

## Birth After Previous Caesarean Section

Dr Nupur Saini, Dr. Parneet Kaur, Dr. Rama Garg, Dr. Manjit Kaur Mohi,

Dr. Gaganpreet Kaur Gill

Ap Deptt Of Obgy Gian Sagar Medical College Patiala

Prof Deptt Of Obgy Gmc Patiala

Prof Deptt Of Obgy Aimsr Bathinda

Prof Deptt Of Obgy Gian Sagar Medical College Patiala

Ap Deptt Of Obgy Aimsr Bathinda Punjab, India

---

### Abstract:

**Background:** Caesarean section is the most commonly performed surgery in obstetrics. Due to the rise in caesarean section rate due to non-recurring indications in past few years, the number of pregnancies with previous caesarean section has also increased. There is no consensus regarding decision of mode of delivery in patients with previous caesarean section.

**Material and Methods:** This one year prospective and observational study was carried out in the Department of Obstetrics and Gynaecology, Government Medical College, Rajindra Hospital Patiala. Women with previous one LSCS who met the inclusion criteria were included in the study. A detail history and clinical examination and required investigations were done. The maternal and perinatal outcome was noted.

**Results:** 260 cases with previous 1 caesarean section were enrolled during the study period of one year. 50 patients underwent elective repeat caesarean section as they were not willing for trial of labor. Thus 210 cases underwent trial of labor. 140 booked cases 136 (97.14%) were willing for trial of labor and 4 (2.86%) were not willing for trial of labor. Out of 120 unbooked cases 74 (61.67%) underwent trial of labor and 46 (38.33%) refused TOLAC. 112 cases (53.33%) had VBAC and 98 (46.67%) underwent emergency repeat caesarean section. Out of 112 cases who delivered vaginally, instrumental delivery was done in 6 cases (5.36%). The mean gestational age in VBAC cases and ERCS cases was  $40.11 \pm 1.18$  weeks and  $40.08 \pm 1.12$  weeks respectively. As we had enrolled the cases after strict inclusion / exclusion criteria and we waited for spontaneous onset of labor, so the mean gestational age in TOLAC cases was above 40 weeks.

**Conclusion:** In our study, though 260 cases fitted into inclusion criteria but 19.23% (50 cases) refused TOLAC thus 80.77% (210 cases) became study subjects. 53.33% out of these had successful vaginal delivery.

---

Date of Submission: 20-09-2024

Date of Acceptance: 30-09-2024

---

### I. Introduction

Caesarean section is the most commonly performed surgery in obstetrics. Due to the rise in caesarean section rate due to non recurring indications in past few years, the number of pregnancies with previous caesarean section has also increased. There is no consensus regarding decision of mode of delivery in patients with previous caesarean section.<sup>[1]</sup> Delivery planning for the woman who has had a previous caesarean delivery can begin with preconceptional counselling, but should definitely be addressed early in prenatal care. Assuming no mitigating circumstances, there are two basic choices, first is a trial of labor after caesarean (TOLAC) with the goal of achieving vaginal birth after caesarean (VBAC). If caesarean delivery becomes necessary during the trial, then it is termed a "failed trial of labor". A second choice is elective repeat caesarean delivery (ELRCS).<sup>[2]</sup>

Rate of caesarean section in India is 30 %. Based on NFHS-III (2005-06) data, the rate of caesarean delivery is highest in women of Kerala (30.09%) followed by Goa (25.51%), Andhra Pradesh (27.49%), Tamil Nadu (23.00%), Punjab (16.45%) and Karnataka (15.27%), which have crossed the WHO recommended range of 5-15%.<sup>[3]</sup> There is also some astonishing data from the South American nations which reports the rate of caesarean sections at 50% in the non government hospitals of Chile, Argentina, Brazil and Paraguay.<sup>[4]</sup>

VBAC rates increased from 3.4 % in 1980 to a peak of 28.3 % in 1996. The VBAC rate levelled at approximately 8 % by 2009 and 2010, while the total caesarean delivery rate increased to 32.8 % in 2011. Advances in surgical techniques, the development of anaesthesiology services, particularly endotracheal anaesthesia, good quality postoperative care with cardiovascular, respiratory and biochemical resuscitation, significantly reduce maternal mortality and morbidity after caesarean section. Progress and development of neonatal services, and intensive care of newborns has enabled a high survival rate.<sup>[5]</sup>

---

In an appropriate clinical setting and properly selected group of women, VBAC offers distinct advantages over a repeat caesarean section, since the operative risks are completely eliminated, the hospital stay is much shorter and expenses involved are much less. Trial of labor after previous caesarean delivery (TOLAC) provides women who desire a vaginal delivery with the possibility of achieving that goal—a vaginal birth after caesarean delivery (VBAC).<sup>[6]</sup> Although neither route is risk-free, the crucial issue is to ensure better maternal and perinatal outcomes. Deciding when to attempt VBAC is a major decision and should be based on careful selection of patients after thorough counselling, estimation of patient's risk of uterine rupture and strict adherence to the most recent guidelines for managing labor, in units where there are facilities for immediate access to surgery, if complications arises.<sup>[7]</sup>

This study was carried out to assess the maternal and fetal outcome in post caesarean pregnancy as well as the various indications of a repeat caesarean section, so that, a definite and safe protocol can be designed for selection of patient who is fit to undergo trial of labor after a previous caesarean section.

## **II. Aims And Objectives**

This study was carried out with the following objectives:-

- To determine the mode of delivery after previous caesarean section either VBAC or ERCS.
- Maternal outcome in vaginal birth after caesarean section.
- Maternal outcome in repeat caesarean section.
- Neonatal outcome in vaginal birth after caesarean section.
- Neonatal outcome in repeat caesarean section

## **III. Material And Methods**

This one year prospective and observational study was carried out in the Department of Obstetrics and Gynaecology, Government Medical College, Rajindra Hospital Patiala. Women with previous one LSCS who met the inclusion criteria were included in the study. A detail history and clinical examination and required investigations were done. The maternal and perinatal outcome was noted.

### **Inclusion Criteria**

- History of previous one caesarean section.
- Singleton pregnancy.
- Vertex presentation
- Gestational age  $\geq 37$  weeks.
- Patient willingness to participate in study

### **Exclusion Criteria**

- Estimated fetal weight  $> 3.5$  kg on ultrasonography
- Malpresentation
- Previous caesarean section due to recurring indications.
- Multiple pregnancy.
- Major degree placenta previa.
- Medical conditions (chronic hypertension, pre-eclampsia, GDM, heart disease etc.)
- Previous 2 or more LSCS.
- Carcinoma cervix.
- Previous classical caesarean section
- Presence of signs suggestive of scar dehiscence or rupture.
- Patient refusal to participate in the study.

### **Methods**

- All pregnant women with previous caesarean section were taken up and divided into two groups;
- Group A: who underwent Trial of Labor after Caesarean (TOLAC).
- Group B: who underwent elective repeat caesarean section (ELRCS).
- All pregnant women with previous caesarean section coming to the department was taken up for study after written and informed consent.

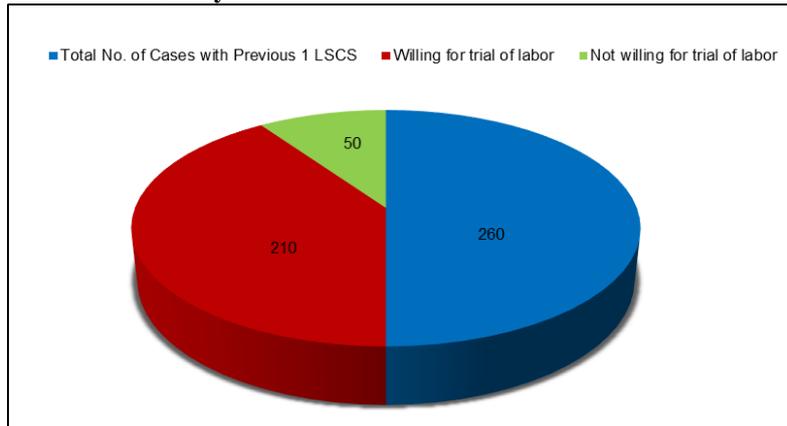
Detailed history of patients with previous caesarean section attending antenatal clinic including a detailed obstetric history with special reference to indication of previous caesarean, preoperative, intraoperative and postoperative complications, wound sepsis and delayed stitch removal was taken into account. Particulars of the patient and detailed history as per proforma was recorded.

Patients were followed till term and the mode of delivery was decided accordingly. At term gestation vaginal examination was done for pelvic assessment to decide mode of delivery. The labor was monitored with

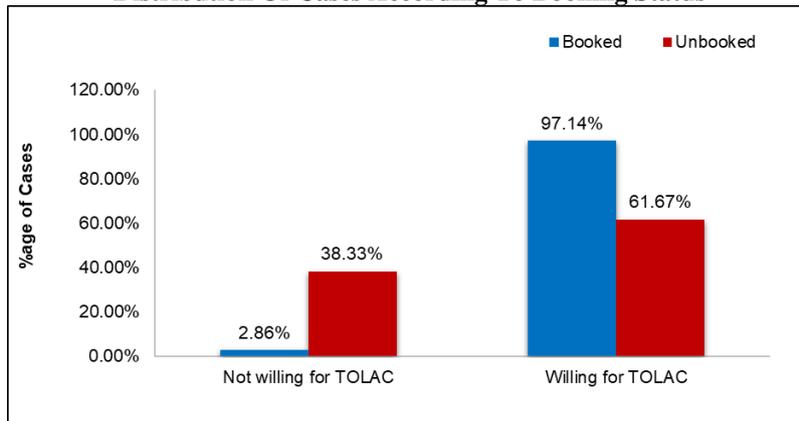
hourly recording of vital parameters-temperature, pulse, respiration and blood pressure, continuous electronic fetal monitoring by cardiotocography, monitoring of uterine contractions, Partograph and a close watch for early recognition of scar dehiscence by identifying maternal tachycardia, vaginal bleeding, scar tenderness and fetal heart rate alterations. Attempt at vaginal delivery was abandoned if there was any suspicion of scar dehiscence or sign of fetal distress or unsatisfactory progress of labor. Decision for repeat emergency caesarean was taken by the consultants who were blinded to the study. If the patients had to undergo emergency repeat caesarean section, all operative findings was noted including integrity of previous caesarean scar and other intraoperative problems. Maternal and fetal outcome was noted.

**IV. Results:**

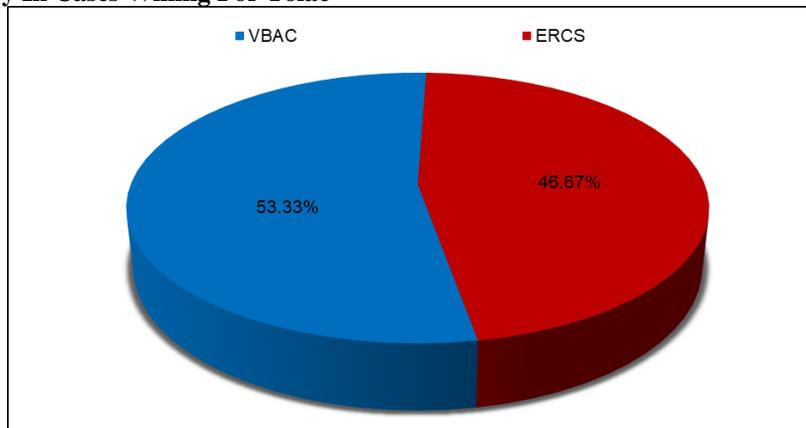
**Total Number Of Cases In The Study Period**



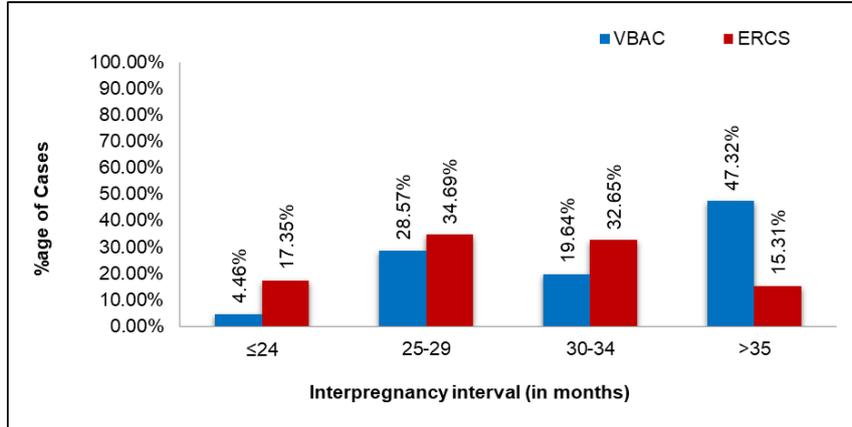
**Distribution Of Cases According To Booking Status**



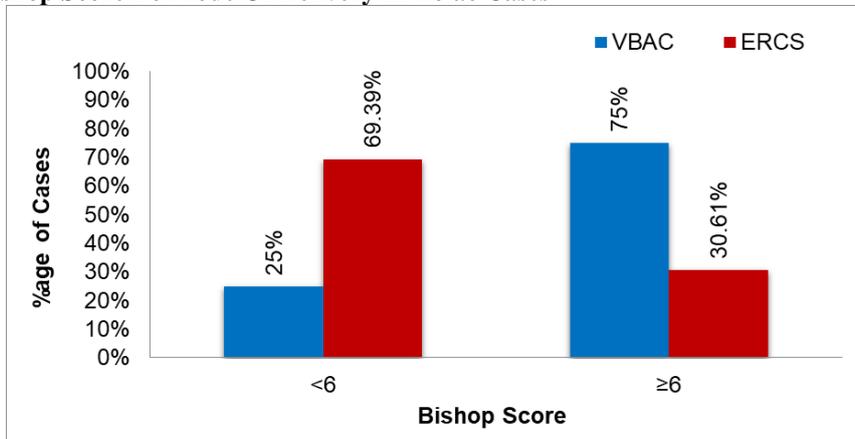
**Mode Of Delivery In Cases Willing For Tolac**



**Mode Of Delivery In Tolac Cases According To Interval Between Previous Caesarean And Current Pregnancy**



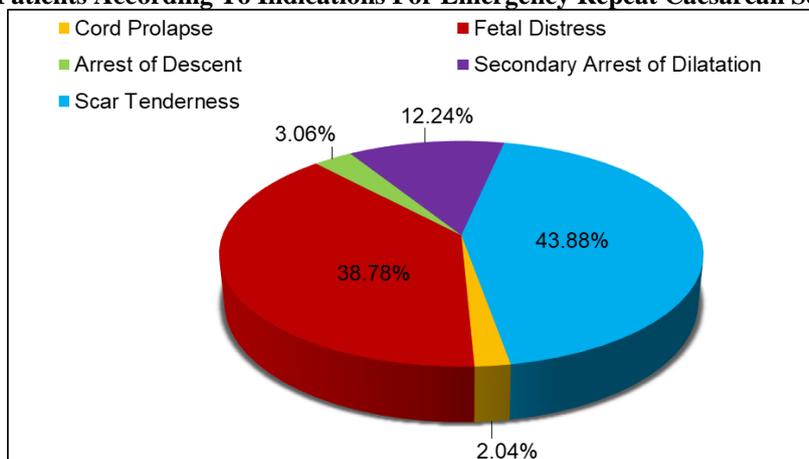
**Relation Of Bishop Score To Mode Of Delivery In Tolac Cases**



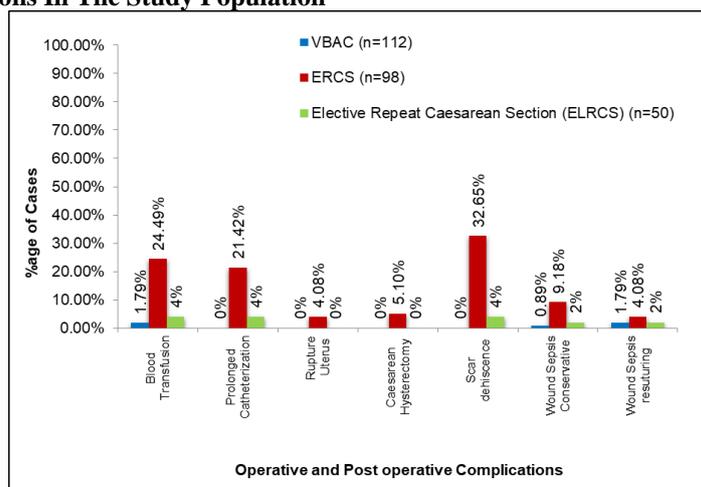
**Mode Of Delivery In Tolac Cases With Previous Vbac**

No. of Vaginal Deliveries after caesarean section	VBAC		Emergency Repeat Caesarean Section (ERCS)	
	No. of Cases	%age	No. of Cases	%age
0	42	37.5%	74	75.51%
1	64	57.14%	22	22.45%
2	6	5.36%	2	2.04%
Total	112	100%	98	100%
$\chi^2$	35.96			
p-value	0.000			

**Distribution Of Patients According To Indications For Emergency Repeat Caesarean Section**



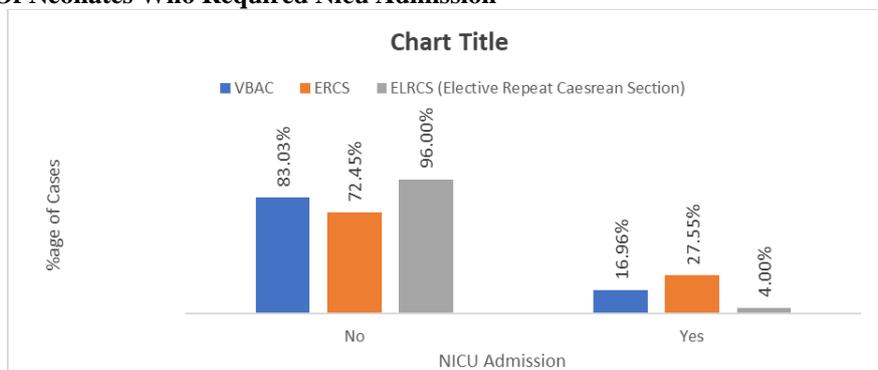
**Maternal Complications In The Study Population**



**Distribution Of Neonates According To Apgar Score**

Apgar Score	VBAC		ERCS		ELRCS (Elective Repeat Caesarean Section)	
	No. of Neonates	%age	No. of Neonates	%age	No. of Neonates	%age
<7	23	12.00%	34	34.69%	6	12.00%
≥7	89	88.00%	64	65.31%	44	88.00%
Total	112	100%	98	100%	50	100%
$\chi^2$	11.31					
p-value	0.010					

**Distribution Of Neonates Who Required Nicu Admission**



**V. Discussion**

In the present study, total 260 cases were enrolled during the study period. 50 cases were directly taken up for elective repeat caesarean section as they refused TOLAC, remaining 210 cases were given trial of labor. Out of 210 cases 112 (53.3%) delivered vaginally and 98 (46.67%) underwent emergency repeat caesarean section. This study was conducted with the main objective of observing success rate of TOLAC cases along with maternal and fetal outcomes.

The above table shows that rate of VBAC in the present study was 53.33% and rate of emergency repeat caesarean section was 46.67%. The observed results were comparable with the studies conducted by Birara et al<sup>[5]</sup> (2013), Pandey et al<sup>[8]</sup> (2017). Other studies showed more success rate of VBAC as compared to present study.

In this study we concluded that out of 210 patients who were willing for TOLAC, 112 cases underwent successful VBAC. We found that rate of VBAC was more in those cases who had prior history of 1 successful VBAC. In present study 57.14% of the successful VBAC group had vaginal delivery in their last confinement. Rate of emergency repeat caesarean section (75.51%) was more in patients who had no history of previous VBAC. The results were comparable with the study conducted by Zaitoun et al<sup>[9]</sup> (2013), who also observed 61.9% of the successful VBAC group had vaginal delivery in their last conception vs. 26.8% of the ERCS group. Similar results were seen in the study of Bangal et al<sup>[10]</sup> (2017) as they also reported higher success rate of TOLAC in women who had history of previous VBAC (91.67%). In a study of 318 women by Iyer et al<sup>[11]</sup>

(2001), it was stated that there were more chances of VBAC (84.8%) in women with history of previous vaginal delivery compared to ones without (62.7%). Thus we conclude that prior vaginal delivery subsequent to LSCS was associated with higher chances of VBAC.

In our study, no neonatal death was seen in any group. 27.55% neonates who were delivered by emergency repeat caesarean section, were taken to NICU for observation. NICU admission in vaginal delivery group was 16.96% and 4% in elective repeat caesarean section group. Majority of neonates were having NICU admission due to meconium stained liquor, low birth weight and respiratory distress syndrome. Our study was well comparable with studies of Jha et al<sup>[12]</sup> (2009), Shah et al<sup>[13]</sup> (2009) and Kamath et al<sup>[14]</sup> (2009) who found that infants born after successful VBAC (13%) had the lowest rates of NICU admission and the lowest resuscitation needs as compared to those born by failed TOLAC (36%). Similar results were seen by the study conducted by Goel et al<sup>[15]</sup> (2013) who observed, 9.37% neonates delivered by elective caesarean section required NICU admission whereas 64.86% neonates delivered by emergency caesarean section required NICU admissions. Thus we conclude that the cases who had failed TOLAC are at increased risk of jeopardized fetal conditions and operative interference should be made in time if complications like fetal or maternal distress comes into picture

## VI. Conclusion:

In our study, though 260 cases fitted into inclusion criteria but 19.23% (50 cases) refused TOLAC thus 80.77% (210 cases) became study subjects. 53.33% out of these had successful vaginal delivery. Factors favouring VBAC in successful TOLAC cases were observed as under:

- Booked cases with regular antenatal visits.
- Longer interpregnancy interval
- Spontaneous onset of labor
- A favourable Bishop score at time of admission.
- A previous vaginal delivery especially a previous VBAC.
- Cases in whom prior caesarean section was performed due breech, fetal distress and labor dystocia.
- Substantial reduction in the caesarean rates can be achieved safely and efficiently by encouraging the trial of labor in women with a single previous LSCS. Successful trial of labor in previous caesarean section is associated with better maternal and perinatal outcomes.
- We further proved that in the cases of non recurrent causes of previous LSCS, a fair trial of labor can be given. Caesarean section should not be always followed by repeat caesarean section but patients must have regular ANC visits and have hospital delivery in well equipped hospital and complications should be diagnosed at an early stage so that we can prevent maternal and perinatal morbidity and mortality.

## References

- [1] Singh N, Tripathi R, Mala Ym. Maternal And Foetal Outcomes In Patients With Previous Caesarean Section Undergoing Trial Of Vaginal Birth At A Tertiary Care Centre In North India. *J Preg Child Health* 2014;1(1):1-5.
- [2] Cunningham Fg, Levono KJ, Bloom SI, Spong Cy, Dashe Js, Hoffman BI. Prior Caesarean Delivery In : *Williams Obstetrics* (24th Edn.). Mcgraw-Hill 2014;609-19.
- [3] Verma V, Nath Dc. Prevalence Of The Caesarean Section In India. Presented In Population Association Of America 2018:1-17.
- [4] Belizan J, Althabe F, Barros F, Alexander S. Rates And Implications Of Caesarean Sections In Latin America: Ecological Study. *British Medical Journal*. 1999;319:1397-1402.
- [5] Birara M And Gebrehiwot Y. Factors Associated With Success Of Vaginal Birth After One Caesarean Section (Vbac) At Three Teaching Hospitals In Addis Ababa, Ethiopia: A Case Control Study. *Bmc Pregnancy Childbirth*. 2013;13(1):31.
- [6] American College Of Obstetricians And Gynecologists. *Acog Practice Bulletin No. 115: Vaginal Birth After Previous Caesarean Delivery*. *Obstet Gynecol* 2010;116:450-63.
- [7] Frass Ka, Al Harazi Ah. Outcome Of Vaginal Birth After Caesarean Section In Women With One Previous Section And Spontaneous Onset Of Labor. *East Mediterr Health J* 2011;17:646-50.
- [8] Pandey U, Tripathy P. Success Of Vbac In A Tertiary Hospital. *J Gynecol Women's Health* 2017;2(1):1-4.
- [9] Zaitoun Mm, Eldin San, Mohammad Ey. A Prediction Score For Safe And Successful Vaginal Birth After Caesarean Delivery: A Prospective Controlled Study. *J Women's Health Care* 2013;2(3):1-7.
- [10] Bangal Vb, Gavhane S, Yadav V, Aher K, Bhavasar D. Vaginal Birth After Caesarean Section: Why And How? *Int J Reprod Contracept Obstet Gynecol*. 2017;6(12):5554-58.
- [11] Iyer S, Handa Pr, Basu Sb. Delivery After One Previous Caesarean Section : One Year Prospective Study. *J Obstet Gynecol India* 2001;51:51-4.
- [12] Jha M. Pregnancy Outcome Of Single Previous Caesarean Section. *Nepal Health Res Counc* 2009;7:25-8.
- [13] Shah Jm, Mehta Mn. Analysis Of Mode Of Delivery In Women With Previous One Caesarean Section. *J Obstet Gynecol India* 2009;59: 136-9.
- [14] Kamath Bd, Todd Jk, Glazner Je, Lezotte D, Lynch Am. Neonatal Outcomes After Elective Caesarean Delivery. *Obstet Gynecol* 2009;113:1231-8.
- [15] Goel Ss, Tiwari M, Hariharan C, Shrivastava Ds. Outcome Of Post Caesarean Pregnancy And Comparison Of Maternal And Foetal Outcome Following Vaginal Birth Versus Repeat Caesarean Section In A Rural Hospital. *Int J Reprod Contracept Obstet Gynecol*. 2013;2(1):16-22.