Caesarean section has become one of the commonest surgical procedures in obstetric practice. The incidence of wound infections after caesarean section in this study was 4.9%. Study confirms that risk factors like primigravida, PROM, Pre surgery Hospital Stay, increased surgical time, Prolonged Rupture of Membranes (≥12), increase BMI, Surgery performed by resident and absence Antibiotics Prophylaxis poses risk for wound infections. Wound infections increased the duration of the hospital stay, which again increased the extra financial burden both to the patients and the Hospital. The commonest organism isolated was staphylococcus aureus. Knowledge of these risk factors would help the obstetrician in avoiding these complications and help to decrease the maternal morbidity post operatively.

Based on the sensitivity pattern of different isolates of bacteria, an empiric antibiotic therapy in post caesarean infection can be implemented.

Table: Distribution of BMI according to wound infection

WOUND INFECTION			
BMI	No	Yes	TOTAL
≤24.9	247	6	253
Row %	97.6	2.4	100.0
Col %	67.7	31.6	65.9
25-29.9	77	3	80
Row %	96.3	3.8	100.0
Col %	21.1	15.8	20.8
≥30	41	10	51
Row %	80.4	19.6	100.0
Col %	11.2	52.6	13.3
TOTAL	365	19	384
Row %	95.1	4.9	100.0
Col %	100.0	100.0	100.0

Table: Distribution of Duration of Surgery according to wound infection

WOUND INFECTION			
Duration of Surgery	No	Yes	TOTAL
<1 hour	313	3	316
Row %	99.1	0.9	100.0
Col %	85.8	15.8	82.3
≥ 1 hour	52	16	68
Row %	76.5	23.5	100.0
Col %	14.2	84.2	17.7
TOTAL	365	19	384
Row %	95.1	4.9	100.0
Col %	100.0	100.0	100.0

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