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Retrospective Study of Post Caesarean Section Referrals with Complications to Tertiary Care Hospital

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ABSTRACT
The most common obstetric procedure performed in daily practice is a Caesarean section. In post-obstetric surgery patients, the most typical reasons for exploratory laparotomy include suspicion of internal injuries, vaginal bleeding, suspicion of distant organ harm and infection. Present study was aimed to study post caesarean section referrals with complications to tertiary care hospital. Material and Methods: Present study was retrospective, descriptive study, conducted referred cases with cesarean complications. In present study, 114 patients referred as post caesarean section with complications during study period. Mean age of patients was 25.6±5.7 years, majority were from 21-35 years age group (69.3 %). Majority women were from rural area (59.65 %), were referred from Private hospital (71.05 %) and 36 (31.58 %) had BMI>25 kg/m2. In present study, majority patients were multiparous (81.58 %), underwent emergency surgery at referring hospital (81.58 %) and managed conservatively at referred hospital (61.4 %). Common causes for referral were anemia (77.19 %), decreased GCS (68.42 %), hypovolemic shock (48.25 %), thrombocytopenia (37.72 %), acute renal impairment (27.19 %) and use of ventilator (21.93 %). In present study, common complications observed were obstetrical complications such as post-partum hemorrhage (57.89 %), Puerperal sepsis (20.18 %), Hellp syndrome (10.53%), Postpartum eclampsia (5.26 %) and Placenta increta (1.75 %). Majority underwent exploratory laparotomy (81.82 %), while others underwent secondary resuturing (18.18 %). Common interventions done were hysterectomy (54.55 %) and Internal iliac artery ligation (11.36 %). In present study, 13 maternal mortalities were observed (11.4 %), common due to medical causes (10.53 %) as compared to surgical causes (0.88 %). Common morbidities observed were ICU Admission (65.79 %) and Prolonged Hospital Stay (>10 days) (39.47 %). In present study, obstetrical complications were major cause of referral in post caesarean section patients.

INTRODUCTION

The most common obstetric procedure performed in daily practice is a Caesarean section. C-Section is defined as a birth of a fetus through the incisions in the abdominal wall and the uterine wall after 28 weeks of pregnancy[1-2]. There has been a rise in caesarean delivery rates throughout the world due to the use of foetal continuous monitoring ,rising incidence of elderly primigravida, decreased rate of vaginal birth after c-section, detection of high risk mothers and pregnancies on time, increased rate of c-section for pre-eclampsia with decrease in rate of induction of labor[3-4].

Recently, obstetric indications and a large number of elderly pregnant patients with maternal difficulties and foetal continuous monitoring use have contributed to the high rate of C-section. Complications are more likely with C sections than with vaginal deliveries. Some problems of obstetric surgery necessitate extreme procedures, such as exploratory laparotomy on serious circumstances that induce morbidity[5-6].

In post-obstetric surgery patients, the most typical reasons for exploratory laparotomy include suspicion of internal injuries, vaginal bleeding, suspicion of distant organ harm and infection. The standard of obstetric care, comprising the management of surgical complications will have an impact on maternal morbidity and death. Present study was aimed to study post caesarean section referrals with complications to tertiary care hospital.

MATERIAL AND METHODS

Present study was retrospective, descriptive study, conducted in department of Obstetrics and Gynecology, at Bharati Vidyapeeth (Deemed to Be University) Medical College and Hospital Sangli, India. Study duration was of 1 years (January 2022 to December 2022). Study approval was obtained from institutional ethical committee.

Inclusion Criteria:

- All referred cases with caesarean complications such as postpartum haemorrhage, gapping and suspected internal bleeding who were referred for the first time immediately after difficulties occurred.

Exclusion Criteria:

- Incomplete records
- The women who developed complications following caesarean section, performed at the study centre

Demographic variables like age, socio-economic status, literacy, number of antenatal visits, indication for CS was obtained. The type of complication, number of places visited before admission, the interval between complication and admission, availability of referral documents, interventions required and outcome was noted.

Referral details were also recorded, including the type of referral centre, the number of hospitals visited before admission, the interval between detection of complications and admission and the availability of referral documents. The women were further studied in terms of associated complications, interventions required and indications for referral.

The records were also reviewed for the outcome, evaluated in terms of women discharged in satisfactory condition by the hospital, those discharged on request, women who Left Against Medical Advice (LAMA), Maternal Near-Miss (MNM) and mortality. Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Frequency, percentage, means and standard deviations (SD) was calculated for the continuous variables, while ratios and proportions were calculated for the categorical variables. Difference of proportions between qualitative variables were tested using chi- square test or Fisher exact test as applicable. P value less than 0.5 was considered as statistically significant.

RESULTS AND DISCUSSIONS

In present study, 114 patients referred as post caesarean section with complications during study period. Mean age of patients was 25.6±5.7 years, majority were from 21-35 years age group (69.3 %). Majority women were from rural area (59.65 %), were referred from Private hospital (71.05 %) and 36 (31.58%) had BMI>25 kg/m2.

In present study, majority patients were multiparous (81.58 %), underwent emergency surgery at referring hospital (81.58 %) and managed conservatively at referred hospital (61.4 %). Common causes for referral were anemia (77.19 %), decreased GCS (68.42 %), hypovolemic shock (48.25 %), thrombocytopenia (37.72 %), acute renal impairment (27.19 %) & use of ventilator (21.93 %).

In present study, common complications observed were obstetrical complications such as post-partum hemorrhage (57.89 %), Puerperal sepsis (20.18 %), HELLP syndrome (10.53 %), Postpartum eclampsia (5.26 %) and Placenta increta (1.75 %). Other complications were acute kidney injury (27.19 %), paralytic ileus (9.65 %), Wound gape (7.02 %), MODS (6.14 %), DIC (5.26 %), PRES syndrome (2.63 %), DVT (2.63 %), Burst abdomen (2.63 %), cardiomyopathy (1.75 %) and Perforation Peritonitis (0.88 %),

Majority underwent exploratory laparotomy (81.82 %), while others underwent secondary resuturing (18.18 %). Common interventions done were hysterectomy (54.55 %) and Internal iliac artery ligation (11.36 %) In present study, 13 maternal mortalities were observed (11.4 %), common due to medical causes (10.53 %) as compared to surgical causes (0.88 %).

Table no.1: Demographic profile

Variables	Frequency	Percentage
Age in years		
•< 20 years	26	22.81%
•21-35 years	79	69.30%
•>35 years	9	7.89%
•Mean age (mean ± SD)	25.6 ± 5.7	
Referrals area origin		
•Urban	46	40.35%
•Rural	68	59.65%
Referring hospital		
•Private hospital	81	71.05%
•Government Hospitals	33	28.95%
Obesity status		
•Not Obese(BMI<25)	78	68.42%
•Over weight(BMI25-29.9)	11	9.65%
•Obesity (BMI>30)	25	21.93%

Table no. 2: Clinical profile

Variables	Frequency	Percentage
Parity		
• Primipara	21	18.42%
• Multipara	93	81.58%
Patient's condition		
• Anemia	88	77.19%
• Decreased GCS	78	68.42%
• Hypovolemic shock	55	48.25%
• Thrombocytopenia	43	37.72%
• Acute renal impairment	31	27.19%
• Use of ventilator	25	21.93%
Type of operations at referring hospital		
• Elective	31	27.19%
• Emergency	83	72.81%
Management at Tertiary hospital		
• Surgery	44	38.60%
• Conservative	70	61.40%

Table no.3 : Complications among post-caesarean section mothers referred to a tertiary hospital

Variables	Frequency	Percentage
OBSTETRICAL COMPLICATIONS		
•Post-partum hemorrhage	66	57.89%
•Puerperal sepsis	23	20.18%
•HELLP syndrome	12	10.53%
•Postpartum eclampsia	6	5.26%
•Placenta increta	2	1.75%
CNS COMPLICATIONS-PRES syndrome	3	2.63%
SURGICAL COMPLICATIONS		
•Wound gape	8	7.02%
•Burst abdomen	3	2.63%
INTESTINAL OBSTRUCTION-Perforation Peritonitis	1	0.88%
RENAL COMPLICATIONS-AKI	31	27.19%
CARDIAC COMPLICATIONS- Cardiomyopathy	2	1.75%
OTHER COMPLICATIONS		
•Paralytic Ileus	11	9.65%
•MODS	7	6.14%
•DIC	6	5.26%
•DVT	3	2.63%
•Pulmonary embolism	2	1.75%

Table no.4:Surgical intervention procedures performed

Variables	Frequency (n=44)	Percentage
Vascular Ligation (Internal iliac artery)	5	11.36%
Hysterectomy	24	54.55%
Exploratory laparotomy	36	81.82%
Secondary resuturing	8	18.18%

Table no. 5:Maternal outcomes

Variables	Frequency	Percentage
MORBIDITY	101	88.60%
•ICU Admission	75	65.79%
•Prolonged Hospital Stay (>10 days)	45	39.47%
MORTALITY	13	11.40%
•Medical cause	12	10.53%
•Surgical cause	1	0.88%

Common morbidities observed were ICU Admission (65.79 %) and Prolonged Hospital Stay (>10 days) (39.47 %). Caesarean section (CS) is a life-saving intervention for women and newborns when complications occur, such as antepartum haemorrhage, fetal distress, abnormal fetal presentation and hypertensive disease. CS is the most common major surgical intervention in many countries[7]. A WHO global survey has revealed that CS is associated with an increase in postpartum antibiotic treatment, greater complications in subsequent pregnancies, longer hospital stay and severe maternal-neonatal morbidity and mortality[8].

Maternal morbidity, mortality and long-term sequel post caesarean section are difficult to deny, related complications encountered are blood transfusion, endometritis, superficial surgical site infection, haemorrhage, injury to the pelvic organs, thromboembolic disorders and anaesthesia related complications[9-10].

In long term complications, caesarean section delivery is associated with abnormal placentation, uterine rupture in the subsequent pregnancy, adhesions, unexplained stillbirth, preterm birth especially when the previous CS was done during the second stage of labour and scar complications which includes postmenstrual spotting, endometriosis, uterine scar pregnancy, numbness and pain[11-12].

Development of any complication post caesarean is multifactorial. It directly depends on the high-risk antenatal complications, quality of antenatal care, availability of expertise (surgery and anaesthesia) at the periphery, blood transfusion facilities and most crucial referral linkages. Referral services are crucial in postoperative women to manage the complications before they become life-threatening.

In study by De AK[13] 52 women experienced serious complications following cesarean section. Postpartum hemorrhage (32.67%) was the leading complications followed by rectus sheath hematoma and medical complications (15.38% each). Surgical interventions like obstetric hysterectomy, step wise devascularisation were the commonly adopted procedures. A majority of those women required dialysis as well as ventilatory support. Ten women died after cesarean section mainly due to different medical crisis.

Das[14] noted that mean age of the respondents was 25.96±4.43 (age range: 17-39) years. Among 100 mothers, 59% underwent elective and 41% underwent emergency cesarean section. 67% had uneventful outcome after LSCS. Rest 33% had post cesarean section complications. Among them 33% mother who had complications, 19 (57.57%), 12 (36.36%), 10 (30.30%) and 8(24.24%) had wound gap, UTI, GIT complications and haemorrhage respectively. 3 (9.09%)

each suffered from thromboembolic complications and septic thrombophlebitis. Only one (3.03%) experienced DIC. Out of 33 complicated cases; 27 (81.81%) required treatment with injection oxytocin, blood transfusion, condom catheterization and 10 (30.30%) required secondary closure. Among them 4 (12.12%) underwent mass closure and received antithrombotic drug. One (3.03%) each underwent excision sinus tract and re-laparotomy.

In study by Vaishali Jain *et al.*, proportion of referred cases was 32.5%. Maximum number of patients were in 20-30yrs age group comprising 82.9% of cases. Majority of patients were primigravida (55.2%). Hypertensive disorders (26%) and previous caesarean (9.2%) were major causes of referral. 34.4% of patients were from within Indore District and 65.6% from outside Indore District. 43.5% patients had vaginal delivery, 33.6% underwent LSCS, conservative management was done in 14% cases. Maternal deaths were in 2.6% out of total referred cases. Hypertensive disorders and obstetric hemorrhage 26% were major direct causes of mortality. Anemia (12%) being common indirect cause.

India's rising rate of caesarean births is a cause for concern and signals the need for strategies to deal with it. Adverse outcomes of caesarean births include high risk of maternal and neonatal death, various maternal morbidities including infections, need for blood transfusion, neonatal morbidities related to iatrogenic prematurity, and potential complications in subsequent pregnancies[16].

Coordination between healthcare providers at grass root level to tertiary care centre is the need of time. Timely referrals with detailed referrals slip or prior information of referred cases might help in early and optimal interventions so that both major morbidity and mortality can be avoided. . Developing a standard referral protocol, its compliance, vigilant monitoring, and regular evaluation of policy outcomes is indispensable in ensuring effective referral interventions. A more extensive study involving CS done at centers other than tertiary care, including referrals of these women and follow-up is required to explore the situation further, identify gaps and suggest appropriate interventions to improve maternal health.

CONCLUSION

In present study, obstetrical complications were major cause of referral in post caesarean section patients. Patients referred due to medical complications had more mortality while prolonged stay was noted in patients requiring surgical intervention. Timely referrals with detailed referrals slips or prior information of referred cases might help in early and optimal interventions so that both major morbidity and mortality can be avoided.

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