



A CLINICAL STUDY OF WOUND DEHISCENCE IN EMERGENCY & ELECTIVE OBSTETRIC AND GYNECOLOGICAL SURGERIES IN A TERTIARY CARE SET UP

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ABSTRACT

Introduction: Despite better advances in operative techniques and understanding of pathogenesis, surgical site infections continue to be major source of morbidity in patients undergoing operative procedures. However the incidence of wound complications in obstetric population varies between 2.8-26.6%. Surveillance of SSI mainly wound dehiscence is useful to demonstrate the magnitude of the problem.

Objective: Study is conducted to assess

1. The incidence, risk factors, organisms responsible for wound dehiscence in emergency and elective obstetric & gynaecological surgeries.

Materials And Methods

Source of data: Women admitted in the Department of OBG, BMCRI from June- 18 to June -19 in Vani Vilas hospital undergoing surgeries who developed wound dehiscence. Prospective observational study. The observations were tabulated and the incidence and associations of risk factors were studied by suitable statistical method.

Results: Total 5488 patients underwent major surgeries. Wound dehiscence cases being 111 and incidence is 2.02%. Most common organism being E.coli (28.82%). With common risk factors being anemia, nulliparity, patients undergoing LSCS for PPROM among obstetrics and diabetes, obesity, advancing age for gynecological cases.

Conclusion: This study identifies the incidence, risk factors and organisms responsible for wound dehiscence. By understanding the risk factors, active surveillance of SSI and development of recommendations for reducing the incidence of wound dehiscence is possible.

KEYWORDS :

INTRODUCTION

- Post operative surgical site infections (SSI) are an important health care associated infection(HAI) and one of the most frequent causes of post operative morbidity.
- The Centres for Disease Control define an SSI as “an infection related to an operative procedure that occurs at or near the surgical incision within 30 days.¹
- The incidence of wound complications in the obstetric population varies with rates ranging from 2.8% to 26.6%.²
- The increased chances of wound infection depends on the bacterial load at the surgical site and diminished wound defenses.³
- Morbidity following cesarean delivery and hysterectomies are common and post-operative abdominal wound dehiscence is one of the most serious complications which will delay the post-operative recovery of the patient.
- Despite better advances in operative techniques and understanding of pathogenesis, surgical site infections continue to be major source of morbidity such as greater antibiotic usage, more reoperations, and prolonged hospital and intensive care unit (ICU) stays, thus also augmenting treatment costs and increasing resource utilization in patients undergoing operative procedures.
- Surveillance of SSI mainly wound dehiscence is useful to demonstrate the magnitude of the problem which helps in development of recommendations for reducing the incidence of wound dehiscence and thereby morbidity and mortality.³

Objective Of The Study

Study is conducted to assess the incidence, risk factors, organisms responsible for wound dehiscence in emergency and elective obstetric & gynecological surgeries.

MATERIALS AND METHODS

Source of data:

women admitted in the Department of OBG, BMCRI & I, BANGALORE during the study period from June 2018 to JUNE 2019 in Vani Vilas hospital undergoing surgeries following which they have wound dehiscence formed the subjects for our study

Inclusion Criteria:

1. Women with wound dehiscence post surgery in vanivilas hospital.
2. Occurs within 30 days after the operation.

Exclusion criteria:

1. Patient operated outside and referred to VVH for other

reasons.

2. Patient coming with wound infection after getting discharge from the hospital.
3. Patients not giving consent for study.

It was a prospective study in which all the women who underwent surgeries at VVH who subsequently developed wound dehiscence were enrolled after obtaining consent.

Parameters studied were

- Age, parity, duration of surgery, risk factors like anaemia, diabetes, hypertension, obesity are studied, indication of lscs responsible for wound dehiscence, type of suture put for the closure, duration of hospital stay.
- Organisms responsible were identified by culture of the wound swabs.
- The observations were tabulated and the associations of risk factors are studied by suitable statistical methods.

RESULTS

- Total Gynaecological Surgeries- 598
- Emergency Gynaecological Surgeries- 128
- Elective Gynaecological Surgeries- 470
- Total Surgeries In The Study Period – 5488
- Total Lscs- 4890
- Emergency Lscs- 4134
- Elective Lscs- 756
- Total Cases Of Wound Dehiscence- 111
- Incidence Of Wound Dehiscence- 2.022%
- Wound Dehiscence In Emergency Lscs- 1.76%
- In Elective Lscs- 0.52%
- In Elective Gynaecological Surgeries- 6.80%
- In Emergency Gynecological Surgeries- 1.56%

Table 1.Type Of Surgery And Wound Dehiscence

Type Of Surgery	Total PTS Operated	Total Post Op Wound Dehiscence	Percentage
Elective	1226	36	2.94%
Emergency	4262	75	1.76%

Table 2. Type Of Surgeries And Incidence Of Wound Dehiscence

Type Of Surgery	Total Cases Of Wound Dehiscence	Percentage
Emergency LSCS	73	1.76%
Elective LSCS	4	0.53%

EMERGENCY GYNAECOLOGICAL SURGERY	2	1.56%
ELECTIVE GYNAECOLOGICAL SURGERY	32	6.80%

Table 3. Age Distribution- LSCS

AGE	LSCS		TOTAL
	EMERGENCY	ELECTIVE	
15-20	8	0	8
21-25	44	2	46
26-30	11	2	13
31-35	09	0	09
36-40	01	0	01
TOTAL	73	04	77

Mean Age Distribution Of Patients In Lscs -24.69+/-4.55 Years.

Table 5. Parity

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
PRIMIGRAVIDA	42	3	0	2	47
MULTIGRAVIDA	31	1	2	30	64
TOTAL	73	4	2	32	111

P value= 0.45 , Not Significant Association Seen Between Parity And Wound Dehiscence

Table 6. Indication For LSCS

INDICATION	ELECTIVE	EMERGENCY
FETAL DISTRESS		12(15.58%)
PPROM		16(20.77%)
PREVIOUS LSCS	02(2.59%)	12(15.58%)
BREECH	01(1.29%)	05(6.49%)
CPD	01(1.29%)	09(11.68%)
OBSTRUCTED LABOR		03(3.89%)
FAILED INDUCTION		12(15.58%)
TRANSVERSE LIE		01(1.29%)
BOH		02(2.59%)
TWIN		01(1.29%)

Predisposing Factors

Table7. Anaemia And Its Association With Wound Dehiscence

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
MILD	30	02	01	04	37
MODERATE	08	0	0	0	08
SEVERE	04	0	0	0	04
TOTAL	42	02	01	04	49

P value= 0.05, Significant Association Was Found Between Anaemia And Wound Dehiscence In LSCS

Table 8. Diabetes And Its Association With Wound Dehiscence

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	ELECTIVE	ELECTIVE	
DIABETES	32	01	01	16	
TOTAL	33		17		50

Out of 111 cases of wound dehiscence , 50 cases had diabetes mellitus P value=0.48, incidence of DM =45.045%

Table 9. Hypertension And Its Association With Wound Dehiscence

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
HYPERTENSION	21	01	00	10	33
	22		10		

Out of 111 cases of wound dehiscence , 33 had hypertension P value=0.92, INCIDENCE OF HYPERTENSION=29.72%

Table 10. Obesity And Its Association With Wound Dehiscence

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
OBESITY	34	02	01	14	51
	36		15		

Out of 111 cases of wound dehiscence , 51 were obese P value=0.05, significant association was found between obesity and wound dehiscence.

Table 11. Organisms Responsible For Wound Dehiscence

ORGANISMS	TOTAL	PERCENTAGE
STERILE	40	36.03
E.COLI	32	28.82
MRSA	18	16.21
STAPH AUREUS	12	10.8

Table 4. Age Distribution –gynaecological Surgeries

AGE	GYNAECOLOGICAL SURGERIES		TOTAL
	EMERGENCY	ELECTIVE	
36-40	2	8	10
41-45	0	12	12
46-50	0	7	7
>50	0	3	3
TOTAL	02	32	34

Mean Age Distribution Of Patients In Gynaecological Surgeries Is 42.85+/-21 Years.

DISCUSSION

The study was conducted to find out the incidence of post operative wound infection (S.S.I) in abdominal surgeries in both gynaecological and obstetric surgeries. In present study based on our inclusion criteria, total 5488 operated patients were eligible

ACINETOBACTER	02	1.80
KLIEBSIELLA	02	1.80
PSEUDOMONAS	05	4.50

Table 12. Susceptibility Pattern Of Bacteria Isolated From The Site Of Wound Infection

ORGANISMS	AMPICILIN	AMIKACIN	AUGMENTIN	GENTAMYCIN	CIPROFLOXICIN	IMIPENEM	PIPTAZ	DOXYCYCLINE	LINEZOLID	VANCOMY CIN
E.COLI	24	16	25	26	18	32	30	NT	NT	NT
MRSA	2	2	7	2	NT	NT	9	NT	16	18
STAPH AUREUS	5	4	7	9	8	9	11	NT	12	NT
ACINETOBACTER	0	0	0	0	0	0	0	2	0	NT
KLIENSIELLA	0	0	0	2	0	0	0	0	NT	NT
PSEUDOMONAS	2	3	4	3	4	5	5	NT	NT	NT

Table 13. Type Of Sutures

	LSCS		GYNAECO LOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
SUBCUTICULAR	40	03	01	22	66
MATTRESS	33	1	1	10	45

P value= 0.24, INCIDENCE OS SUBCUTICULAR SUTURE =59.45%

Table 14. Duration Of Hospital Stay

	LSCS		GYNAECOLOGICAL SURGERY		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
<10 DAYS	15	1	0	1	17
10-20 DAYS	40	2	2	19	65
>20 DAYS	18	1	0	12	31

P value= 0.04, Significant Association Was Found Between Increased Duration Of Hospital Stay And Incidence Of Wound Dehiscence

Table 15. Duration Of Surgery

	LSCS		GYNAECO LOGICAL		TOTAL
	EMERGENCY	ELECTIVE	EMERGENCY	ELECTIVE	
<1HR	60	03			63
1-2 HRS	13	01	02	28	44
>2 HRS				04	04

P value- <0.05, Significant Association Was Found Between Increased Duration Of Surgery And Incidence Of Wound Dehiscence.

There were no cases of burst abdomen or septicemia.

There were no maternal mortality.

For all cases, prophylactic antibiotics were given.

for analysis (1226 had elective surgery and 4262 emergency surgery) who underwent major abdominal surgery in vanivilas hospital. Post operative wound dehiscence (SSIs) was found in 111 patients out of 5488 patients with an overall post operative wound infection rate of 2.022%.

This study correlates with the studies of Mishriki SF et al, Jahanara Rahman.

In our study preoperative anemia(p value =0.05) was associated with wound dehiscence, this was similar association in a study by Hansa dhar et al and Zaman F (2011) in their study.

Diabetes was found in 45.04% of patients who underwent surgery which is found to be statistically significant when compared in univariate analysis which is quite comparable with the Dhaka study group. Diabetes was not a high risk factor(p=0.48). This was same result in a study by Fathia EAJ et al.(p=0.713) and C Wloch et al.(p=0.65) but study by Hansa dhar found it to be significant association.

Obesity was significant association in our study(p=0.05) which was similar to other study by Fathia EAJ et al.(0.007). Fat in subcutaneous plane (obesity) causes lipolysis in fatty patients which contributes in SSIs as serous discharge.

The incidence of wound infection in obstetric surgeries was found to be higher prolonged rupture of membranes (>4hrs) (20.77%).

Anaemia (44.14%), and multiparity (57.65%) were overall common risk factors in post operative wound infected patients.

In Uncontrolled Diabetes and anaemia delay wound healing, and causes tissue breakdown which leads to post operative wound infection (SSIs).

E.COLI (28.82%) followed by MRSA (16.21%) were the most common organisms isolated from the surgical site. Two cases had Acinetobacter and klebsiella which was sensitive to doxycycline and piptaz respectively. All Gram positive cocci and Gram negative bacilli were susceptible to linezolid and imipenam respectively. Most of the Gram positive and Gram negative bacteria were susceptible to antibiotics such as amoxiclav, amikacin, cefeperazone/sulbactam, piperacillin/ tazobactam. Other antibiotics found to be sensitive were gentamycin and cefotaxime . Amikacin also showed least activity against the bacteria from post-operative wound infections. Once a diagnosis of wound infection has been confirmed and antibiotic sensitivities identified, appropriate management regimens should be considered, with a high priority given to reducing the risk of cross infection.

This study also found, the occurrence of post-operative wound infection was more in multiparous women (64) than in primiparous (47) and possibly malnutrition and anaemia due to repeated childbirth acted as the predisposing factors.

Significant association was found between increased duration of hospital stay and increased duration of surgery and incidence of wound dehiscence.

Out of the 111 patients all required secondary suturing. In surgical management, after obtaining swab culture for microorganisms and repeated daily dressings, secondary suturing was done.

CONCLUSION

Surgical site infections determine the final outcome of an operation apart from the morbidity and mortality they cause. Though surgical care is very important to prevent wound infection, but some pre and post operative steps can reduce post operative wound infections also. They also increase the cost of treatment for a particular surgical operation, as infection in a post operative wound increases the length of stay in the hospital. The cost of antibiotics, and increased duration of antibiotic therapy further adds on to the cost of treatment. If we can eradicate anaemia in pregnancy, control diabetes, avoid prolonged labour, use potent antibiotics in cases of rupture of membrane, do timely intervention, provide well equipped obstetrics ward with clean environment, then incidence of wound infection in obstetric cases can be lowered.

If we control diabetes ,hypertension and correct anaemia and reduce duration hospital stay we can control the incidence of wound infection in gynaecological cases. Identification of risk factors for surgical site infections is needed to encourage the development of recommendations for prevention of SSI in order to achieve the setting goal to reduce the SSI.

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