Results

Table (1) represents the 20 studied factors and the number of cases for each variable and the statistical significant variables that was associated with successful trial. Four factors were statistically highly significant (P<0.001) and two factors were statistically significant (P<0.05).

Table (1): Factors considered in the study of vaginal birth after cesarean delivery.

Variables	Number of patients
Age	52
Parity	52
Time since cesarean	52
History of vaginal delivery	52
Indication of previous cesarean section	52
History of medical disease	52
Body mass index	49
Bishop score	52
Cervical dilatation	52
Rate of cervical dilatation	52†
Cervical effacement	52
Head station	52*
Rate of head descent	52†
Length of first stage	51
Length of second stage	52†
Thickness and integrity of the scar	41†
Expected fetal weight by ultrasonography	42
Head position	52
First minute Apgar score	52
Five minute Apgar score	52*

* significant (P value < 0.05)
† Highly significant (P value < 0.001)

Table (2) represents the clinical data of the two groups. There was no statistical significant difference (P>0.05) between both groups.

Table (2): Clinical characteristics of the studied groups.

Variables	Group I (Successful) n=39 n (%)	Group II (Failed) n=13 n (%)
1-Age (years)		
(Mean ± SD)	29.35 ± 5.85	27.38 ± 5.97
(Range)	20-44	21-41
• 20 – 24	7 (17.94)	4 (30.77)
• 25 – 29	16 (41.02)	6 (46.15)
• 30 – 34	8 (20.25)	1 (7.69)
• 35 – 40	6 (15.38)	1 (7.69)
• > 40	2 (5.13)	1 (7.69)
2- Parity		
• 2-3	31 (79.49)	10 (76.72)
• > 3	8 (20.51)	3 (23.08)
3- Time since c.s (years)Age *(years)		
(Mean ± SD)	4.01 ± 2.68	4.01 ± 2.79
• 0 – 3	17 (43.59)	8 (61.54)
• 3 – 5	13 (33.33)	2 (15.38)
• > 5	9 (23.08)	3 (23.08)
4- Previous vaginal deliveries:		
• None:	23 (58.97)	9 (69.23)
• Before:	9 (23.07)	3 (23.07)
• After:	5 (12.82)	1 (7.69)
• Before and after:	2 (5.12)	0 (0.0)
5- Indication of previous c.s.:		
• Recurring causes	12 (30.77)	4 (30.77)
• Nonrecurring causes	27 (69.23)	9 (69.23)
6- Postpartum complications of previous c.s.	5 (12.82)	2 (15.38)
7- BMI **	(n=36)	
(Mean ± SD)	29.84 ± 2.20	31.46 ± 4.99
(Range)	26.5-35.0	26-45
• 26 - 30	24 (66.67)	6 (46.15)
• > 30	12 (33.33)	7 (53.85)
8- Bishop score:		
(Mean ± SD)	7.23 ± 2.18	31.46 ± 4.99
• 26 - 30	9 (23.08)	3 (23.08)
• > 30	30 (76.92)	10 (76.92)

* C.S.: Cesarean section

** BMI: Body mass index = body surface area m^2/body weight (kg).

Table (3) shows that, when the indication of the previous cesarean section was a nonrecurring cause as twins, breech or antepartum haemorrhage, most of these cases had successful trial of scar (80%, 90.9, and 100%) respectively. While 75% of cases who had previous cesarean delivery for cephalopelvic disproportion had successful trial of scar (Fig. 1).

Table (3): Outcome of the trial of the scar related to the indication of previous cesarean section.

Trial of scar	*CPD (n=16)	Breech (n=11)	**APH (n=2)	Fetal distress (n=4)	Twins (n=5)	Cord problem (n=3)	Others (n=11)
Successful (%)	12 (75%)	10 (90.90%)	2 (100%)	2 (50%)	4 (80%)	2 (66.67%)	7 (63.64%)
Failed (%)	4 (25%)	1 (9.1%)	0 (0%)	2 (50%)	1 (20%)	1 (33.33%)	4 (36.36%)

* CPD: cephalopelvic disproportion

** Antepartum hemorrhage

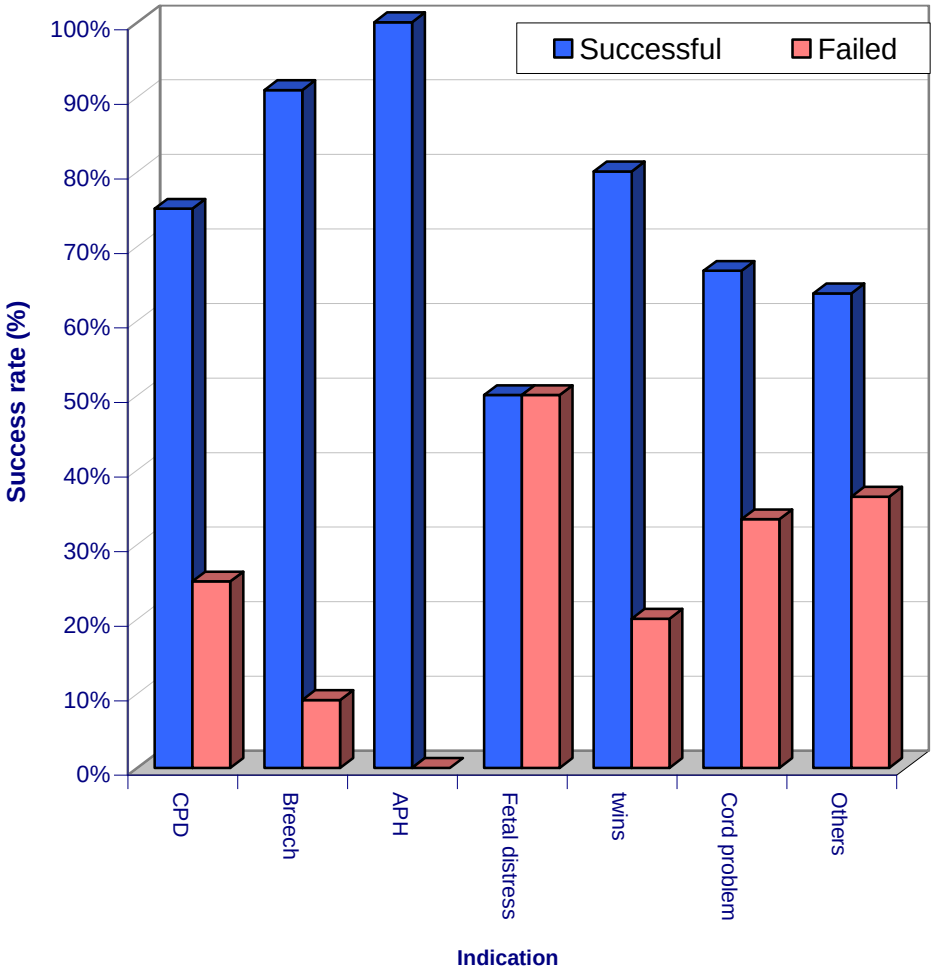

Figure (1): Outcome of the trial of the scar related to the indication of previous cesarean section.

Table (4) shows that, among the different components of the modified Bishop Score it was found that the lower head station the more feasible the success of the trial of the scar, while cervical dilatation and effacement has no statistical significance.

Table (4): Comparison between different components of the modified Bishop Score at the start of the trial in the successful and failed groups.

	Group I (Successful) n=39 n (%)	**Group II** (Failed) n=13 n (%)	**P value**
1-Cervical dilatation (cm) (Mean ± SD) • < 4 • ≥ 4	3.46 ± 1.97 24 (61.54) 15 (38.46)	2.77 ± 1.30 11 (84.62) 2 (15.38)	> 0.05
2-Cervical effacement (%) (Mean ± SD) • < 40% • 40 – 60% • > 60%	53.07 ± 21.53 7 (17.95) 22 (56.41) 10 (25.64)	47.69 ± 16.90 3 (23.08) 9 (69.23) 1 (7.69)	> 0.05
3-Head station (Mean ± SD) • - 3 • - 2 • ≥-1	-1.67 ± 0.87 3 (7.69) 24 (61.541) 12 (30.77)	-2 ± 00 0 (0) 13 (100) 0 (0)	< 0.05

- (Pickhardt et al., 1992)

Table (5) shows that, when the mean value of lower uterine segment thickness in the successful group was compared with that of the failed one, the difference was highly significant at P<0.001 being thicker in the successful group. While no significant difference was found between the mean values of estimated fetal weight and head position in both groups.

Table (5): The outcome of the trial of the scar in relation to the different parameters of ultrasound assessment in the studied groups.

	Group I (Successful) n=39 n (%)	**Group II** (Failed) n=13 n (%)	**P value**
1-Estimated fetal weight (gm) (Mean ± SD) • < 3500 • ≥ 3500	(n=29) 3356.76 ± 406.72 17 (85.62) 12 (41.38)	3320.92 ± 483.04 9 (69.23) 4 (30.77)	> 0.05
2-LUS thickness (mm): (Mean ± SD) • 3.5 – 5.5 • > 5.5	(n=28) 6.00 ± 1.31 9 (32.14) 19 (67.86)	5.05 ± 0.81 10 (76.92) 3 (23.08)	< 0.001
3-Head station • Anterior position. • Posterior position.	29 (74.36) 10 (25.64)	8 (61.54) 5 (38.46)	> 0.05

- (Pickhardt et al., 1992)

Table (6) represents that, the relation between parameters indicating labor progress and trial of scar. It shows that the rate of cervical dilatation and the rate of head descent as well as the length of second stage of labor are highly significant variables ($p<0.001$) regarding success of the trial when compared in both groups, while the length of the first stage is statistically insignificant.

Table (6): Comparison between different parameters indicating progress of labor in the successful and failed groups.

	Group I (Successful) n=39 n (%)	**Group II** (Failed) n=13 n (%)	**P value**
1-Rate of cervical dilatation (cm/hour) (Mean ± SD) • ≤ 1 • > 1 – 1.5 • > 1.5	1.58 ± 0.38 3 (7.69) 17 (43.59) 19 (48.72)	0.89 ± 0.36 10 (76.92) 3 (15.00) 0 (0.000)	< 0.001
2- Rate of head descent (cm/hour): (Mean ± SD)	1.28 ± 0.25	0.54 ± 0.37	< 0.001
3-Length of first stage (hours) (Mean ± SD)	4.24 ± 1.07	3.85 ± 1.14	> 0.05
4-Length of second stage (min.) (Mean ± SD)	10.54 ± 2.98	20.00 ± 0.000	> 0.05

Table (7) represents that, the most sensitive independent variable that can predict the successful trial of labor was found to be a rate of had descent more than 1.05 cm/hour, a Length of first stage more than 4.17 hour then a rate of cervical dilatation more than 1.37 cm/hour.

Table (7): Step wise multi-regression analysis of the success of trial of scar as a dependant variable and factors denoting labor progress as independent variables.

Variable	Mean ± SD	Regression coefficient	P value
Rate of head descent	1.05 ± 0.45	0.5503	0.0000
Length of first stage	4.17 ± 1.06	-0.1452	0.0005
Rate of cervical dilatation	1.37 ± 0.52	0.4082	0.0006

F ratio = 44.46

P value = 9.0000 E-14

Table (8) shows that, the mean value of 5-minutes Apgar score in the successful group was significantly higher (P<0.05) when compared with that of the failed group. While no significant difference was found between the mean values of either 1 minute Apgar score or score or fetal weight between both groups.

Table (8): Neonatal outcome in both the successful and failed groups.

	Group I (Successful) n=39 n (%)	**Group II** (Failed) n=13 n (%)	**P value**
1-Neonatal weight (gm) (Mean ± SD) • ≤ 3500 • > 3500	3460 ± 630 26 (66.67) 13 (33.33)	3580 ± 430 6 (46.15) 7 (53.85)	> 0.05
2- Apgar score (cm/hour):			
• At one minute (Mean ± SD)	5.33 ± 0.86	5.23 ± 1.16	> 0.05
• At five minutes (Mean ± SD) • > 6 • ≤ 6	7.31 ± 0.89 32 (82.85) 7 (53.85)	6.77 ± 1.36 7 (17.95) 6 (46.15)	< 0.05

Table (9) shows that, the most common indication of termination of the trial of scar was failure to progress in labor (about 54%) followed by the presence of signs of impending rupture of the uterus which was detected in about (38%). While the trial was terminated in the rest of patients (about 8%) due to the development of acute fetal distress (Fig. 2).

Table (9): Incidence of the different indications of termination of the trial of scar in the failed group.

Indication	**Number** (total = 13)	**%**
1- Failure to progress	7	53.84
• Arrested dilatation	4	30.77
• Protracted dilatation	2	15.38
• Failed descent	1	7.69
2- Signs of impending rupture of uterus.	5	38.46
3- Acute fetal distress	1	7.69

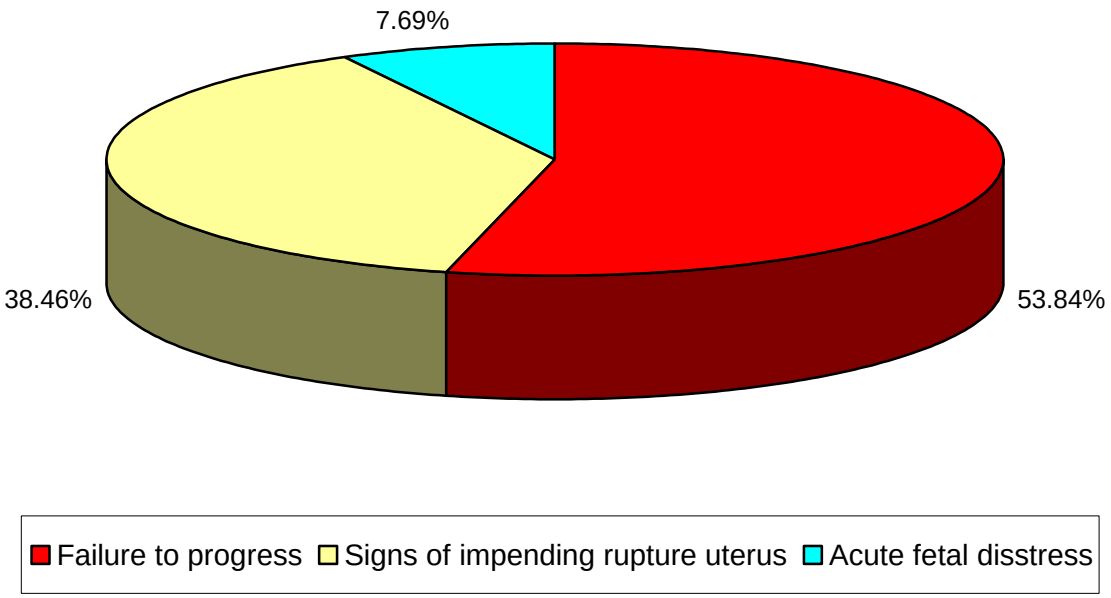

Figure (2): Percentage of the indications for repeat cesarean section in the current study.

Table (10) revealed that, the most operating independent variable that can predict the success trial of scar in a descending order are: rate of cervical dilatation more than 1.37 cm/hour, rate of head descent more than 1.05 cm/h, cervical dilatation on admission more than 2.95 cm, and Bishop score more than 6.61.

Table (10): Step wise multi-regression analysis of the success of trial of scar as a dependant variable and other studied factors independent variables.

Variable	Mean ± SD	Regression coefficient	P value
Rate of cervical dilatation	1.37 ± 0.52	0.4836	0.000043
Rate of head descent	1.05±0.45	0.3128	0.00451
Cervical dilatation on admission	2.95±1.39	0.1175	0.01134
Bishop score	6.61±1.81	-0.0677	0.02639
Thickness of the scar	5.70±1.25	0.0555	0.27830
Total number of vaginal deliveries	1.10±0.70	-0.1636	0.61502
Indication of previous cesarean delivery	0.32±0.47	-0.0546	0.64903
Parity	1.73±1.14	0.1514	0.65361
Time since cesarean section	3.90±2.67	0.0078	0.75067
Expected fetal weight	3347.75±431.15	-1.3982E-05	0.91008
Head station	-1.95±0.44	-0.0086	0.94942
Age	28.29±6.07	-2.8734E-04	0.97926
Body mass index	30.33±3.42	2.08422E-04	0.98886

F ratio = 24.218

P value = 1.825 E-14