Pregnancy Outcome in Women with One Previous Caesarean Delivery - A Prospective Longitudinal Study in a Peripheral Medical College of West Bengal

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ABSTRACT

BACKGROUND

Pregnancy with one prior Caesarean section (CS) constitutes a high-risk group with associated medical and legal implications. The dictum 'once a Caesarean always a Caesarean' has now judiciously been replaced with 'once a Caesarean, trial of labour after selection' because low transverse uterine incision has much lesser chance of scar rupture. Though vaginal birth after Caesarean (VBAC) or trial of scar (TOS) brings a significant change in modern obstetric practice in terms of lower maternal and perinatal morbidities, apprehension of accidental scar rupture during trial of labour with its undesirable consequences still prevents a good number of obstetricians adopting this process. The purpose of the study was to determine the outcome of pregnancy in relation to mode of delivery, i.e., either elective repeat Caesarean section (ERCS) or vaginal birth after Caesarean (VBAC) with maternal and perinatal complications in each mode.

METHODS

A hospital based prospective, longitudinal, and observational study of 300 pregnant women with previous one Caesarean delivery attended labour emergency or out-patient department (OPD) at Midnapore Medical College of West Bengal, was carried out, approved by the institutional ethical committee. Gestational age < 37 weeks and > 42 weeks and h\o previous uterine surgery like myomectomy, hysterotomy, classical CS were excluded from the study. Data collected was analysed using statistical package for the social sciences (SPSS) software version 20. Descriptive statistics were used to analyse the continuous and categorical data and expressed in the form of mean and percentage whereas proportions were analysed using chi-square test. A P - value ≤ 0.05 was considered statistically significant.

RESULTS

Out of 300 pregnancies, 140 subjects were given trial of labour (TOL). Of which 89 subjects (63.6 %) had successful VBAC and 51 subjects (36.4 %) had repeat Caesarean sections. Among 211 subjects of repeat Caesarean section, 53 subjects (25.12 %) had indicated for scar tenderness and 73 subjects (34.59 %) had elective repeat Caesarean section (ERCS) due to protracted or arrested cervical dilatation. Those having previous vaginal delivery (VD), had more incidences of VBAC in present pregnancy than those who had no previous VD (P ≤ 0.005); Maternal morbidity (33.65 % ERCS versus 10.11 % VD group, P ≤ 0.05) and neonatal morbidity (12.3 % ERCS versus 2.46% VD group, P ≤ 0.05) was significantly higher in ERCS group.

CONCLUSIONS

Trial of labour (TOL) should be given in well-equipped hospital. In carefully selected cases, it is a safe procedure and often rewarding, thus incidence of repeat CS can be reduced. Those who had a history of vaginal delivery, VBAC often successful.

KEYWORDS

VBAC, Trial of Scar, Elective Repeat Caesarean Section, Trial of Labour

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BACKGROUND

Increasing rate of Caesarean deliveries have received widespread attention in recent years and remains a topic of discussion in public domain.[1] The World Health Organization (WHO) recommendation is to achieve an ideal Caesarean section rate of 10 – 15 % though its incidence is rising both in develop and developing countries.[2, 3] Pregnancy with prior Caesarean operation constitutes a high-risk group with associated medical and legal implications. Approximately one third to half of elective repeat Caesarean sections (ERCS) performed because of a history of Caesarean delivery.[4,5] Scar tenderness has been a major cause of repeat sections. It has been shown that the scar has been found to be satisfactory in most of the cases even when this sign is positive, because most of the time this sign is indeterminate.[6]

The dictum 'once a Caesarean always a Caesarean' was much later replaced by 'once a Caesarean, trial of labour after selection' because low transverse uterine incision introduced after 1882, has much lesser chance of scar rupture.[7] Though vaginal birth after Caesarean (VBAC) or trial of scar (TOS) represents a significant change in modern obstetric practice, apprehension of accidental scar rupture during trial of labour with its undesirable consequences still prevents a good number of obstetricians adopting this process. Consequently, various studies claiming higher success rates of VBAC (60 – 80 %) and guidelines set by American College of obstetricians and gynaecologists (ACOG) (1999), the rates of VBAC continue to be low.[8,9] It has revealed that previous vaginal birth is the single best predictor for a successful VBAC.[10, 11, 12]

Till date, no significant randomized controlled trials were compared between ERCS and VBAC and still remain an unrealistic aspiration. In absence of such trials, the best available data on relative safety of a planned VBAC came from observational prospective study. The purpose of this study was to determine the outcome of pregnancy in women with previous one Caesarean section in relation to mode of delivery, incidence of VBAC through TOL and maternal with perinatal outcome with its complications.

Objectives

In women with history of previous one Caesarean section, specific objectives of the study were to assess:

1. To anticipate the mode of delivery
2. Incidence of VBAC, scar rupture or scar dehiscence
3. Incidence of maternal morbidity and
4. Fetal outcome.

METHODS

The current study of 'pregnancy outcome with prior one Caesarean delivery' covered the period from March 2018 to August 2019 in the Department of Obstetrics and Gynaecology of Midnapore Medical College (MMC), West Bengal.

It was a prospective longitudinal observational study approved by the institute ethical committee during the period mentioned earlier. All the women in this study had been selected from Antenatal ward, Obstetric Emergency Section and Labour Room of the Midnapore Medical College and Hospital (MMC), West Bengal. This study included 300 term pregnancies with previous one Caesarean delivery after inclusion criteria had fulfilled.

Inclusion Criteria

1. Term pregnancies with one prior CS.
2. Age of the patients < 35 years.
3. Average height (around 5 ft).
4. Cephalic presentation.
5. Clinically roomy pelvis.

Exclusion Criteria

1. Gestational age < 37 weeks to > 42 weeks.
2. Two or more previous CS.
3. H\O previous uterine surgery like myomectomy, hysterotomy, classical CS etc.
4. Age > 35 years.
5. Other than cephalic presentation.
6. Pelvic inadequacy.
7. Associated medical or surgical complications.
8. Non-consent.

A detailed past obstetric history including duration of labour, recurrent or non-recurrent indication of CS, birth weight of the baby, any vaginal delivery other than CS and post-operative complications if any were enquired.

In current pregnancy, general and systemic examination was carried out and any associated medical or obstetrical complications were ruled out. Obstetrical examination was done for presentation and position of fetus, fetal well-being, Bishop scoring and pelvic adequacy.

All study cases were taken when they showed the signs of true labour. Initially, all the study cases were monitored with partography for maximum 6 hours in active labour closely supervised by obstetrician and trained.

Nursing staff; behaviour of scar was noted meticulously, a prophylactic antibiotic was given. Those with favourable Bishop's Score (6 or more) showed normal progress, were undergone Trial of Labour after written consent. Scar tenderness was elicited on admission and at the onset of labour. No medical methods of induction except stripping of membranes and artificial rupture of membrane were done for labour augmentation.

Before an attempted VBAC, all women willing for vaginal delivery were counselled for the risks, benefits, potential complications and alternatives to trial for a VBAC and then written consent was taken. If there were events like non-progression or arrest of labour by the arbitrary time limit of 6 hours, fetal distress or any sign of scar tenderness \ suspected impending rupture, TOL abandoned and emergency LSCS was performed. Oxytocin was never used for augmentation of labour. In the event of VBAC, bimanual tracing of Caesarean scar on immediate postpartum period

was strictly prohibited as it may incite iatrogenic scar dehiscence. We rather observed the patients for 2 hours in the labour room after delivery for complications if any or postpartum shock.

Maternal outcome was measured in terms of type of delivery (VBAC or ERCS), incidence of scar tenderness and scar dehiscence (complete or partial), maternal morbidities in terms of injury to the other pelvic organs like bladder and bowel, postpartum haemorrhage (PPH), adherent placenta, hysterectomy and duration of hospital stay. Perinatal outcomes were measured in terms of Apgar scoring, neonatal morbidities, special new born care unit (SNCU) admissions and neonatal death.

All the data collected was analysed using SPSS software version 20. Descriptive statistics were used to analyse the continuous and categorical data and expressed in the form of mean and percentage whereas proportions were analyzed using chi-square test. A P – value of ≤ 0.05 was considered statistically significant.

RESULTS

All the cases were included at the onset of labour. Surprisingly, all the referred patients were admitted at late active stage who attended this institution for the first time. Faulty referral system from primary or secondary health tier might be one of the causes.

Age (Years)	Value	Parity	Value	Period of Gestation (in Weeks)	Value	Pregnancy after Last Child Birth	Value	Mode of Delivery	Value
20 - 25 years	177 (59.0 %)	P1	286 (95.3 %)	37 - 38	154 (51.3 %)	1 - 2 years	14 (5 %)	Forceps	7 (2.3 %)
26 - 30 years	103 (34.3 %)	P2	12 (4 %)	39 - 40	122 (40.6 %)	> 2 - 3 years	25 (8 %)	Vaginal delivery (VD)	8 (2.7 %)
> 30 years	20 (6.7 %)	P3	2 (0.7 %)	41 - 42	24 (8.1 %)	> 3 - < 5 years	96 (32 %)	VD with episiotomy/tear	57 (19.1 %)
						≥ 5years	165 (55 %)	Ventouse	17 (5.6 %)
								LSCS	211 (70.3 %)
Total	**300 (100 %)**		**300 (100 %)**		**300 (100 %)**		**300 (100 %)**		**300 (100 %)**

Table 1. Distribution of the Study Population (N = 300) as per Age, Parity, Period of Gestation, Interval between Last Child Birth & Present Pregnancy and Mode of Delivery

Indication of LSCS of Index Pregnancy	Frequency	Percentage
Scar tenderness	53	25.12 %
Arrest of labour	36	17.06 %
Fetal bradycardia	20	9.48 %
Meconium stained liquor	24	11.37 %
Non progression by first 6 hours	73	34.59 %
Cord accident	05	2.38 %
Total	211	100 %

Table 2. Indication of LSCS of Present Pregnancy (N = 211)

Favourable Bishop Score & Result after TOL	Frequency	Percentage	P Value
LSCS	51	36.4 %	Chi-square value - 6.9329
VD (VBAC)	89	63.6 %	
Total	140	100 %	P - value – < 0.05

Table 3. Association between Favourable Bishop Score, and Mode of Delivery (N=140)

Association between Previous VD & Mode of Delivery	Presence of Previous VD	Absence of Previous VD	Total	P Value (Chi Square Test)
VBAC	8 (2.7 %)	81 (27 %)	89 (29.7 %)	
LSCS	2 (0.7 %)	209 (69.6 %)	211 (70.3 %)	< 0.0005
Total	10 (3.4 %)	290 (96.6 %)	300 (100 %)	

Table 4. Association between Previous VD & Current Mode of Delivery

From the Table-4, it was revealed that 10 subjects who had previous history of vaginal delivery, 8 (80 %) had undergone successful VBAC in present pregnancy and out of 290 subjects having no previous history of vaginal delivery, 81 (28 %) had undergone successful VBAC in present pregnancy. So those having previous VD have more chances of VBAC in present pregnancy than those who had no previous VD (chi square value - 12.5604, P value - 0.000394).

Association of Maternal and Neonatal Morbidity in LSCS and VBAC Groups

		Morbidity Present Number (%)	Morbidity Absent Number (%)	Total Number (%)	P Value
Maternal morbidity between the groups (N = 300)	LSCS Group	71 (33.65 %)	140 (66.35 %)	211 (100 %)	Chi-square value = 17.709; P value = < 0.005
	VBAC Group	9 (10.11)	80 (89.9 %)	89 (100 %)	
	Total	**80 (26.67 %)**	**220 (73.33 %)**	**300 (100 %)**	
		Morbidity Present Number (%)	Morbidity Absent Number (%)	Total Number (%)	P Value
Neonatal morbidity between the groups (N = 284)	LSCS Group	35 (12.3 %)	164 (57.74 %)	199 (70.07 %)	Chi square value = 4.063 P value = < 0.05
	VBAC Group	7 (2.46 %)	78 (27.46 %)	85 (29.92)	
	Total	**42 (14.78 %)**	**242 (85.21 %)**	**284 (100 %)**	

Table 5. Association of Maternal and Neonatal Morbidity in LSCS and VBAC Groups

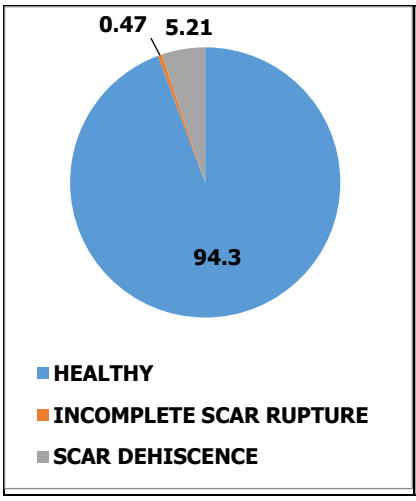

Figure 1. Condition of Uterine Scar in LSCS Group (N=211)

DISCUSSION

Increasing CS rate has becoming a global problem. The WHO published guidelines in 1985 stating that Caesarean birth rates should not exceed 15% based on data from developed countries suggesting that no additional benefit was gained by either the perinates or mothers when rates exceed this level.[13] On the other hand, many were questioning the recommended CS rate by suggesting that lowering the rate might be dangerous.[14]

Table 1 showed maximum 59% cases belonged to age group 20 - 25 years which was correlated well to 63% by study done by Shah et al.[15] in age group 26 - 30 years. Majority of the cases were P1 (95.3%, Table -1), constituted the highest number, which correlated with study done by Pradhan K et al.[16] (81.14%) and Verma et al.[17] (81.48%). It has revealed that most of the study participants had gestational age of 37 - 38 weeks (51.3%, Table-1), followed by 40.6% in 39 - 40weeks. Table-1 also showed that maximum number of case (55%) were belonged to an interval of ≥ 5 year between the last Caesarean to present pregnancy, was somewhat similar to the study of Ugwu GO et al.[18] where most patients belonged to inter pregnancy interval between 3 - 5 years.

In our study, Caesarean rate was 70.3% and VBAC rate 29.7% (table no 1). The unacceptably high CS rate was due to higher rate of emergency CS as almost all referral cases were managed in this peripheral medical college. These emergency cases already received trial of labour in low resource set up, so further TOL was not possible in most cases.

Initially, all the study cases were shifted to labour room, monitored with partography for maximum 6 hours in active labour to look for progression. Labour was closely supervised by obstetrician and trained nursing staff and behaviour of scar was noted meticulously. Those patients who showed progress of labour with favourable Bishop score, opted for trial of labour if not contraindicated and augmentation of labour was done if necessary. Those who showed unfavourable cervix with no signs of labour progression, arrest of labour, fetal distress or scar tenderness, repeat Caesarean section was done. According to Bishop scoring system, favourable cervix found among 140 study cases (46.7 %) and unfavourable cervix was found among 160 study cases (53.3 %).

Those 140 patients were given trial of labour by examining favourable Bishop's score and augmentation was done in some patients by either stripping of membranes or artificial rupture of membrane or both. Out of 140 patients, 89 subjects (63.6 %) had successful VBAC and 51 subjects (36.4 %) had emergency repeat Caesarean sections (Table - 3).

Authors	Trial of Labour(TOL)	Success rate of TOL
Flamm et al. 1994[19]	69.4 %	75 %
Singh T et al. 2004[20]	51.3 %	65.3 %
Shah et al. 2009[15]	51.2 %	72.1 %
Rahaman R et al. 2013[21]	28 %	53.7 %
Verma A et al. 2017[17]	28.51 %	62.33 %
Our study, 2020	46.7 %	63.6 %

Table 6. Percentage of TOL and Their Success Rate by Different Authors

No TOL was given in 53.3 % of cases which was comparable to 49.7 % in study of Singh UK,[22] but much higher than the study by Uno et al.[23] which was 35.9 %. Emergency CS in our study was 70.3% which was high and comparable to 82.23 % in study of Verma A et al.[17] Among emergency LSCS (table - 2), scar tenderness accounted for 25.12 % of cases which was comparable to 27.45 % shown in study of Jha et al.[24] although condition of the scars found to be healthy in majority of cases (fig - 1). Labour abnormality had encountered in active first stage with no progress in first 6 hours in 34.59% of cases due to protracted or arrested cervical dilatation (table - 2) and may be the reason of high rate of repeat Caesarean section.

Out of total 211 repeat CS, though 53 subjects (25.12 %) were indicated for scar tenderness, actually 11 subjects (5.21 %) had scar dehiscence and 1 subject (0.47 %) had incomplete scar rupture. This proved that, in most of the cases positive 'scar tenderness' sign is indeterminate and over diagnosed as studied by Beall M et al.[6]

Maximum percentage of VBAC occurred in mother admitted between 37 - 38 weeks of gestational age (63 %) and it has observed that VBAC rate was decreased with increased gestational age; ACOG in 2013 also reported that chance of successful VBAC might be lower in more gestational age. VBAC, including both spontaneous and instrumental, occurred in 29.7 % of cases (table - 1) which was low compared to 69.36 % in study of Shah J M et al.[15]

In 140 study cases with favourable Bishop scores, TOL was undertaken and resulted in 89 cases of VBAC (63.6 %) and 51 cases (36.4 %) of ERCS ; here chi-square value is 6.9329 with P value < 0.05 confirms positive relationship between VBAC and favourable Bishop's scoring.(table - 3). It has also revealed that those 10 subjects who had previous history of vaginal delivery (VD), 8 (80 %) had undergone successful VBAC in present pregnancy compared to 81 (28 %) undergone successful VBAC in present pregnancy out of 290 subjects having no previous history of vaginal delivery. So those having previous VD have more chances of VBAC in present pregnancy than those who had no previous VD (chi square value - 12.5604, P value - 0.000394, table - 4).

Out of total 89 VBAC cases, spontaneous vaginal delivery occurred in 65 cases (73.03 %), ventouse in 17 cases (19.10 %) and forceps in 7 cases (7.87 %) (table - 1).The low incidence of vaginal delivery in post Caesarean pregnancy in the present study might be due to many factors i.e. irregular antenatal check up with failure to planned delivery, reluctance on the part of obstetricians for induction and TOL, poor information regarding the details of previous CS and no fixed protocol for assessment and plan of management.

Maximum 144 babies (48 %) were in birth weight ranging between 2.5 kg to 2.9 kg which did not match with study by Molloy BG et al.[25] in which babies who belonged to 2.5 kg to 3.0 kg was 36.3 %. Still birth occurred in 16 cases (5.3 %) out of 300 pregnancies, of which 12 in repeat LSCS group and 4 in VBAC group. It has revealed that 68 % of neonates born by LSCS had good Apgar score compared to 61 % of neonates born by VBAC at 1 min. Here, association between good Apgar score and mode of delivery was insignificant as chi-square value is 1.1757 with P - value > 0.05.

In our study, total 42 neonates (35 delivered by LSCS and 7 delivered vaginally) had morbidities due to various reasons (table - 5). Association between neonatal morbidity and mode of delivery showed significantly more morbidities in LSCS group with better outcome in VBAC group (chi - square value 4.063, P value < 0.05, table - 5).

By comparing maternal morbidity in repeat CS group and VD group (table - 5), complications in ERCS group (33.65 %) was more than three times of VD group (10.11 %). Repeat CS group had more duration of hospital stay due to major surgical complications like angle extension with broad ligament hematoma (0.67 %), bladder injury (0.67 %), dense adhesion (5.3 %), PPH (5 %), B\L uterine arterial ligation (0.33 %), incomplete and complete scar rupture (3.67 % & 0.33 %) and many others. VD group also had complications like PPH (1.67 %), but significantly low compared to repeat CS group (chi-square value 17.709, P value 0.005). This result correlated well with study of Verma A et al.[17] where complications among ERCS group (22.97 %) was almost three times higher than VBAC group (8.33 %).

CONCLUSIONS

To deliver pregnancy with previous one CS certainly needs critical judgment. Maternal morbidity and mortality are not only higher in repeat CS but also requires longer hospital stay with its accompanying extra expenditure. Engagement of the head before the labour onset and history of prior vaginal delivery are the best predictors for successful VBAC. Pregnancy with previous one Caesarean section due to non-recurrent indications, vaginal delivery is possible and success can be improved by close supervision by trained obstetrician with option for planned delivery. Where there is absence of severe morbidity due to scar dehiscence during TOL, vaginal delivery is feasible and safe with low maternal and perinatal morbidity compare to ERCS. TOL should be applied in well-equipped hospital with round the clock specialist obstetric care especially by senior obstetricians and well-trained nursing staffs.

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REFERENCES

[1] Leung GM, Lam TH, Tach TQ, et al. Rates of caesarean births in Hong Kong: 1987-1999. Birth 2001;28(3):166-172.
[2] Ye J, Betran AP, Vela MG, et al. Searching for the optimal rate of medically necessary caesarean delivery. Birth 2014;41(3):237-243.
[3] Vogel JP, Betran AP, Vinderoghel N, et al. On behalf of the WHO multi-country survey on maternal and newborn health research network. Use of Robson classification to asses' caesarean section trends in 21 countries: a secondary analysis of two WHO multi country surveys. Lancet Global Health 2015;3(5):e260-e270.
[4] Barber EL, Lundsberg LS, Belanger K, et al. Indications contributing to the increasing caesarean delivery rate. Obstet Gynecol 2011;118(1):29-38.
[5] Wingert A, Johnson C, Featherstone R, et al. Adjunct clinical interventions that influence vaginal birth after caesarean rates: systemic review. BMC Pregnancy Childbirth 2018;18(1):452.
[6] Beall M, Glinston GS, Clark SL, et al. VBAC in women with unknown types of uterine scar. J Reprod Med 1984;29(1):32-35.
[7] Gabert HA, Bey M. History and development of caesarean operation. J Obstet Gynecol North Am 1988;15(4):591-605.
[8] Berger MK, Dunn JT, Bearman S, et al. A survey to access to trial of labour in California hospitals in 2012. BMC Preg Childbirth 2013;13(1):83.
[9] Leeman LM, Beagle M, Espey E, et al. Diminishing availability of trial of labour after caesarean delivery in New Mexico hospitals. Obstet Gynecol 2013;122(2 Pt 1):242-247.
[10] Smith GCS, White IR, Pell JP, et al. Predicting caesarean section and uterine rupture among women attempting vaginal birth after prior CS. PLoS Med 2005;2(9):e252.
[11] Gyamfi C, Juhaz G, Gyamfi P, et al. Increased success of trial of labour after previous vaginal birth after cesarean. J Obstet Gynecol 2004;104(4):715-719.
[12] Van Donjen PWJ. Caesarean section- etymology and early history. South African J Obstet Gynecol 2009;15(2):62-66.
[13] World Health Organization. Appropriate technology for birth. Lancet 1985;2(8452):436-437.
[14] Sachs BP, Kobelin C, Castro MA, et al. The risk of lowering the caesarean delivery rate. N Eng J Med 1999;340(1):54-57.
[15] Shah JM, Mehta MN. Analysis of mode of delivery in women with previous one caesarean section. J Obstet Gynecol India 2009;59(2):136-139.
[16] Pradhan K, Mohanta C, Jaysingh P. Feto-maternal outcome in post caesarean pregnancy. IOSR-JDMS 2018;17(4):36-46.
[17] Verma A, Bhol SK, Misra B. The study of feto-maternal outcome in post caesarean pregnancy in MKCG medical college, Berhampur, Odisha. J Evolution Med Dent Sci 2017;6(89):6241-6245.
[18] Ugwu GO, Iyoke CA, Onah HE. Maternal and perinatal outcomes of delivery after previous caesarean section in Enugu, South East Nigeria: a prospective observational study. Int J Women's Health 2014;6:301-305.
[19] Flamm BL, Goings JR, Liu Y, et al. Elective repeat caesarean delivery versus trial of labour: a prospective multicenter study. Obstet Gynecol 1994;83(6):927-932.
[20] Singh T, Justin CW, Haloob RK. An audit on trends of vaginal delivery after one previous caesarean section. J Obstet Gynecol 2004;24(2):135-138.

[21] Rahaman R, Khanam NN, Islam N, et al. The outcome of Vaginal Birth After Caesarean Section (VBAC): a descriptive study. Bangladesh Journal: Medicine Today 2013;25(1):14-17.
[22] Singh T, Justin CW, Haloob RK. An audit on trends on vaginal delivery after one previous caesarean section. J Obstet and Gynecol 2004;24(2):135-138.
[23] Uno K, Mayama M, Yoshihara M, et al. Reasons for previous caesarean deliveries impact a woman's independent decision of delivery mode and the success of trial of labour after caesarean. BMC Pregnancy and Childbirth 2020;20:170.
[24] Jha M. Pregnancy outcome of single previous caesarean section. J Nepal Health Res Coun 2009;7(1):25-28.
[25] Molloy BG, Sheil O, Duignan NM, et al. Delivery after caesarean section: Review of 2176 consecutive cases. Br Med J (Clin Res Ed) 1987;294(6588):1645-1647.