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ORIGINAL ARTICLE

Relaprotomy after caesarean section: An event of near miss maternal mortality.

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ABSTRACT… Objective: To find out risk factors, indications, causes, maternal mortality and morbidity after relaprotomy following caesarean section. **Study Design:** Descriptive (Cross Sectional) study. **Setting:** Department of Gynae, Mardan Medical Complex. **Period:** March 2015 to February 2020. **Material & Methods:** All women of any age or parity who had undergone caesarean section for any indication, which was followed by a relaprotomy, within a 60 days time period, irrespective of the location of the primary surgery, was included. Decision for relaprotomy was taken by the consultant in charge. All the data was entered in a predesigned proforma. **Results:** The rate of relaprotomy was 0.25%. Majority (88%) was in 20-35 years age group. 16 (61%) Patients were multigravidas and 8(31%) were primigravidas. Most (84.6%) of the cases were unbooked. 8(31%) patients were referred from remote areas and private centres, where caesareans had already taken place. Placental abruption was the most common indication (34.6%), followed by previous scars (19%) and placenta previa (15%). Mean interval between primary surgery and relaprotomy was 13.5 + 3.2 hours. Indication for relaprotomy was Postpartum and intraperitoneal haemmorhage in 34.6% cases each followed by rectus sheath and broad ligament hematoma in 7.7% cases each.84.6% patients were admitted in ICU, 65.4% received massive blood transfusions, whereas 30.7% developed DIC and febrile morbidity and renal impairment was seen in 19% cases. The mortality rate was 15.38% and all of them were referred cases. **Conclusion:** Relaprotomy after caesarean section is a very high risk situation. Postoperative vigilance, timely intervention and efficient referral system can reduce both maternal mortality and morbidity.

Key words: Caesarean Section, Obstructed Labor, Placental Abruption, Placenta Previa, Postpartum Haemmorhage, Relaprotomy.

INTRODUCTION

Caesaraean section is the commonest obstetrical surgical procedure done in routine obstetrical practice.[1] The frequency of caesarean section is continuously on the rise all over the world and the increase is dramatic over the past several decades.[2,3] The safety of this procedure has increased considerably with improvement in aseptic and surgical techniques, blood transfusion and anesthesia.[4] Despite that caesarean section is a safe procedure, it has 3-fold increased risk of maternal mortality when compared with vaginal delivery.[5]

Complications after caesarean section are higher than that of vaginal delivery, depending on surgical technique, indication of primary surgery, institutional facilities and many other factors.[6] It poses increased maternal surgical risks for both index and subsequent pregnancies. Many of the postoperative risks are not life threatening and exists long after index caesarean including need for repeat caesarean, adherent placenta and adhesions in pelvis.[7]

Relaprotomy after caesarean is an event of near miss maternal mortality.[8] Additional abdominal surgery for exploration within 60 days of caesarean section including skin opening is referred as relaprotomy after caesarean section.[9] The decision requires a good clinical judgement and it is usually the last resort to save the mother's life.[10] The main indication for relaprotomy is hemorrhage with incidence of 70-85%.[11] Our study aims to find out risk factors, indications, causes, maternal mortality and morbidity associated with

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relaprotomy after caesarean section.

MATERIAL & METHODS

This cross sectional study was conducted at Gynae Department of Mardan Medical Complex, Mardan from March 2015 to February 2020. Study duration was five years, and sampling technique was consecutive (non probability sampling). All women of any age or parity who had undergone caesarean section for any indication, and was followed by a relaprotomy, irrespective of whether the primary procedure was done at the index hospital or it was a referred case from other hospital or a private centre, was included in the study. The post vaginal delivery patients where laprotomy was undertaken for some indication, patients with thrombophilias or taking any anticoagulants were excluded.

Approval was taken from the institutional ethical committee (543/EC/MMC). Once decision for relaprotomy was taken, the cases were enrolled in study after getting informed consent from patient. The demographic data we recorded included maternal age, parity, antenatal care received, booking status, previous scars and gestational age. Our variables of interest were the indication for caesarean section, indication for relaprotomy, interval between caesarean section and relaprotomy, preoperative haemodynamic status, intra operative findings, admission to ICU, number of blood transfusions, length of hospital stay and postoperative maternal morbidity and mortality. Decision for relaprotomy was taken by observing two or more of the following clinical signs: (1) tachycardia (>110 bpm) (2) oliguria (<30cc/hour) (3) shock (4) more than 300ml haemmorhagic fluid in drain in 2 hours (5) clinical signs of bleeding including abdominal distension. Decision for relaprotomy was undertaken by consultant in charge, and input from surgical colleague was seeked whenever needed. Procedure was documented in the operative notes of each patient file. Suction drain was kept in all patients for at least first 24 hours to detect intraperitoneal haemmorhage.

All the data was collected and recorded in predesigned proforma. Stastical analysis was done using SPSS 22.0. Data was described in terms of mean + standard deviation for continuous variables and frequencies and percentages for categorical variables.

RESULTS

During the study period, there were 10,080 caesarean sections. Out of these 26 ended in relaprotomies, making the rate 0.25%.23(88.5%) women were aged between 20-35 years, whereas 2(7.7%) were less then 20 years and one was more than 35 years of age.16(61.5%) patients were multigravidas, 8(31%) were primigravidas and 2(7.7%) were grandmultigravidas. 4(15.38%) patients were booked whereas 22(84.6%) were unbooked cases. 8 cases in this study were referred from other places, where caesarean sections had already taken place and patients were referred due to haemodynamic instability, referral slips were available with all patients.

Out of these 26 cases, 4(15.38%) were elective surgeries and 22(84.6%) were emergency caesarean sections.

Indications for which the primary surgery was performed are mentioned in Table-I.

Indications for relaprotomy are mentioned in Table-II

Relaprotomy for haemmorhagic complications were performed within 24 hours after the caesarean section, whereas in 3 cases with sepsis, it was performed after one week. Mean interval between caesarean section and subsequent relaprotomy was 13.5 + 3.2 hours.

In majority of cases, there were no intraoperative complications, except in two patients where bladder and ureteric damage occurred, which were repaired by surgeon. Both of these patients had previous scars with extensive pelvic adhesions.

The postoperative complications are mentioned in Table-III.

The mortality rate in our study was 15.38%. All the

four patients who died were referred cases who were received in critical state, actively managed and shifted to ICU.

Indication of Caesarean	Frequency	Percentage
Placental Abruption	9	34.6%
Placenta Previa	4	15%
Previous Caesarean	5	19%
Obstructed Labor	3	11.5%
Ecclampsia	2	7.6%
Fetal Distress	1	3.8%
Failed Induction	1	3.8%
Macrosomic Baby	1	3.8%

Table-I. Indications of the caesarean sections (n=26)

Indication	Frequency	Per-centage
Postpartum Haemmorhage	9	34.6%
Intraperitoneal Haemmorhage	9	34.6%
Rectus Sheath Hematoma	2	7.7%
Broad Ligament Hematoma	2	7.7%
Retroperitoneal Hematoma	1	3.8%
Sepsis	3	11.53%

Table-II. Indications of relaprotomy (n=26)

Postoperative Morbidity	Frequency	Percentage
ICU Admission	22	84.6%
Massive blood Transfusion	14	65.4%
DIC	8	30.7%
Febrile morbidiy	5	19%
Renal impairment	5	19%
ARDS	1	3.8%
Maternal Mortality	4	15%

Table-III. Postoperative morbidity (n=26)
****One patient might have more than one complication**

DISCUSSION

In the current study, the rate of relaprotomy was 0.2%. Same rate was observed by Levin I et al, Ahmad et al and Akkurt MO et al in their studies.[12,4,13] Whereas higher rates of 1.04% was recorded by Raaghab AE et al in their study done at Egypt.[2]

84.62% caesarean sections in our study were done in emergency. Khan NBA in her study conducted at Kerala, India in 2015 narrated the rate of 85% which is almost same as ours, whereas in another study this rate was 95.5%.[1,5]

Placental abruption was the leading cause of caesarean deliveries which subsequently ended in relaprotomies according to our study. Sak et al and Levin et al in their research studies concluded the same indication attributing to most of re exploration cases.[6,12] Hasegawa J et al and Elkhateeb R et al reported repeat caesarean deliveries as the leading indications of caesarean which ended in relaprotomies.[15,16]

The principle indication for relaprotomy in our study was haemmorhage, responsible for 88.5% of cases. Kesseous R et al reported that in 70% cases haemmorhage was the main cause of reopening the patient after caesarean section, whereas it was responsible for reopening cases in 92.3% cases in another study.[2,14] According to Elkhateeb R et al, 87.5% cases of relaprotomy after caesarean were attributed to haemmorhagic complications.[15] Most of the studies reported a rate of 70-85%.[3,6,9,11] Out of the haemmorhagic complications, postpartum haemmorhage complicated 38.6% cases in our study, Seal SL et al reported 42.4% cases where postpartum haemmorhage was responsible for reopening of post caesarean cases.[5] 41.7% cases were attributed to intraperitoneal bleeding by Raaghab AE et al which is consistent with our results.[2]
Mean interval between index caesarean delivery and relaprotomy was 13 hours in our study. Another author has reported 5.5 hours interval between both surgeries, whereas Akkurt MO et al has observed mean interval of 15.7 hours which is more consistent with our study.[5,13]

Morbidity rates in our study were high in terms of ICU admissions, blood transfusions and febrile morbidity when compared with the international studies.[4,15] Morbidity was more in the cases which presented late and the interval between primary surgery and relaprotomy got prolonged. These were mainly the referred patients.

Maternal mortality is a devastating complication of relaprotomy following caesarean delivery. This complication is related to experience of surgeon, facilities available, haemodynamic status of the patient before reexploration, and interval between both surgeries. Our mortality rate of this study

was 15.38%, which is far more than the reported rates of other international studies[4,6] but less than the one reported by Khan NBA et al.[1] All the four maternal deaths in our study were referred cases from remote areas.

Limitations of our study were small number of patients, inability to ascertain the exact time of primary surgery especially in referred patients and also to ascertain the level of competence of surgeon who performed the surgery.

CONCLUSION

Relaprotomy after caesarean is an event of near miss maternal mortality. Great care is needed during the primary surgery giving meticulous attention to secure haemostasis, especially where comorbid conditions are confronted. Suction drains should be inserted where indicated. Judicious antibiotic usage and multidisciplinary approach for high risk cases is needed. Postoperative vigilance, timely intervention and efficient referral system can reduce both maternal mortality and morbidity.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Maimoona Qadir	Study design, Methodology paper writing and referencing.	
2	Jamila M.Naib	Analysis of data and interpretation of results etc.	
3	Sadia Nasir	Data collection and calculations.