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Effect of Intra-operative glove changing during Cesarean on Post-operative Complication (Clinical Trial)

Obstetrics & Gynecology

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ABSTRACT

Background: Cesarean Section incidence increase globally during past three decades. It's also the most frequent major abdominal surgery. Changing surgical glove during cesarean section post placental delivery may decrease bacterial transfer to the wound and decrease wound infection post cesarean section.

Aim of the work: To study ,investigate and evaluate the clinical effect of Post cesarean section wound complications after changing surgical gloves Intra-operative post placental delivery in cesarean section and related to Evidence based.

Patients and methods: Retrospective study was included 200 pregnant women presenting to the outpatient clinic at El Hussein Hospital and planned to undergo elective cesarean section according to the inclusion and exclusion criteria and had divided into two groups.

Results: According to wound complication, among cases, 0 (0%) were Seroma, 0 (0%) were Hematoma, 0 (0%) were Separation, 1 (1%) 0 (0%) were Wound infection, 0 (0%) Skin infection, 0 (0%) were Endometritis, 0 (0%) were Febrile morbidity. Among control group, 5 (5%) were Seroma, 0 (0%) were Hematoma, 10 (10%) were Separation 5 (5%) ،5 (5%) were Wound infection, 03 (3%) Skin infection, 0 (0%) were Endometritis, 5 (5%) were Febrile morbidity. There was statistically important difference between studied cases as regard seroma, separation, wound infection, skin infection and febrile morbidity.

Conclusion: Changing gloves during C-S was linked to a lower risk of infection at the incisional surgical site, as well as a reduction in postoperative febrile morbidity.

Keywords: *Cesarean; Intra-operative glove; Post-operative Complication.*

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INTRODUCTION

Cesarean Section increase globally during past three decades and is the most popular major abdominal surgery.[1]

Rate of delivery by C-section is increasing in the entire countries as a result a number of problems also come along with cesarean section. [2]

After a caesarean section, changing the glove may help to reduce bacterial translocation into the wound and the risk of developing bacterial infection.[3] In case of caesarean section, the major outcome is any wound-related problem, which includes wound hematoma, seroma, skin separation of at least 1cm from the incision, wound infection, or any other incisional abnormality that requires treatment within 8 weeks of surgery.[4]

Secondary outcome included infectious complications including endometritis and other superficial or deep soft tissue infections.[4]

Undergoing cesarean section is used only when a vaginal delivery will put the baby or mother at risk.[5]

Risk factor for wound infection are obesity ,diabetes, hypertension, premature rupture of membrane, emergency cesarean section, twins delivery, bad obstetric history, bad hygienic patients, low socio economic status.[6]

Surgical Site of the infection **(SSI);** infections of surgical wound following C-section which considered as clean contaminated procedures.[7]

The purpose of our study was to study, examine, and evaluate the effect of changing surgical gloves after placental delivery in cesarean section and its relation to postoperative wound infection.[8]

PATIENTS AND METHODS

Retrospective study were included 200 patients were selected from the outpatient clinic of obstetrics and

gynecology at El Hussein Hospital during period of August 2020 till Mayo 2021

Retrospective study were included 200 pregnant women selected from the outpatient clinic of obstetrics and gynecology at El Hussein Hospital were chosen to do elective cesarean section were recruited from pregnant women presenting to the outpatient clinic at El Hussein Hospital was planned to done elective cesarean section according to the inclusion and exclusion criteria and dividing into two groups group (A) contain 100 patients were change surgeon and assistant surgical gloves post placental delivery pre-closure the uterus and group (B) controlled group contain 100 patients no changing was done during period of August 2020 till Mayo 2021 .

Sample selected: Retrospective randomized control study

Ethical consideration: Patients must agree to be included in the study and an informed consent should be taken.

Criteria:

Inclusion criteria: Women aged 18-35 years old, BMI (18-30Kg/m2), heamoglobin >10.5 mg%, white blood cells not more 10000, pus cells in urine analysis not more than 10 hpf, free from hypertension, diabetes, renal, cardiac, hepatic diseases, GIT disease, free from high risk pregnancy, free from Respiratory disease, full term, single viable intra uterine live baby, intact membrane, free from antepartum haemorrage, rupture of membrane, free from polyhydraminous and oligohydraminous, free from thyroid disorder and respiratory disorder, free from vascular diseases free from blood diseases, free from autoimmune diseases. Clinical symptoms: No vaginal bleeding, no tender scar, no labour pain, no uterine contraction, no dysuria, no haematourea, not dypsnic, no loin pain and no vaginal bleeding to exclude urgent case which liable to post cesarean infection and we must exclude patients on labour and exclude ante partum haemorrage.

Exclusion criteria: Ante partum haemorrage, anaemia, diabetic, hypertension, morbid obesity, cardiac, PTROM, PTL, Hepatic disease, Renal disease, GIT disorder, thyroid diseases, respiratory disease, bad obstetric history of pregnancy, elderly primigravida and multigravida, bad hygiene, multiple pregnancy, feverish patients, immunocompromized patient and Auto immune disease and offensive vaginal discharge.

Technique of Lower Uterine Segment Cesarean Section: Skinin cision(Scapal) (figure 1), sub cutaneous tissue layer figur(1), Fascial layer, rectus muscle layer, opening the peritoneum (Avoiding visceral injury)[(9)] **,** intraabdominal procedure: Bladder flap, Hysterotomy(Transverse incision), expanding the incision and uterine stapler [9], fetal extraction, cord clamping, placental delivery as in figur (4), surgical gloves were changed for surgeon and assistant, prevention of PPH, uterine closure, exteriorizing the uterus, closure abdominal wall in layers, closure sub cutaneous, the skin was closed by non-absorbable poly proline (0-3), the |Patients were followed up after one weeks for removal of skin suture evaluate the skin and scar for primary outcomes and the Patient had followed for 6th weaks for secondry outcomes.[(10)]

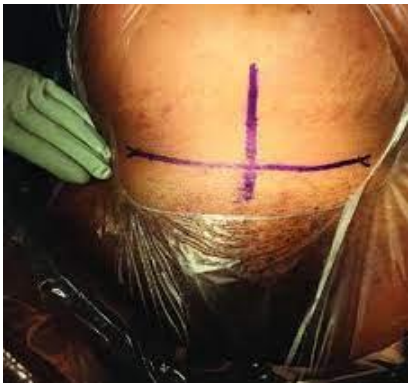

Fig.1: site of transversr incision [(11)]

Every patient was subjected to:

Careful and detailed history taking which include: Name, age, residence, first day of last menstrual history, parity, gravidity, past history of diabetes or hypertension.

General examination: Pulse, blood pressure, temperature, presence of pallor, height and weight and US

Abdominal examination: Detect fundal level, presence of scars of previous laparotomies and Contraction.

Vaginal examination: Excluding infection cervical assessment to exclude patient on labour including cervical dilatation, consistency, effacement and position.

Investigations: Complete blood count, complete urine analysis**,** Rh Typing, coagulation profile: Prothrombin time, Partial Thromboplastin Time, INR, liver function tests and renal function tests.

Ultrasound scan: using trans abdominal ultrasound scan to: Confirm gestational age, detect any risk factors for postpartum complication. In all cases, approved ethical committee taken, information sheet completed included Age, Parity, Gestational age at delivery, also the Blood pressure, Pulse, temperature.

Wound complication estimated by: The primary outcomes & secondry outcomes **Statistical Methods:** Data were analyzed as number and percentages with mean and standred deviation where, Chi - square tests are required. Using the Student's t-test for continuous data, we were determined whether or not there is a statistically significant difference between two groups. The categorical data were compared using Fisher's exact test, which is a statistical procedure. Statistics considerd a P-value less than 0.05 to be statistically significant.

RESULTS

	No.	%	No.	%		
Age (years)						
Min. – Max.	22.0 – 35.0		22.0 – 35.0		t=0.804	0.422
Mean ± SD.	28.14 ± 4.05		28.59 ± 3.86			
Median (IQR)	28.50(25.0–31.50)		29.0 (26.0–32.0)			
Parity						
Primary para	59	59.0	61	61.0	χ^2=	0.773
Multi para	41	41.0	39	39.0	0.	
Min. – Max.	0.0 – 4.0		0.0 – 4.0		U=	0.629
Mean ± SD.	1.39 ± 1.25		1.30 ± 1.38		2430.5	
Median (IQR)	1.0 (0.0–2.0)		1.0 (0.0–2.0)			
Previous C.S						
No	66	66.0	67	67.0	χ^2=	0.881
Yes	34	34.0	33	33.0	0.022	
GA (weeks)						
Min. – Max.	37.0 – 41.0		37.0 – 41.0		t=0.577	0.564
Mean ± SD.	38.93 ± 1.47		38.81 ± 1.47			
Median (IQR)	39.0 (38.0–40.0)		39.0 (37.0–40.0)			

χ2: Chi square test t: Student t-test U: Mann Whitney test
p: p value for comparing between the studied groups
IQR: Inter quartile range SD: Standard deviation

Table 1: Comparison between the two studied groups according to demographic data

This table shows that among cases, the mean of age was 28.14 (± 4.05 SD) with range (22.0 – 35.0,), according to Previous C.S, 66(66%) were no, 34(34%) were yes, according to GA (weeks), the mean was 38.93 (± 1.47 SD) with range (37.0 – 41.0). Among control group, the mean of age was 28.59 (± 3.86 SD) with range (22.0 – 35.0), according to Parity, 61(61%) were Primary Para, 39(39%) were Multi Para, the mean of Parity was 1.30 (± 1.38 SD) with range (0.0 – 4.0), according to Previous C.S, 67(67%) were no, 33(33%) were yes, according to GA (weeks), the mean was 38.81 (± 1.47 SD) with range (37.0 – 41.0). There was statistically no significant difference between studied cases. Table (1), Fig (2, 3)

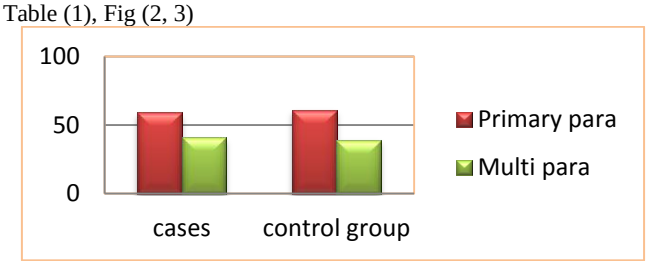

Fig. 2: comparison between studied cases according to Parity

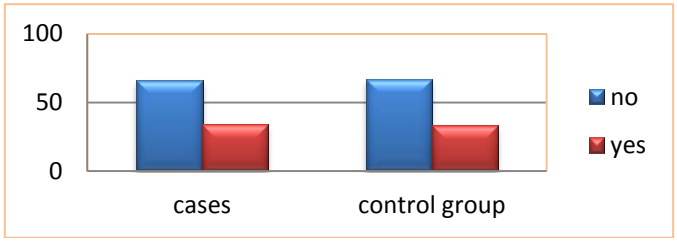

Fig. 3: comparison between studied cases according to Previous C.S

	No.	%	No.	%		
Seroma	0	0.0	5	5.0	5.128	FEp=0.021*
Hematoma	0	0.0	0	0.0	–	–
Separation	1	1.0	10	10.0	2.765	FEp=0.096*
Wound infection	0	0.0	5	5.0	5.128	FEp=0.046*
Skin infection	0	0.0	3	3.0	1.94	5*٠.٠٠FEp=
Endometritis	0	0.0	0	0.0	–	–
Febrile morbidity	0	0.0	5	5.0	5.128	FEp=0.046*

χ2: Chi square test , FE: Fisher Exact test
p: p value for comparing between the studied groups

Table 3: Comparison between the two studied groups according to outcome

This table shows that among cases, 0 (0%) were Seroma, 0 (0%) were Hematoma, 0 (0%) were Separation, 1 (1%) 0 (0%) were Wound infection, 0 (0%) Skin infection, 0 (0%) were Endometritis, 0 (0%) were Febrile morbidity. Among control group, 5 (5%) were Seroma, 0 (0%) were Hematoma, 10 (10%) were Separation 5 (5%) ، 5 (5%) were Wound infection, 0 (3%) Skin infection, 0 (0%) were Endometritis, 5 (5%) were Febrile morbidity. There was statistically significant difference between studied cases as regard seroma, separation, wound infection, skin infection and febrile morbidity. Table (2), Fig (4)

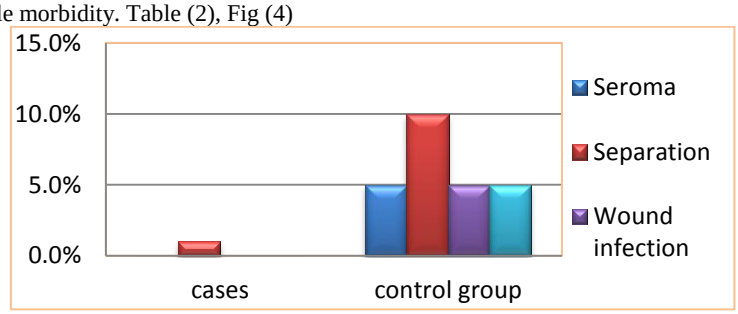

Fig. 4: comparison between studied cases according to outcome

R). Significance of the obtained results was judged at the 5% level.

DISCUSSION

A Cesarean section is an invasive surgical procedure in which a baby is delivered through an abdominal and uterine incision carries with it many immediate and delayed morbidity and mortality risks.[12]

The Intra-operative glove changing post placental delivey during cesarean section decreased occurrance of composite wound complication and decrease the primary out comes and secondary out comes. As pointed out through the study conducted by[4]

Cesarean section is a bloody procedure; between 750 to 1000 mL of blood are lost during most operations, and over 1000 mL of blood must be lost in order for the patient to be classified as having a postpartum haemorrhage (PPH).[13]

The aim of our study is to study, investigate, evaluate the effect of changed surgical gloves post placental delivery intra –operative cesarean section versus usual care.This randomized controll study was conducted in the obestetric ward of Al Hussin Hospital to estimate the effect of intra- operative glove changing during cesarean section on post –operative complication(clinical trial).

Change surgical gloves intra-operative post placental delivery during cesarean section and effect on the wound complication. This clinical trial involved 200 pregnant women with late-term pregnancy, they were admitted to the obstetric theater ward for elective cesarean section because of late-term pregnancy (gestational age37-41 weeks). Pregnant women were randomly picked to done elective cesarean section according inclusion, exclusion criteria.

The study pointed out that there were no significant statistical differences between the two assigned groups concerning the parity,and previous cesarean section,the mean maternal age (years), body mass index (BMI) and the gestational age (weeks) on admission. Also, there were a significant differences between the two randomly selected groups in this study as regarding to the primary out comes (febrile, seroma, skin dehesience, skin separation and wound infection).This study revealed that intra-operative glove changing during cesarean sectionan decrease post –operative wound complication.

Following a small randomised controlled trial in which women were randomly assigned to either usual care or glove change following placental delivery, our findings are similar with those of that study. In this study, they discovered a statistically significant decrease in wound infections (25 percent to5.55).[11]

A systematic review conducted to determine the impact of changing gloves during CS on the risk of postoperative problems found that our findings were in line with that of the review. As a result of the study, the authors determined that women who were randomised to change gloves following delivery of the placenta had a reduced incidence of wound infection than women who were assigned to a control group.[4]

Our result is consistent with a systemic review. Intra-operative glove changing post placental delivey during cesarean section decreased occurrance of composite wound complication and decrease the primary out comes and secondary out comes. As pointed out through the study conducted by.[14]

Our result are not consistent with randomized study of 228 women undergoing cesarean delivery in which the primary out comes was rate of endometritis did not show a benefit to intra-operative glove changing (17.7% vs15.7%) this Difference is likely due to the exteremly low rates of endometritis;[15]

In conclusion, changing gloves intra-operative cesarean section post placental delivery reduce post cesarean wound complication.

CONCLUSION

Intra-Operative glove changing post placental delivery during cesarean section significantly reduced the incidence of post- operative wound complication.

Conflict of interest : none

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