International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391

Delivery Outcome for Patients with Previous One Caesarean Section in Baghdad Teaching Hospital

Afraa Mahjoob Al-Naddawi[1], Rafah Khalil Ibrahim[2]

FIBOG, CABOG, Baghdad Teaching Hospital, Lecturer at College of medicine/ University of Baghdad, MBChB, Baghdad Teaching Hospital

Abstract: ***Background: one third of cesarean section is due to previous cesarean section; therefore trial of vaginal birth is an important measure to decrease cesarean section rates. Objective: To determine the delivery outcome in patients with previous one cesarean section. Study design: A prospective analysis of delivery outcome of 73 women with previous one cesarean section who delivered at Baghdad Teaching Hospital between November 2014 - May 2015 was carried out. Results: Of the 73 women with previous one cesarean section, 33 (45.2%) had 2nd cesarean section without trial of scar and the remaining 40 patients had trial of scar, 20 (27.3%) had failed trial and ended with 2nd cesarean section, 20 (27.3%) had a succeeded trial. No significant perinatal morbidity was observed. Vaginal birth after cesarean section rate was significantly more in women who had prior vaginal deliveries, especially in those with previous vaginal birth after cesarean section. Conclusion: A trial of labor after a prior cesarean section is often successful, in carefully selected cases.***

Keywords: cesarean section, trial of scar, vaginal delivery

1. Introduction

In the United States, cesarean section rates have increased from (4 to 6%) in the 1940s to 31.8% of all births in 2007. There is a debate about optimal cesarean section rate with the World Health Organization currently proposing that cesarean section rates above 15% may do more harm than good. [1,2]

Given that one third of cesarean deliveries are due solely to a history of a prior cesarean, attempt of a vaginal birth after cesarean section (VBAC) is very effective to decrease cesarean section rates. [3]

It is now widely accepted that vaginal birth need to be attempted unless the indication for the previous caesarean section recurs or the present pregnancy is complicated by another condition that warrants delivery by caesarean section. [4]

Success rate of VBAC is 60-80% which is comparable to the vaginal birth rate in nulliparous women. [5]

Both VBAC and repeat elective caesarean section have infrequent but significant and serious risks [6, 7] Careful explanation should be given to women who have any of the following circumstances which are generally considered to be contraindications for VBAC, previous hysterotomy, previous classical, low vertical or inverted T or J uterine incision. [8, 9, 10], two or more previous caesarean births, previous uterine rupture. [9]

Individual consideration and discussion should occur in certain circumstances as the risk of rupture is uncertain [9] such as history of metroplasty, previous myomectomy where the uterine cavity has been opened, Inter-pregnancy interval less than 18 months.[10]

Vaginal birth after cesarean section and elective repeated cesarean section has differing risks and benefits for women and their babies. Planned elective repeated cesarean section is associated with significantly higher maternal mortality. One study did not find a statistically significant difference in perinatal mortality among infants born at term to women who planned a VBAC compared with infants born to women who planned an elective repeated cesarean section at term. [9]

A review of the international and national literature provides a uterine rupture rate in the range from 2 per 1,000 to 7 per 1,000 for VBAC. [9, 11, 12, 13, 14] There is increasing risk of placenta previa and accrete with increasing numbers of caesarean sections.

There is some data on the benefits of VBAC success. The National Institute of Health (NIH) 2010 consensus statement identifies that women having a successful VBAC have lower rates of deep vein thrombosis, shorter hospital stay, enhanced mother-infant bonding. [11]

A review of studies report VBAC success rates to be between 63-94%. [9, 10, 11, 12] The success of VBAC is associated with a number of factors; however previous vaginal birth remains the single best predictor of successful VBAC. [9, 11] Other factors which increase the likelihood of VBAC success include Caucasian race, younger maternal age, BMI < 30 [9, 11], No medical illnesses including pre-eclampsia [11], Prior caesarean indication was not due to arrest of labor, fetus weight < 4kg, cervical dilatation > 4cm on admission and Spontaneous onset of labor at < 40 weeks gestation. [11]

High quality intrapartum care for patient having VBAC include good communication, support and encouragement between the patient and health care providers, monitoring of the labor progress, close surveillance of the wellbeing of the woman and her fetus and early recognition of complications and timely intervention if complications develop.

Maternal observation should include at a minimum assessing pulse hourly, blood pressure and temperature 4 hourly, assessment of contractions for a minimum of 10 minutes out of every 30 minutes, vaginal examination on admission and then 4 hourly preferably by the same clinician, observation of blood loss and scar tenderness. [15]

Signs associated with uterine dehiscence may be less acute or absent. The presence of any of the following peripartum signs should raise the concern of the possibility of uterine rupture [8, 9], severe abdominal pain, especially if persisting between contractions, acute onset of scar tenderness, chest pain or shoulder tip pain, abnormal vaginal bleeding or hematuria, cessation of previously efficient uterine contractions, sudden onset of shortness of breath, maternal tachycardia, pathological fetal heart pattern and loss of station of the presenting part, hypotension or shock. [8, 9]

2. Patients and Methods

This was a prospective study, conducted at Baghdad Teaching Hospital in Medical City Complex, during the period from November 2014 to May 2015.

The study included a total of 73 pregnant women in 3rd trimester admitted in Baghdad Teaching Hospital, those patients were divided in to two groups, 1st 33 women needed 2nd cesarean section without trial of labor, 2nd 40 women were given chance for VBAC, the latter group divided to those who had succeeded vaginal delivery and those who had 2nd cesarean section after failed trial of labor.

Inclusion Criteria

1) Women with previous one scar were recruited in the study regardless the maternal age.
2) Women presented in labor or indicated to be delivered for maternal or fetal cause.

Exclusion criteria

Women were excluded from the study when she had one or more of the following criteria:

1) Intrauterine growth restriction.
2) Two or more previous caesarean births.
3) Previous uterine rupture.
4) Previous anal sphincter injury and/or repair.
5) Previous uterine surgery (myomectomy and metroplasty)
6) Previous low vertical, classical, or inverted T or J uterine incision
7) Obstructing pelvic mass

3. Data Collection

A pre-constructed data collection sheet was used for data collection, and the data were gathered through direct interview and examination of the women in the studied group, the collected data included maternal data which were gathered at admission and during the follow up and monitoring of the women. Data included: maternal age, gestational age, gravidity, parity, abortions, gestational age from first day in last menstrual cycle or by ultrasound, history of the previous cesarean. A sample of venous blood was drawn from each woman for full blood count, ABO grouping, cross matching. Assessment of vital signs was done for all women.

Trial of Scar

Trial of scar was given for Women with one previous caesarean section, singleton pregnancy, cephalic presentation and spontaneous onset of labor. It started when labor is in active phase. Augmentation of labor is done by artificial rupture of membrane only when deemed necessary. Oxytocic drugs (syntocinon or prostaglandins) were not used for augmentation.

Trial of Scar Needed

1) Continuous external electronic fetal monitoring.
2) Observation for vaginal bleeding, scar tenderness, and color of liquor.
3) Assessment of labor progress using partogram (cervical dilatation, effacement and station of the presenting part).

Trial of scar was terminated for patients who had:

1) Failed progress in labor.
2) Abnormalities in fetal heart rate (fetal distress).
3) Signs suggesting a dehiscent scar or rupture uterus.

Statistical analysis

Data were entered and analyzed by using the statistical package for social sciences (SPSS) software for windows version 22/IBM/ USA-2014. Descriptive statistics were presented as mean, standard deviation, frequencies (number of patients) and proportions (%). Appropriate statistical tests were used according to the types of variable. Level of significance (P value) was set at $\leq$ 0.05 to be considered as significant. Finally results and findings were presented in tables and figures with an explanatory paragraphs for each.

4. Results

A total of 73 pregnant women with one previous cesarean section and different parity were enrolled in this prospective study.

Table (1) shows the distribution of maternal age, gestational age and parity at time of delivery in 1st group (who had 2nd cesarean section without trial of labor).

The mean maternal age of the studied group was 28.4545 (range: 20 – 51) years and the gestational age at time of delivery was 37.1818 weeks (range: 31 – 40).

Table 1: Distribution of maternal age, gestational age and parity of the 1st group

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Age	33	20	51	28.4545	7.45021
Gestational age (week)	33	31	40	37.1818	2.51812
Parity	33	1	6	1.6667	1.26656
Valid N (listwise)	33				

Regarding the indications of previous cesarean section among the 33 women who immediately had 2nd cesarean

section without trial for delivery (1st group), pre-eclampsia was the most frequent indication of previous cesarean section, it accounts for (9/33) represented (27.3%), followed by breech presentation in 6 (18.2%), cephalopelvic disproportion and maternal request each 5 (15.2%) as shown in table (2).

Table 2: Indications of previous cesarean sections in 1st group (N=33)

Indications	*Frequency*	*Percent*	*Cumulative Percent*
Breech	6	18.2	18.2
Request	5	15.2	33.3
Failure to progress	2	6.1	39.4
Fetal distress	1	3	42.4
Pre-eclampsia	9	27.3	69.7
Cephalopelvic disproportion	5	15.2	84.8
Oligohydramnious	2	6.1	90.9
Others*	3	9.1	100
Total	33	100	

*Others (failure of tubal ligation and cord prolapse)

Regarding the indications of current cesarean section in 1st group among those 33 women, the most frequent indication was pre-eclampsia 8 (22.9%), followed by placenta previa which was 6 (18.2%), CPD 5 (15.2%), and other indications were 7 (21.2%) which include (elective to repeat tubal ligation, PROM with chorioamnionitis, twin pregnancy and postdate with unfavorable cervix for induction) as shown in table (3).

Table 3: Indications of current cesarean section in 1st group (N=33)

	Frequency	*Percent*	*Cumulative Percent*
Fetal distress	1	3	3
Pre-eclampsia	8	24.2	27.3
Breech	3	9.1	36.4
Cephalopelvic disproportion	5	15.2	51.5
Maternal request (refused to have trial of scar)	3	9.1	60.6
Placenta previa	6		78.8
Others *	7	21.2	100
Total	33	100	

* Others: placental abruption, cord prolapse.

The remaining 40 patients had trial of scar, 20 had failed trial and ended with 2nd cesarean section, 3rd group had succeeded trial as shown in table (4).

Table 4: Distribution of maternal age, gestational age and parity at time of delivery in 2nd and 3rd groups

	Group	N	Mean	Std. Deviation
Age	Succeeded VD	20	27.8	4.95878
	Failed trial of VD	20	28.1	6.4718
Gestational age (week)	Succeeded VD	20	37	1.65434
	Failed trial of VD	20	37.95	1.14593
Parity	Succeeded VD	20	1.9	1.86096
	Failed trial of VD	20	1.85	1.46089

Relationship between the causes of previous cesarean section and mode of delivery where breech presentation was the most frequent cause in 3rd group who had succeeded VD and maternal request was the most frequent cause in 2nd group who had cesarean section following failed trial of labor as shown in table (5) and figure (1).

Table 5: Relationship between the causes of previous cesarean section and mode of delivery in the 2nd and 3rd groups of patient

			Cause of previous cesarean section						Total
			Breech	Request	PROM	Failure of progress	Fetal distress	Pre-eclampsia	
Group	Succeeded VD	Count	9	3	2	3	2	1	20
		% within Group	45.00%	15.00%	10.00%	15.00%	10.00%	5.00%	100.00%
	Failed trial of VD	Count	4	9	0	3	2	2	20
		% within Group	20.00%	45.00%	0.00%	15.00%	10.00%	10.00%	100.00%
Total		Count	13	12	2	6	4	3	40
		% within Group	32.50%	30.00%	5.00%	15.00%	10.00%	7.50%	100.00%

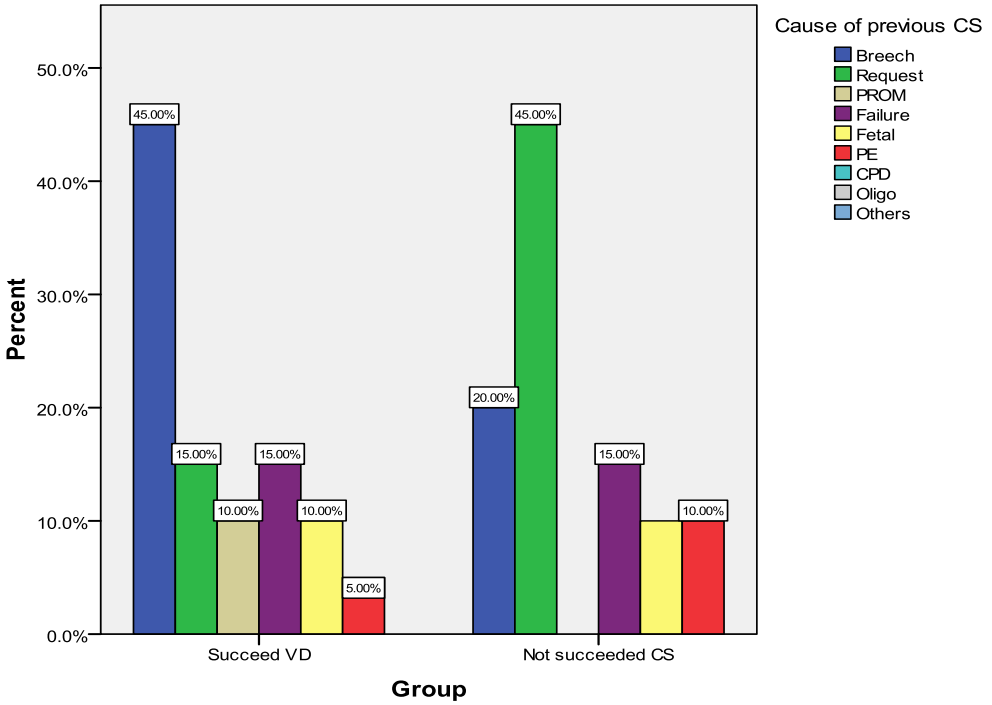

Figure 1: Causes of previous cesarean section in 2nd group (Failed trial of VD) and 3rd group (succeeded VD).

Failure to progress was the most frequent cause of failure of trial of labor in the second group which accounts 55% followed by fetal distress which accounts 45% as shown in table (6).

Table 6: Causes of failed trial of labor.

		Frequency	*Valid Percent*	*Cumulative Percent*
Valid	Failure of progress	11	55	55
	Fetal distress	9	45	100
	Total	20	100	

Table (7) shows comparison between 1st and 2nd group regarding the causes of (PREVIOUS) cesarean section where maternal request was the most frequent cause in patients who had failed trial of VD and 2nd cesarean section and in patients who immediately had 2nd cesarean section.

Table 7: Comparison between 1st and 2nd groups regarding causes of previous cesarean section

			Cause of Previous cesarean section								*Total*
			Breech	*Request*	*Failure*	*Fetal*	*PE*	*CPD*	*Oligo*	*Others*	
Group	Not succeeded VD	Count	4	9	3	2	2	0	0	0	20
		% within Group	20.00%	45.00%	15.00%	10.00%	10.00%	0.00%	0.00%	0.00%	100.00%
	Immediately 2nd CS	Count	6	5	2	1	9	5	2	3	33
		% within Group	18.20%	15.20%	6.10%	3.00%	27.30%	15.20%	6.10%	9.10%	100.00%
Total		Count	10	14	5	3	11	5	2	3	53
		% within Group	18.90%	26.40%	9.40%	5.70%	20.80%	9.40%	3.80%	5.70%	100.00%

Table (8) shows comparison between 1st and 2nd groups regarding the causes of (CURRENT) cesarean section where failure to progress was the most frequent cause in patients who had failed VD and 2nd cesarean section and pre-eclampsia was the most frequent cause in patients who immediately do 2nd cesarean section.

Table 8: Comparison between 1st and 2nd groups regarding causes of current cesarean section

		Cause of current cesarean section								
		Failure to progress	*Fetal distress*	*Pre-eclampsia*	*Breech*	*CPD*	*Maternal request*	*Placenta previa*	*Others*	*Total*
Failed VD	Count	11	9	0	0	0	0	0	0	20
	% within Group	55.00%	45.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Immediately 2nd CS	Count	0	1	8	3	5	3	6	7	33
	% within Group	0.00%	3.00%	24.20%	9.10%	15.20%	9.10%	18.20%	21.20%	100.00%
Total	Count	11	10	8	3	5	3	6	7	53
	% within Group	20.80%	18.90%	15.10%	5.70%	9.40%	5.70%	11.30%	13.20%	100.00%

5. Discussion

The alarming rise in the rate of cesarean sections has been a matter of concern to the professionals and the public with a need to review the existing practices. A big family is the social norm in our country Iraq where the rate of cesarean section increased from 10% in 2000 to 32% in 2010. To reduce the overall cesarean rates, a trial of labor in cases of previous cesarean section has been accepted. [16]

However, women with previous cesarean sections constitute a high risk group, with associated medical and legal implications. Vaginal birth after cesarean (VBAC) or trial of scar (TOS) represents a significant change in modern obstetric practice. However, the concern that there is a risk of scar rupture, leading to serious maternal and perinatal morbidity, still prevents a large number of obstetricians and pregnant women worldwide, from having a TOS after previous one cesarean section. [16, 17]

The current study which was conducted in Baghdad Teaching Hospital, tried to assess the outcome of pregnant women with previous one scar presented in labor or indicated to be delivered for maternal or fetal cause.

The incidence of successful VBAC in the present study was (27%). The successful VBAC rate reported in the present study was very close to that reported in India by Sharma A, Acharya R [18], where the success rate among Indian women was (27.5%) and incidence of repeat cesarean section was (72.5%). And higher than that reported in Pakistan by Ghafarzadeh M, et al [19] where the incidence of VBAC was only (10.8%) among 685 deliveries.

On the other hand, the rates of the present study were much lower than that reported in Abu Dhabi\UAE by Balachandran L, Vaswani PR MR in 2011 [17] in which (83.47%) of the women had VBAC, this higher rate in the UAE study compared to the present study could be attributed to the larger number of women with higher parity (2–4) in that study population. There is consistent evidence to show that a prior vaginal delivery and, particularly, a prior VBAC are associated with a higher rate of successful trial of labor (TOL) compared with patients with no prior vaginal delivery.[17,20,21]

Also it was much lower than that reported in USA by Durnwald C, Mercer B [22] and Iceland by Birgisdottir BT, et al. [23] However, there was a wide variation in the rates of VBAC all over the world, and the rates has declined in the recent years; for instance, by 1996, VBAC rates had increased to over 28%, but the increase was short lived, such that VBAC accounts for fewer than 8% of births after cesarean today. [24] This variation might attributed to many reasons; include concerns about potentially serious complications of VBAC attempts, patient and provider preferences, as well as non- medical factors such as medico-legal pressures, administrative policies, professional society guidelines.

A growing evidence indicates that women's access to a trial of labor after previous cesarean delivery is being widely restricted, often due to concerns about safety or inability to adhere to specific practice guidelines. These restrictions have arisen despite studies that have consistently shown that success rate is 60–80% in trials of labor after cesarean, and that rates of the most feared complication, uterine rupture, are less than 1%. [24]

The present study found that 53 pregnancies (72.6%) ended up in cesarean deliveries, immediately 2nd cesarean section without trial of labor was performed in 33 (1st group) , and 2nd cesarean section after failure of trial of labor was done in 20 women (2nd group).

The present study results showed that the main reasons for the immediately 2nd cesarean section (1st group) were Pre-eclampsia 8 (24.2%), this agreed with that reported in India by Sharma A, Acharya R, in Abu Dhabi/UAE by Balachandran L, Vaswani PR MR and in Tanzania by Pembe AB, Othman MK with relative difference in the sequence of frequencies and proportions of these indications.[18,17,25] From other point of view, immediately 2nd cesarean section without trial of labor (1st group) might be attributed to the refusal for trial of scar, severe PIH and short inter delivery interval. [18]

Previous literatures suggested that women rely on medical advice from their physician about their health and that of their child. [26,27] Many women consider the health of their baby as their primary concern in delivery [28] which pushes women towards a greater preference for a caesarean section because they believe that an unsuccessful trial has higher risk for the infant.[29] Additionally, some women have strong personal preferences for one option and may fully drive the decision- making themselves, while others trust explicitly in their healthcare provider. [30]

In the present study, further analysis was performed regarding the relationship between indications of previous cesarean sections and mode of current delivery; results of this analysis revealed significantly, that incidence of non-succeeded vaginal delivery was higher in those women whose previous cesarean section was done due to their request, these findings were different from that reported by Sharma et al in 2012 [18] who found that out of 69 cases of repeat cesarean section the most common indication was cephalopelvic disproportion, that supported the findings of Jha M [30] who found that repeat cesarean was performed more in those women in whom previous cesarean was done for fetal distress, non-progress of labor and failed induction. On the other hand, Balachandran et al [17] didn't observe a significant association between the indication for previous cesarean and the outcome of TOS, but they found significant association between outcome of TOS and previous vaginal delivery. VBAC rate was 76.8% among those women with previous vaginal delivery compared to 41% in those who did not have a prior vaginal delivery, and those with prior VBAC had 87.5% success rate compared to 46% in those without a previous VBAC.

The main challenge for obstetricians is to provide women

who desire trial of labor after cesarean birth with a more individualized risk assessment of uterine rupture, in addition to other risks associated with failed trial of scar like, scar dehiscence and bleeding due to morbidly adherent placenta in order to enhance success and optimize outcome. The current study reported one complication which was scar dehiscence repaired under GA.

The current study was not without some limitations; one of these limitations was the shortage in time period of the study which interferes with the inclusion of larger sample size. Secondly, some women when discussed with her the possible risks and outcome of trial of vaginal birth after cesarean they refused to participate in the study and refused the trial which resulted in reduction of the study sample, this being a prospective study, the level of evidence gathered is inferior to that from a randomized control trial, and thirdly, the neonatal outcome was out of the scope of the current study.

6. Conclusions

1) A trial of vaginal birth after a prior cesarean is safe and often successful, in carefully selected cases.
2) The success rate of VBAC was within that ranges reported worldwide.
3) Pre-eclampsia, fetal distress, failure to progress and cephalopelvic disproportion are the main indications of cesarean sections in the index delivery.
4) Cephalopelvic disproportion is the main indication of previous cesarean section that is associated with lower success rate of VBAC. While breech presentation is the main indication of previous cesarean section that is associated with higher success rate of VBAC
5) The maternal age, gestational age and parity have no significant effect on the delivery outcome after previous one cesarean.

7. Recommendations

1) Careful selection of appropriate candidates for trial of VBAC particularly those women in whom the chances of success as high as possible and the risks are as low as possible and acceptable to the patient and obstetrician with careful, thorough counseling.
2) Good identification and assessment of uterine rupture risk, in addition to other risks associated with failed trial of scar prior to trial of vaginal birth.
3) Sharing the women in decision about the mode of delivery.
4) Every woman undergoes cesarean section should have a detailed discharging card about her condition, indication and any complication reported in that cesarean.
5) Further studies with larger sample size particularly case-control or clinical trials are highly suggested.

Author Contribution

Study conception and design: Dr. Afraa Mahjoob Al-Naddawi

Acquisition of data analysis: Dr. Rafah Khalil Ibrahim

Interpretation of data: Dr. Afraa Mahjoob Al-Naddawi, Dr. Rafah khalil Ibrahim

Drafting of manuscript: Dr. Rafah Khalil Ibrahim

References

[1] Norberg K; Pantano J. Cesarean sections and subsequent fertility. *Journal of Population Economics.* 2016; 29(1): 5-37.
[2] Alpay Z, Saed GM, Diamond MP. Postoperative adhesions: from formation to prevention. *Semin Reprod Med* 2008; 26(4): 313-21.
[3] Vaginal birth after previous cesarean delivery. ACOG Practice Bulletin No. 54. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2004; 104(1): 203-12.
[4] Lavin JP, Stephens RJ, Miodovnik M, Barden TP. Vaginal delivery in patients with a prior cesarean section. *Obstet Gynecol* 1982; 59(2): 135-48.
[5] New Zealand Guidelines Group. Care of women with breech presentation or previous caesarean birth. Best practice evidence-based guideline [online]. 2004 [cited 2009 July 7]: 1-106.
[6] Women's Hospital Australasia Clinical Practice Guidelines. Vaginal birth after caesarean (VBAC) or repeat elective caesarean. [Online]. 2005 [cited 2009 July 7]: 1-11.
[7] Dodd JM, Crowther CA, Huertas E, Guise JM, Horey D. Planned elective repeat caesarean section versus planned vaginal birth for women with a previous caesarean birth. *Cochrane Database of Systematic Reviews* 2004, Issue 4. Art. No.: CD004224. DOI: 10.1002/14651858.CD004224.pub2.
[8] Queensland Maternity and Neonatal Clinical Guidelines Program. (2009). Vaginal birth after caesarean section (VBAC). Queensland Government, Brisbane.
[9] Royal College of Obstetricians and Gynecologists. Birth after previous caesarean birth. Guideline No.45. 2007.
[10] Royal Australian and New Zealand College of Obstetricians and Gynecologists. Planned Vaginal Birth after Caesarean Section (Trial of Labour), C-Obs 38. 2010. Available from: http://www.ranzcog.edu.au
[11] Cunningham FG, Bangdiwala S, Brown SS, et al. National Institute of Health Consensus Development Conference Statement: Vaginal Birth After Cesarean: New Insights March 8-10, 2010. *Obstet & Gynecol* 2010; 115(6): 1279-95.
[12] National Institute for Health and Care Excellence. (2011). Caesarean section, NICE clinical guideline 132. RCOG Press, London. Available at: http://www.nice.org.uk/CG132
[13] Fitzpatrick KE, Kurinczuk JJ, Alfirevic Z, et al. Uterine Rupture by Intended Mode of Delivery in the UK: A National Case-Control Study. *PLoS Med* 2012; 9(3): e1001184.
[14] Crowther CA, Dodd JM, Hiller JE, et al. Planned Vaginal Birth or Elective Repeat Caesarean: Patient Preference Restricted Cohort with Nested Randomized Trial. *PLoS Med* 2012; 9(3): e1001192.
[15] National Institute for Health and Care Excellence. (2007). Intrapartum care: Care of healthy women and their babies during childbirth. NICE Clinical Guideline 55. NICE, Manchester. Available at:

http://www.nice.org.uk/CG55

[16] Al-Naimy MM, Yassin BAG, Al-kazzaz HHB. Comparison of Rate of Caesarean Section between Governmental and Private Hospitals in Baghdad City. *Iraqi Postgrad Med J* 2013; 12(2): 288-295.

[17] Balachandran L, Vaswani PR, Mogotlane R. Pregnancy Outcome in Women with Previous One Cesarean Section. *J Clin Diagn Res* 2014; 8(2): 99-102.

[18] Sharma A, Sharma U, Chaudhary P, et al. Maternal and Neonatal Outcome in Patients with History of Previous One Cesarean Section. *Indian Medical Gazette* 2012; 001(May): 169-173.

[19] Ghafarzadeh M, Namdari M, Ashraf H. Vaginal birth after cesarean section : A retrospective study. *Pak J Med Sci* 2010; 26(4): 987-989.

[20] Hendler I, Bujold E. Effect of prior vaginal delivery or prior vaginal birth after cesarean delivery on obstetric outcomes in women undergoing trial of labor. *Obstet Gynecol* 2004; 104(2): 273-277.

[21] Landon MB, Hauth JC, Leveno KJ, et al. Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery. *N Engl J Med* 2004; 351(25): 2581-9.

[22] Durnwald C, Mercer B. Vaginal birth after Cesarean delivery: predicting success, risks of failure. *J Matern Fetal Neonatal Med* 2004; 15(6): 388-93.

[23] Birgisdottir BT, Hardardottir H, Bjarnadottir RI, et al. Vaginal birth after one previous cesarean section. *Laeknabladid* 2008; 94(9): 591-7.

[24] Signore C, Spong CY. Vaginal birth after cesarean: new insights manuscripts from an NIH Consensus Development Conference, March 8-10, 2010. *Semin Perinatol* 2010; 34(5): 309-310.

[25] Pembe AB, Othman MK. Pregnancy outcome after one previous caesarean section at a tertiary university teaching hospital in Tanzania. *Tanzan J Health Res* 2010; 12(3): 188-194.

[26] Moffat MA, Bell JS, Porter M, et al. Decision making about mode of delivery among pregnant women who have previously had a caesarean section: A qualitative study. *BJOG* 2007; 114(1): 86-93.

[27] Emmett CL, Shaw AR, Montgomery AA, Murphy DJ. Women's experience of decision making about mode of delivery after a previous caesarean section: The role of health professionals and information about health risks. *BJOG* 2006; 113(12): 1438-45.

[28] Smith GC, Pell JP, Cameron AD, Dobbie R. Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies. *JAMA* 2002; 287(20): 2684-90.

[29] Elkousy MA, Sammel M, Stevens E, et al. The effect of birth weight on vaginal birth after cesarean delivery success rates. *Am J Obstet Gynecol* 2003; 188(3): 824–30.

[30] Jha M. Pregnancy Outcome of Single Previous Cesarean Section. *J Nepal Health Res Counc* 2009; 7(1):2-3.