



# A STUDY OF MATERNAL AND PERINATAL OUTCOME IN PATIENTS OF THIRD TRIMESTER PREGNANCIES WITH PREVIOUS ONE LSCS.

*(A STUDY OF 300 CASES)*

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## ❖ ABSTRACT

**AIMS & OBJECTIVE:** To study regarding maternal previous Obstetric history, intrapartum assessment of previous LSCS scar clinically and radiologically, Outcome of present pregnancy & complication & perinatal outcome in patients of third trimester pregnancies with previous one LSCS.

**DESIGN:** This is a prospective hospital based study.

**SETTING:** Obstetrics and Gynaecology department, GGG hospital, Jamnagar

**SAMPLE SIZE:** 300 women with previous LSCS during third trimester confirmed by ultra Sonography and clinical assessment scar at tertiary care centre.

**METHODS:** Detailed information about past obstetric history, Outcome of present pregnancy in terms of mode of delivery, maternal outcome, Neonatal outcome.

**RESULTS:** Majority of the cases of previous CS done for nonrecurrent indication can be delivered safely by the vaginal route, without any major complication.

Scar thickness by USG is important but clinical assessment of scar is also important along with baby weight during labour in previous one LSCS patients.

## ❖ INTRODUCTION

Caesarean section is one of the commonly performed surgical procedures in obstetric and is certainly one of the oldest operations in surgery.

There are two types of Caesarean section (CS). An important distinction lies in the type of incision made on the uterus, apart from the incision on the skin. According to type of incision, these two types include the classical Caesarean section (CS) and lower uterine segment section (LSCS). The lower uterine segment section is the procedure most commonly used today; it involves a transverse cut just above the edge of the bladder and results in less blood loss and is easier to repair.

Recently there has been a dramatic rise in the caesarean section rate worldwide especially in the developed countries.

The reasons for this increase in caesarean birth are multifactorial and include the increasing number of women with prior caesarean delivery, the increase in multifetal gestations, use of intrapartum electronic fetal monitoring, changes in obstetric training, medico legal concerns, alterations in parental and social expectations of pregnancy outcome and maternal autonomy in decision – making regarding delivery mode. Approximately one third of caesarean sections are performed electively and two third are performed as emergency procedures.

As primary caesarean deliveries contributed most to the overall caesarean section rate (CSR). Wide variation in clinical practice among the obstetricians was identified. Main factor for these inconsistencies in clinical practice was attributed to the lack of adherence to standard guidelines and lack of acceptable benchmarks for the rates of caesarean section, induction of labour and failed inductions. Induced cases contributed most to primary caesarean sections.

Too many inductions on vague indications and poor bishop scores, assessment and decision making by junior doctors, and missing partograms were observed as a frequent occurrence. Repeat caesarean section accounted for the largest proportion of caesarean deliveries in United Kingdom.

This is clear that primary caesarean section is an important target for reduction because it leads to an increased risk for repeat caesarean delivery.

Risk of laparotomy is considerably elevated in women who gave birth by caesarean section. This should be considered in counselling and clinical decision making.

VBAC is associated with decreased maternal morbidity and a decreased risk of complications in future pregnancies as well as a decrease in the overall cesarean delivery rate at the population level. However, although TOLAC is appropriate for many women, several factors increase the likelihood of a failed trial of labor, which in turn is associated with increased maternal and perinatal morbidity when compared with a successful trial of labor (ie, VBAC) and elective repeat cesarean delivery.

Therefore, assessing the likelihood of VBAC as well as the individual risks is important when determining who is an appropriate candidate for TOLAC.

This study was conducted to demonstrate maternal and fetal outcomes, incidence of VBAC, the best method for scar assessment in patients of third trimester pregnancies with previous one LSCS.

## ❖ AIMS AND OBJECTIVES

- To narrate incidence (according to this study) of:
  - previous LSCS.
  - Repeat LSCS.
  - VBAC.
  - laparotomy.
- To study maternal & perinatal outcome.
- To diagnose best method for scar assessment by whether USG or clinical assessment.
- To study relations between scar on uterus and patient's indication of previous LSCS. Previous LSCS before how many years, baby weight difficulty in previous LSCS and contraindications.
- To find co-relation between clinical assessment and scar thickness, pre-operative and per-operative.

## ❖ MATERIAL AND METHODS

**Study Design:** This is an analytical prospective hospital based study

**Study Sample size:** Patient with previous LSCS during third trimester (29 weeks – 40 weeks) confirmed by ultrasonography and clinical assessment scar at tertiary care centre.

**Study Duration:** 2 year

**Sample Size:** 300 patients

### **Inclusion Criteria:**

- Pregnant women with one previous lower segment caesarean section.
- Period of gestation more than 29 week. (Third trimester pregnancy)
- Singleton pregnancy.
- Interpregnancy interval more than 18 months.
- Non-recurrent indication for previous caesarean section.

### **Exclusion Criteria:**

- Women with more than one previous caesarean section.
- Previous classical section or inverted “T” uterine scar, extraperitoneal caesarean section.
- Previous hysterotomy or myomectomy.
- Previous uterine rupture.
- Presence of contraindication to labour such as placenta previa.
- Multiple pregnancy in this pregnancy.
- First and second trimester pregnancy.
- Recurrent indication for repeat caesarean section.
- Any medical complications such as hypertension, diabetes mellitus, anaemia, cardiac disease.
- Any fetal anomaly incompatible with life.
- Fetal macrosomia.
- Women who have not given informed written consent.

## Methodology

After obtaining clearance and approval from Institutional Ethical Committee, pregnant women with one previous caesarean section who are admitted in tertiary care hospital, Department of Obstetrics and Gynaecology, Jamnagar from November 2018 to November 2020 are selected by simple random sampling after applying inclusion and exclusion criteria and included in the study.

Written informed consent is taken from all the patients included in the study. Demographic data are collected.

Detailed information about past obstetric history are noted.

- Indication and place of previous caesarean section. History of any full term vaginal deliveries prior to or following previous caesarean section.
- History of complications following previous caesarean section such as need for blood transfusion, foul smelling lochia, fever, wound and /or systemic infection requiring prolonged hospitalization.
- A general physical and systemic examination will be carried out followed by obstetric examination. Scar-thickness by ultra-sonographically, clinical examination of previous scar.
- Outcome of present pregnancy in terms of mode of delivery.
- Maternal outcome, morbidity and mortality (if associated) in terms of duration of hospital stay, requirement of blood-transfusion, wound infection, hysterectomy, scar dehiscence / rupture, ICU admission.
- Neonatal outcome are assessed in terms of Apgar score at 1st and 5th minute, need for NICU admission and the indication for the same and neonatal mortality. Data collected for the purpose of the study are recorded in the study proforma.

## ❖ RESULT

**Table 1: Distribution according to POG**

Period of gestation in weeks	VBAC	EMLSCS	ELSCS	Laparotomy
32-34	4	9	0	1
35-37	19	33	2	0
38-39	97	88	22	3
≥40	8	6	9	0

Table 1 shows the distribution according to POG. For POG of 32-34 weeks, EMLSCS was most common.

**Table2: Distribution according to Previous year LSCS**

Previous year LSCS	Frequency	Percent	VBAC	EMLSCS	ELLSCS	LAPROTOMY
≤3	111	37.0	41	53	12	4
>3	189	63.0	87	80	21	0
Total	300	100.0	128	135	33	4

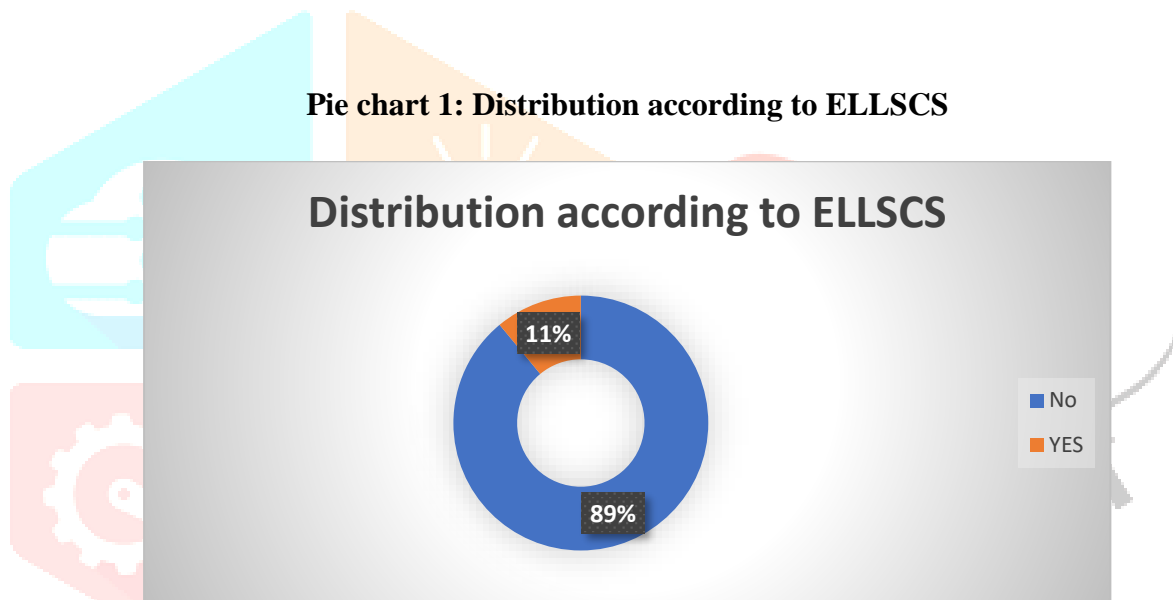
Table 2 shows the distribution according to Previous year LSCS. Majority had more than 3 Previous year LSCS (63%) whereas 37% wone had ≤3 Previous year LSCS.

**Table 3: Distribution according to thickness of scar in USG**

Thickness of scar in USG (mm)	Frequency	Percent	VBAC	EMLSCS	ELLSCS	Laprotomy
<2	6	2.0	0	0	0	1
2-3	90	30.0	25	60	5	3
>3	204	68.0	103	75	28	0
Total	300	100.0	128	135	33	4

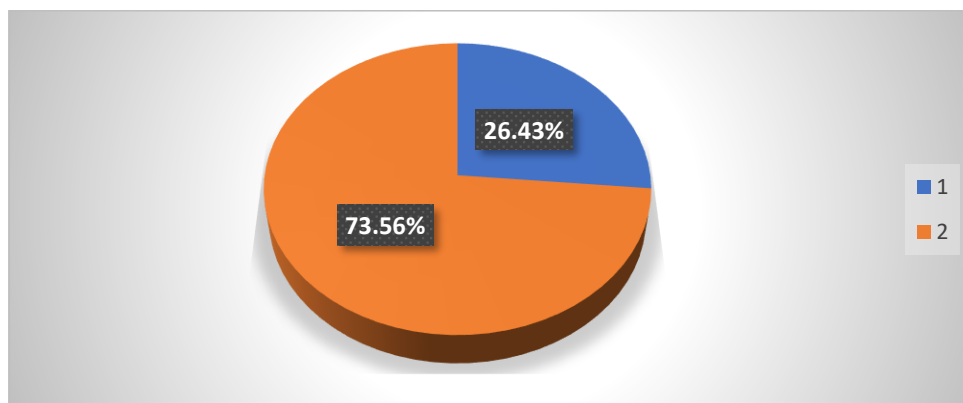
Table 3:shows the distribution according to thickness of scar in USG. It was found that out of 300 patients, majority had thickness of scar in USG of >3 (68%) followed by 2-3 (30%) and <2 (2%).

**Pie chart 1: Distribution according to ELLSCS**



Pie chart 1 shows the distribution according to ELLSCS. Out of 300 women, only 11% had elective LSCS.

**Pie chart 2: Distribution according to Vaginal Birth After C-Section (VBAC)**



Pie chart 2 shows distribution according to VBAC. Out of 174 women, 128 (73.56%) had Vaginal Birth After C-Section.

Table 4 Distribution according to complication after VBAC

Complication after VBAC	Frequency	Percent
Adherent Placenta	1	0.8
Broad ligament hematoma	1	0.8
scar rupture	1	0.8
Total	128	100.0

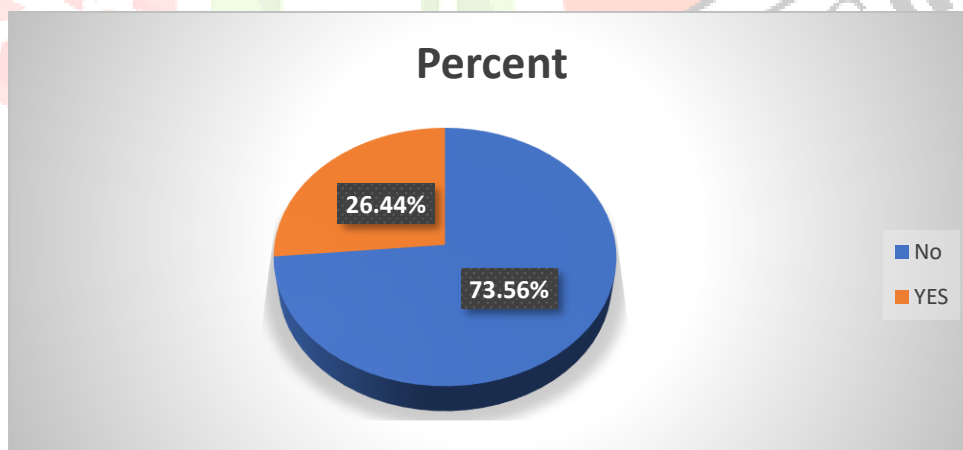
Table 4: shows the distribution according to complication after VBAC. Only 3 women had complication after Vaginal Birth After A C-Section. One each had Adherent Placenta (0.8%), Broad ligament hematoma (0.8%) and scar rupture (0.8%). Only 3 women 2.34% had undergone laprotomy after VBAC.

Table 5: Distribution according to indication of laprotomy

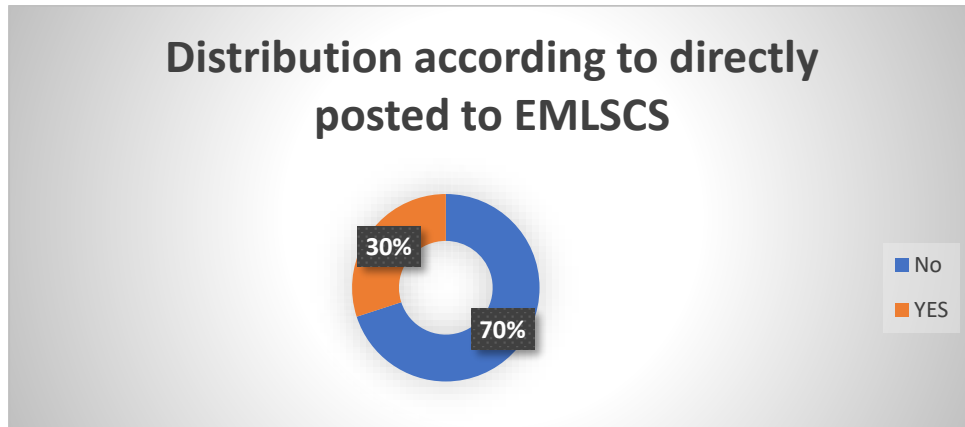
Indication of laparotomy	Frequency	Percent
Nil	296	98.7
Rupture uterus	4	1.3
Total	300	100.0

Table 5: shows the distribution according to indication of laparotomy. Laparotomy was indicated because of Rupture uterus. Only 4 women (1.3% undergone laparotomy)(Without VBAC Trial.)

Pie chart 3: Distribution according to unsuccessful VBAC shifted for EMLSCS



Pie chart 3 shows the distribution according to unsuccessful VBAC shifted for EMLSCS. Out of 174 VBAC, 46 (26.44%) were Unsuccessful and shifted for EMLSCS.

**Pie chart 4: Distribution according to directly posted to EMLSCS**

Pie chart 4 shows distribution according to directly posted. Out of 300 cases, 90 (30%) were directly posted.

**Table 6: Post-operative complication**

Post-operative complication	EMLSCS	ELSCS
DVT	1	0
Infection	8	0
Paralytic ilius	1	0
Uterine wound infection	1	0
Wound gap	4	0
Incisional hernia	0	0

Table 6 shows post-operative complication. It was found that none of the patients in ELSCS had any complications whereas those who underwent EMLSCS, 1 had DVT, majority ad infections (n=8), 4 had wound gap.

**Table 7: Distribution according to Neonatal outcome**

Neonatal outcome	VBAC	EMLSCS	ELSCS	Laparotomy
IUFD	3	0	0	0
Live	124	83	33	1
Still birth	1	0	0	3
Neonatal death	0	7	0	0

Table 7: shows the distribution according to Neonatal outcome. Death was more in EMLSCS whereas stillbirth were more in laparotomy.

## ❖ Discussion

A total of 300 patients admitted in the department of Obstetrics and Gynaecology were recruited in the present study.

Kalburghi P et al observed the mean age in VBAC was 28.1 year their study<sup>(1)</sup>. Bengal VB et al., the most common age group of study participants was 21 to 25 years (39.71%) and mean age of study participants was 24.04±3.91 years<sup>(2)</sup> Wang X et al reported 41.4% to be 25 - 29 years of age.<sup>(3)</sup>

We observed in the present study that majority of the patients had more than 3 year of previous LSCS (63%) whereas 37% women had ≤3 year of previous LSCS. Bengal VB et al observed that the interval between the previous caesarean and the present pregnancy was more than two years in 77% cases, whereas it was less than two years in 23% of the cases<sup>(7)</sup>. Kalburgi P et al observed that less than 2-year gap was found in 10 (11.1%) cases in successful VBAC group and 21 (23.3%) in LSCS group. The difference between both the group was statistically significant ( $p < 0.05$ ) which indicates that inter-delivery interval was significantly lower in LSCS group compared VBAC group<sup>(1)</sup>. In a study done by Sakiyeva KZ et al<sup>(4)</sup>, less than 2-year gap was found in 51 (19.8%) cases in successful VBAC group and 73 (12.7%) in LSCS group. The number of women with inter-delivery interval less than 2 years was statistically high in unsuccessful VBAC in comparison with successful VBAC group.

We observed that the thickness of scar in USG in the patients of the present study, majority had thickness of scar in USG of >3 (68%) followed by 2-3 (30%) and <2 (2%). In 41% scar was intact whereas in 13% Partial scar dehiscence was noted and in 4% women Complete scar dehiscence was observed. Shipp et aln<sup>(5)</sup> studied the risk of scar dehiscence in relation to the interval between a previous CS and the present pregnancy. He reported that the rate of scar rupture was 2.3%, when the interval was less than 18 months as compared to 1%, when the interval was more than 18 months.

Kalburgi P et al<sup>(1)</sup> reported that scar dehiscence, fever and PPH were found in 2.2%, 6.7% and 2.2% cases respectively in VBAC group while the same was 3.3%, 8.9% and 1.1% respectively in LSCS group. Wound infection was not found in any case in VBAC group while it was found in 3 cases in LSCS group. However, occurrence in individual complication was statistically not significant ( $p > 0.05$ ) between both groups.

We observed that those with birth weight ≤2.5, 32 underwent VBAC, 23 had EMLSCS and 1 had ELLSCS whereas in 1 Laparotomy was performed. Kalburgi P et al reported that mean birth weight was 2832 gram in successful VBAC group and Mean birth weight was 2917 gram in LSCS group.<sup>(1)</sup>

In the present study, only 3 women had complication after Vaginal Birth After C-Section. One each had Adherent Placenta (0.8%), Broad ligament hematoma (0.8%) and scar rupture (0.8%). Banal VB et al observed two cases of scar dehiscence, one case of broad ligament hematoma, and one case of cervico-vaginal laceration<sup>(7)</sup>

In the present study, ruptured uterus was in 1.3% of patients. Bengal VB et al reported two cases of uterine rupture in their study<sup>(3)</sup>. Obara et al. reported two cases of ruptured uterus (0.93%) in their study of 214 cases of previous CSs<sup>(6)</sup>. The American college of Obstetricians and Gynaecologists (ACOG) estimated the risk of uterine rupture in women with a previous CS and concluded that the lower segment caesarean scar has a minimum risk (0.2-1.5%) of rupture during vaginal delivery.

Kalburgi P et al reported that Scar dehiscence, fever and PPH were found in 2.2%, 6.7% and 2.2% cases respectively in VBAC group while the same was 3.3%, 8.9% and 1.1% respectively in LSCS group. Wound infection was not found in any case in VBAC group while it was found in 3 cases in LSCS group. However, occurrence in individual complication was statistically not significant ( $p > 0.05$ ) between both groups<sup>(1)</sup> we observed that none of the patients in ELSCS had any complications whereas those who underwent EMLSCS, 1 had DVT, majority ad infections (n=8), 4 had wound gap.

In our study it was found that among those with APGAR score ≤7, 8 had VBAC, 12 had EMLSCS, 1 had ELSCS and 1 had Laparotomy whereas among those with APGAR score >7, 120 had VBAC, 80 had EMLSCS, 32 had ELSCS and 2 had Laparotomy. Bengal VB et al reported that neonatal morbidity in the form of a low Apgar score (<6) was observed in 4% babies<sup>(7)</sup>



Kalburgi P et al observed that Mean APGAR score at 1 min was 7.6 and 7.1 in successful VBAC group and LSCS group respectively. The difference between both the group was statistically significant ( $p < 0.05$ ) which indicates that APGAR score at 1 min was significantly better in VBAC group. Similarly mean APGAR score at 5 min was significantly better in VBAC group compared to in LSCS group ( $p < 0.01$ ).

## ❖ SUMMARY

The rate of primary cesarean section (CS) is on the rise. More and more women report with a history of a previous CS. A trial of vaginal delivery can save these women from the risk of repeat CS.

This study was conducted to demonstrate maternal and fetal outcomes, incidence (according to this study) of VBAC, the best method for scar assessment in patients of third trimester pregnancies with previous one LSCS. As cesarean section in primi gravidas have adverse consequences in forthcoming pregnancies, this will show maternal and fetal complications in the third trimester.

A total of 300 patients admitted in the department of Obstetrics and Gynaecology were recruited in the present study.

- Majority of the women had age between 26-30 years (57.7%) followed by 21-25 years (33.3%).
- Majority had emergency admission (85.7%) whereas 14.3% had elective admission.
- Majority had parity of one (75%) whereas 19.3% had parity of 2.
- Majority had LSCS (77.7%) whereas 9.7% had LSCS and VBAC in two previous pregnancies.
- Most common indication for previous LSCS was fetal distress (24.7%), followed by breech (15%), NPL (11.3%), APH (8%) and severe oligo (6.7%).
- Majority had more than 3 year of previous LSCS (63%) whereas 37% women had  $\leq 3$  year of previous LSCS.
- Majority of the babies in previous pregnancy had birth weight  $\geq 2.5$  kgs (n=240) whereas 28 babies had weight  $< 2.5$ . Whereas in present pregnancy among the babies with birth weight of  $< 2.5$  kgs, 14 had VBAC, 13 had EMLSCS and 2 had ELSCS whereas among those with birth weight  $\geq 2.5$ , 114 had VBAC, 123 had EMLSCS and 31 had ELSCS. Those with birth weight  $\leq 2.5$ , 32 underwent VBAC, 23 had EMLSCS and 1 had ELSCS whereas in 1 Laparotomy was performed.
- It was found that out of 300 patients, majority had thickness of scar in USG of  $> 3$  (68%) followed by 2-3 (30%) and  $< 2$  (2%). It was found that majority tenderness was present in 16.3% women, 82% were in 1st stage if labour an 1.7% were in 2nd stage of labour. Out of 300 women, only 11% had elective LSCS. Most common indication for elective LSCS was CPD (30.30%) followed by breech (24.24%), Severe oligo (18.18%) and transverse lie (15.15%). Only 3 women had complication after Vaginal Birth After A C-Section. One each had Adherent Placenta (0.8%), Broad ligament hematoma (0.8%) and scar rupture (0.8%).
- According to this study, scar thickness by USG is important but clinical assessment of scar is also important along with baby weight during labour in previous one LSCS patients.
- Out of 46 EMLSCS, most common indication for EMLSCS was fetal distress (89.13%) followed by scar tenderness (86.96%), CPR $< 1$  (26.09%) and PROM (21.74%). In 41% scar was intact whereas in 13% Partial scar dehiscence was noted and in 4% women complete scar dehiscence was observed. Most common Intra-operative complication was Bleeding/haematoma (4%) followed by Visceral injury (1.7%) and adhesions (1.7%).
- It was also found that none of the patients in ELSCS had any complications whereas those who underwent EMLSCS, 1 had DVT, majority ad infections (n=8), 4 had wound gap. It was found that among those with APGAR score  $\leq 7$ , 8 had VBAC, 12 had EMLSCS, 1 had ELSCS and 1 had Laparotomy whereas among those with APGAR score  $> 7$ , 120 had VBAC, 80 had EMLSCS, 32 had ELSCS and 2 had Laparotomy. Those with Birth asphyxia, 9 underwent VBAC, 9 had EMLSCS and 1 had Laparotomy, one patient with fever had EMLSCS. 1, 3 and 2 patients with hyperbilirubinemia underwent VBAC, EMLSCS and ELSCS respectively.

## ❖ CONCLUSION

Caesarean section is one of the commonly performed surgical procedures in obstetric and is certainly one of the oldest operations in surgery. Vaginal delivery in a patient with the history of previous LSCS requires a serious consideration. It was included in the present study that successful vaginal delivery after one previous cesarean scar was associated with past obstetrics performance and mainly to the current labor. The main determinants include history of stillbirth, history of successful VBAC in the past, rupture of membrane, absence of meconium, cervical stage of labor at admission, position of the presenting part, duration of labor, and knowledge of the previous indication for the past cesarean section.

Healthy previous LSCS scar contributes to the decision of vaginal delivery during second pregnancy in majority of the patients. Most common indication for elective LSCS is CPD followed by breech.

There are less incidences of complications in vaginal delivery after previous LSCS. For the emergency LSCS, the most common indication for EMLSCS is fetal distress followed by scar tenderness. Birth asphyxia was found to be the most common neonatal complications associated. We observed neonatal death was more in EMLSCS.

Scar thickness by USG is important but clinical assessment of scar is also important along with baby weight during labour in previous one LSCS patients.

Majority of the cases of previous CS done for nonrecurrent indication can be delivered safely by the vaginal route, without any major complication to the mother and the newborn, in an institution having facilities for emergency CSs. It has been proved to be a safe alternative to repeat an elective CS.

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