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Original Research Article

Comparative study between cases of previous one cesarean section delivered at Kafr El-Sheikh hospitals, versus those delivered at Tanta University Hospital

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ABSTRACT

Background: Many factors have contributed to the increasing rates of CSs, including increases in maternal age, BMI, and changes in obstetric practices and technologies. CSs requested by the mother and fear of litigation among caregivers have now become one of the most common indications of CS. Aim of this study was to compare between conditions of previous one caesarean section subjects delivered at Kafr El-Sheikh general hospitals, versus those delivered at Tanta University hospital as regard integrity of the uterine scars, presence of adhesions, time of termination, and fetal outcomes.

Methods: This study was an observational study that was carried out on 100 pregnant ladies with history of previous one caesarean section. Participants were divided into two groups: group I included 50 pregnant women selected from Tanta University hospitals, group II included 50 pregnant women selected from Kafr El-Sheikh General hospital.

Results: The estimated blood loss was significantly higher in cases selected from Kafr El-Sheikh hospitals compared to that lost from cases selected from Tanta University hospitals. Furthermore, operation time was significantly longer in patients selected from Kafr El-Sheikh hospitals than those selected from Tanta University hospitals. Additionally, omental adhesion was observed in 5 cases (5%); 3 (6%) from those selected from Kafr El-sheikh hospitals and 2 (4%) from those selected from Tanta University hospitals. As regard post-operative blood transfusion, there were increase in the incidence of post-operative blood transfusion in pregnant women selected from Kafr El-Sheikh hospitals (8%) compared to those selected from Tanta University hospitals (4%), but without statistically significant difference ($p=0.678$).

Conclusions: There is high rate of caesarean section in our country. But satisfactory results were present in both Tanta university hospitals and Kafr El-Sheikh general hospital with few complication rates found special in cases priory delivered at Tanta University hospitals including less adhesion finding and thus less intra and post-operative complications.

Keywords: Caesarean section, Kafr El-Sheikh hospitals, Tanta university hospital

INTRODUCTION

Caesarean section (CS) is the most common major surgical intervention in many countries. CS use has increased during the past 30 years to a frequency in excess of the proportion of 10-15% of births that is thought to be optimal. This increase in use has been driven by major increases in non-medically indicated CS in many middle-

income and high-income countries.¹ The probability that a woman undergoes a caesarean is 3 times more than that of 20 years ago. There is increased caesarean section (C-section) rate in different countries. The caesarean rate in Brazil, Chile and China increased up to 40-42%, in Iran 26-66.5% and it's as high as 87% in private centers.² Mirroring global trends, CS rates in Egypt have steadily increased, reaching 52% of all deliveries according to the

most recent 2014 Egypt Demographic and Health Survey (EDHS) and representing more than a 100% increase in the CS rate since 2005. The proportion of institutional-based CS is 67.3%, which is more than double that of Jordan and Saudi Arabia, Egypt's regional neighbors. Currently, Egypt has the third highest rates of CS globally, following the Dominican Republic (56.4%) and Brazil (55.6%).³ The procedure is not free of peri- and postprocedural complications that can be divided into early and late ones. Given caesarean delivery's increasing use, there is also an increase of complications encountered.⁴

Aim of the study was to compare between conditions of previous one caesarean section subjects delivered at Kafr El-Sheikh General hospitals, versus those delivered at Tanta University hospital as regard integrity of the uterine scars, presence of adhesions, time of termination, and fetal outcomes.

METHODS

This study was an observational study that was carried out on 100 pregnant ladies with history of previous one caesarean section. They were recruited from obstetrics and gynecology clinics at Kafr El-Sheikh Governorate and Tanta University hospitals during the period of research from November 2020 to November 2021.

Inclusion criteria

Singleton pregnancy, history of one prior caesarean section at Kafr El-Sheikh Governorate and Tanta University hospitals.

Participants were divided into two groups: group I included 50 pregnant women selected from Tanta University hospitals (previously delivered at Tanta University hospitals). Group II included 50 pregnant women selected from Kafr El-Sheikh General hospital (previously delivered at Kafr El-Sheikh General hospital).

Exclusion criteria

Primigravida, antepartum hemorrhage (placenta previa, placental abruption, women with obvious multiple uterine fibroids and polyhydramnios and those with bleeding disorders.

The eligible subjects were subjected to the following: history taking. Then clinical examinations were done including assessment of vital signs (body temperature, pulse and blood pressure) to assess the hemodynamic status. Abdominal examination (at 32-34 weeks). Abdominal ultrasonographic examinations (at 32-34 weeks): preoperative investigations: lower segment caesarean section (LSCS): a) skin incision: transverse incision (Pfannenstiel incision), b) bladder peritoneal incision, c) lower-segment transverse caesarean section and extension of the incision, d) extension of the incision,

e) delivery of the fetus, f) placental delivery, g) closure of uterine incision, f) closure of abdominal layers and skin. Assessment the outcomes. Intra operative data sheet containing all the intra operative details including: operative duration (in minutes), level of operator, type of anesthesia used. Operative findings: Estimated blood loss (difference of towel weight pre and post-operative as a rough method), adhesions, scar dehiscence, placenta previa, placenta accrete, intra-uterine hematoma.

The Primary outcomes were: comparing the surgical outcome between both studied groups regarding the surgical outcome included: operative duration, estimated blood loss (by measuring towels weight before and after operation), hemoglobin deficit, blood transfusion, scar dehiscence, adhesions, occurrence of complications and post-operative hospital stay.

The Secondary outcome parameters (other outcomes that were assessed): maternal outcomes including caesarean hysterectomy rate, incidence of placenta previa and accreta, intestinal injury, bladder injury. The neonatal outcomes including Apgar score, neonatal birth weight, need for NICU admission, occurrence of respiratory distress syndrome (RDS), prematurity and neonatal deaths.

Statistical analysis

In the present study, statistical analyses of data were carried out using SPSS version 23. Shapiro-Wilks test was used to test normal distribution of variables. Numerical data were expressed as mean±standard deviation or median and range. Categorical data were summarized as percentages. The significance for the difference between groups was determined by using two tailed Student's t test and one way ANOVA (analysis of variance) test or for quantitative data as appropriate. Also qualitative variables were assessed by chi-squared χ^2 test.

Probability (p value)

P value >0.05 was considered insignificant. *P value <0.05 was considered significant. **P value <0.001 was considered as highly significant.

RESULTS

Demographic data of selected cases show age distribution among all studied cases. More than half of cases included in the current study [n=60 (60%)] had an age ranged from 25-29 years, and followed by the age group between 20 and 24 years of age as 33% of participants (n=33) have been falling in this age group. Also 6 (6%) of participants were found between 30 and 34 years, and the last one case (1%) was falling in the age group (34-39) years. Women who had one prior caesarean section at Kafr El-Sheikh hospitals had significantly higher maternal age (26.18±2.79 years) than those at Tanta University hospitals (25±2.5 years) (p=0.029) (Table 1).

Table 1: Distribution of the study cases according to age.

Age (years)		Group I	Group II	P value
20-24	N	20	13	0.359
	%	40%	26%	
25-29	N	28	32	
	%	56%	64%	
30-34	N	2	4	
	%	4%	8%	
35-39	N	0	1	
	%	0%	2%	
Total	N	50	50	
	%	100%	100%	
Mean±SD		25±2.5	26.18±2.79	0.029

P value >0.05 means non-significant. Mean±SD = Mean ± standard deviation

Comparison between both studied groups regarding the intra- and post-operative findings reveal that estimated blood loss was significantly higher in cases selected from Kafr El-Sheikh hospitals (562.9±132.4) compared to that lost from cases selected from Tanta University hospitals (500.24±81.84, p=0.005). Furthermore, operation time was significantly longer in patients selected from Kafr El-Sheikh hospitals (45.08±6.87 minutes) than those selected from Tanta University hospitals (40.08±5.24 minutes, p<0.001). In addition, time to regaining bowel movement was longer in patients selected from Kafr El-Sheikh hospitals (6.58±1.18 hours) than those selected from Tanta University hospitals (6.36±1.19 hours), but without significant difference (p=0.356). Also, the present study showed that patients selected from Kafr El-Sheikh hospitals stayed at hospital longer than those selected from Tanta University hospitals (1.34±0.48 days versus 1.24±0.43 days); respectively (p=0.275) (Table 2).

Table 2: Comparison between the both studied groups regarding the estimated blood loss, and time of operation, time to regain bowel movement, and duration of hospital stay.

		Group I	Group II	P value
Estimated blood loss	Mean±SD	500.24±81.84	562.9±132.4	0.005**
Time of operation (minutes)	Mean±SD	40.08±5.24	45.08±6.87	<0.001**
Time to regain bowel movement (hours)	Mean±SD	6.36±1.19	6.58±1.18	0.356
Duration of hospital stay (days)	Mean±SD	1.24±0.43	1.34±0.48	0.275

P≤0.05, p value>0.05 means non-significant. Mean±SD = Mean ± standard deviation

Table 3: Maternal postoperative complications of repeated cesarean delivery in both studied groups.

		Group I	Group II	P value
Intraoperative blood transfusion	N	3	3	1.000
	%	6%	6%	
Post-operative blood transfusion	N	2	4	0.678
	%	4%	8%	
Uterine laceration	N	0	2	0.495
	%	0%	4%	
Uterine hematoma	N	3	5	0.715
	%	6%	10%	
Uterine atony	N	2	3	1.000
	%	4%	6%	
Hysterectomy	N	0	1	1.000
	%	0%	2%	
Bowel injury	N	0	0	-
	%	0%	0%	
Bladder injury	N	0	0	-
	%	0%	0%	
Vascular injury	N	0	0	-
	%	0%	0%	
ICU admission	N	0	0	-
	%	0%	0%	
Post-operative surgical site infection (SSI)	N	2	6	0.096
	%	4%	12%	

P value>0.05 means non-significant

Maternal postoperative complications of repeated caesarean deliveries in both studied groups shows that that number of cases needed intra-operative blood transfusion was three in each group (6%). As regard post-operative blood transfusion, there were increase in the incidence of post-operative blood transfusion in pregnant women selected from Kafr El-Sheikh hospitals (8%) compared to those selected from Tanta University hospitals (4%), but without statistically significant difference ($p=0.678$). Among post-operation complications that detected only in pregnant women selected from Tanta University hospitals were uterine hematoma (6%) and uterine atony (4%), surgical site infection (4%) while the complications detected in cases selected from Kafr El-Sheikh hospitals were uterine laceration (4%), uterine hematoma (10%), uterine atony (6%) and hysterectomy (2%), surgical site infection (12%) (Table 3).

Admission to the NICU show that total of 11 neonates were admitted to the neonatal intensive care unit (NICU) following CS delivery. The number of neonates admitted to the NICU was higher in cases selected from Kafr El-Sheikh hospitals ($n=7$) than that in cases selected from Tanta University hospitals ($n=4$), but without significant difference ($p=0.338$) (Table 4).

Table 4: Frequencies of NICU in all studied groups.

Admitting to the NICU		Group I	Group II	P value
No	N	46	43	0.338
	%	92%	86%	
Yes	N	4	7	
	%	8%	14%	
Total	N	50	50	
	%	100%	100%	

P value>0.05 means non-significant

DISCUSSION

The primary CS rate has become a major driver of the overall CS rate, accounting for more than two thirds of all CSs in the USA. Due to the uterine scar, the first CS carries intrinsic risk of repeat CS in future pregnancies, justifying the Cragin’s dictum back in 1916 “once a caesarean always a caesarean”. Repeat CS after a previous CS are significant contributors to the increase of OCS rate.⁵

Complications of scarred uterus include an increased risk of uterine rupture, repeat CS, placenta accreta or increta and post-partum haemorrhage. Given that more CSs are increasingly being performed in our environment, especially among nulliparous women, we expect high repeat CS rate among women who had primary CS delivery.⁶

To our knowledge, this is the first study whose aim was to compare between conditions of previous one caesarean section subjects delivered at Kafr El-Sheikh General

hospitals, versus those delivered at Tanta University hospital as regard integrity of the uterine scars, presence of adhesions, time of termination, and fetal outcomes.

In agreement to our results, Alshehri and his co-workers, 2019 reported that the mean GA of repeated CS group (37.09 ± 2.25) weeks.⁷

Nearer to our results, Pereira et al reported that the median gestational age of second births was 38 weeks (or more) irrespective of the gestational age of the first child, and even for the mothers whose first children were extremely preterm (<28 weeks), the absolute risk of clinically significant preterm birth (<34 weeks) was less than 14%.⁸ Also, Diejomaoh et al reported that the mean gestational age at delivery was 38.12 ± 2.61 weeks in second caesarean section.⁹

In agreement with or findings, Kafali et al conducted a study with 150 women in order to evaluate the effect of chewing gum after caesarean section on postoperative bowel activity and bowel sounds as reported similar results in their groups (5.9 hours) after gum use and 6.7 hours in the control group ($p<0.01$).¹⁰

Similar results were reported by the study of Maeboud et al with 200 women after caesarean delivery under general anesthesia in Egypt revealed that patients experienced bowel sounds 10.9 hours after surgery.¹¹

However, Akalpler and Okumus reported that the mean time for bowel sounds in women following caesarean delivery with spinal anesthesia included in this study was 12.62 ± 7.73 minutes.¹² They also found that women had discharge time of 47.17 ± 1.51 hours.

Pereira et al reported that discharge time was about 2 days in all age groups in their work.¹³

Regarding ICU admissions, Alshehri et al found that the maternal ICU and NICU admissions rates increased with the increased CS number.¹⁴ Kamath et al reported that NICU admission rate was 9.3%.¹⁵

CONCLUSION

There is high rate of caesarean section in our country. But satisfactory results were present in both Tanta University hospitals and Kafr El-Sheikh General with few complication rates found special in cases priory delivered at Tanta University hospitals including less adhesion finding and thus less intra and post-operative complications.

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