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Original Research Article

## Outcome of pregnancy in previous caesarean section: an observational study

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### ABSTRACT

**Background:** Presently, good obstetrics means an uncomplicated antenatal period, labour and puerperium for the mother and birth of a healthy body. Post caesarean section pregnancy has now become one of the most common high-risk cases tackled at any hospital. In this paper an attempt has been made to assess the outcomes of pregnancy in previous caesarean section.

**Methods:** This study was conducted among patients in the department of gynecology and obstetrics at Al-Ameen Hospital from June 2016 to December 2018. For that purpose, a sample size of 100 was considered. Data were analyzed using SPSS software v. 23.0. and Microsoft office 2007.

**Results:** The incidence of caesarean section was 10.25%. Anaemia, pregnancy-induced hypertension and diabetes mellitus found in this study is more coincidental. Placenta previa cases were also present. Cephalopelvic disproportion was the commonest indication of the previous section in this study. 20% of the cases have had their previous section due to cephalopelvic disproportion. 18% of the cases had delivered vaginally, 15 cases were delivered by forceps (72.2%) and 3 cases were delivered normally (27.8%). Maternal morbidity was found to be low and there was no maternal death.

**Conclusions:** The patient whose primary section was done due to cephalopelvic disproportion should be assessed thoroughly in her current pregnancy before placing her to elective repeat section. As there is always the possibility of scar rupture in a case of post caesarean section pregnancy one must think twice before doing the primary section. More research is required to evaluate optimum time of management.

**Keywords:** Anaemia, Cephalopelvic disproportion, Pregnancy, Previous caesarean section, Primary section, Post caesarean section

### INTRODUCTION

At present time good obstetrics means an uncomplicated antenatal period, labour and puerperium for the mother and birth of a healthy body. Because the widespread emphasis is given to the detection of actual and suspected fetal distress the use of caesarean section has increased at an accelerated rate. So there develops a new group of the mothers who are destined to carry reproductive performance with a scar in the uterus. Obstetricians are now facing more and more problems in the management of

pregnancy and labour in patients who had a caesarean section before. Post caesarean section pregnancy has now become one of the most common high-risk cases tackled at any hospital.

Till today no definite method has been invented to measure the tensile strength of caesarean section scar and its behaviours to stretching especially during the last few weeks of pregnancy and labour. This puzzles the obstetricians regarding decisions for vaginal delivery following caesarean section, mainly for the fear of

dehiscence and rupture with their subsequent hazards. So, the routine repeat section is the commonest indication of caesarean section in most maternity centre abroad and some parts of our country also. The risk of rupture of previous caesarean section scar was at 2.2% for all cases, 4.7% for those in labour and 8.5% for those delivered vaginally. The figure for lower segment caesarean section was 0.5%, 0.8% and 1.2% respectively.<sup>1</sup> The maternal mortality was 5% for classical scar rupture and perinatal mortality rate of 73%. No mother was lost after lower segment scar rupture. The perinatal mortality rate was 12.5%.<sup>2</sup> Although vaginal delivery after prior caesarean section birth is viewed as reasonably safe for the parturient, the perinatal issue remains obscure. There is a substantial difference of opinion as to the influence of epidural anaesthesia upon the current pregnancy.

The obstetricians are already allowing vaginal delivery in post caesarean section pregnancy though under the threat of scar rupture and this is the latest trend all over the world. Meticulous care and close monitoring are the pre-requisites in conducting vaginal delivery in cases of post-caesarean section.

A previous caesarean section casts a shadow over any future pregnancy.<sup>3</sup> Despite extensive work, authors are yet to arrive at a correct solution to the problem of the method of delivery after a caesarean section and many factors will require to be taken into account when deciding what is best for any individual patient. It is quite natural that difference of opinion or lack of consensus is likely to prevail between different obstetricians with different views and attitudes to the problems. In this paper an attempt has been made to assess the outcomes of pregnancy in previous caesarean section.

## **METHODS**

The present study was conducted among patients in the department of gynecology and obstetrics at Al-Ameen Hospital from June 2016 to December 2018.

The cases under the study were selected from the labour room and in maternity wards where both booked and unbooked cases and also referred cases from other Railway hospitals and urban centres are being admitted for management. For that purpose, a sample size of 100 was considered.

### ***Inclusion criteria***

Inclusion criteria of this study were all pregnancy woman carrying more than 28 weeks of gestation with the previous history of single or multiple caesarean section delivery will be taken into consideration.

### ***Exclusion criteria***

Exclusion criteria of this study were the scars in the uterus due to other cause like myomectomy or

hysterectomy scars will be discarded from the present study.

All cases were properly and thoroughly evaluated by taking a detailed history and clinical examination and also the available investigation. All the medical records were reviewed properly to determine the indication of primary caesarean section.

Trial of vaginal delivery was allowed in suitable cases. Maternal condition, foetal conditions, the progress of labour were monitored minutely during the trial of labour. Maternal pulse, BP, uterine activity, scar tenderness and foetal heart sound were recorded every ½ an hour, during 1<sup>st</sup> stage of labour. The progress of labour was assessed by dilatation of Cx, and descent of presenting part at an interval of 3 hours.

Time of rupture of membrane, be it spontaneous or artificial was noted and colour of liquor near also noted. Signs and symptoms of impending scar rupture were also noted i.e., persistent unexplained tachycardia, suprapubic pain and tenderness vaginal bleeding, failure of progress of labour and alteration of FHR from time to time. Trial of vaginal delivery was abandoned in favour of caesarean section as soon any complication or abnormality in the course of labour was detected.

To cut short second stage, forceps were used routinely in almost all cases. Liberal episiotomy being made in almost all cases. After a vaginal delivery, the patient was observed clinically for 2-3 hours. for the integrity of the lower uterine segment. The lower uterine segment was explored whenever necessary. Elective caesarean section was done in cases where there was contraindication of allowing labour and vaginal delivery. At the time of operation, all the cases were judged regarding intraabdominal adhesions, difficulties faced during dissection, condition of the lower segment of placental position and adhesion. Tissues from previous caesarean section scars were taken during repeat caesarean section for HP studies.

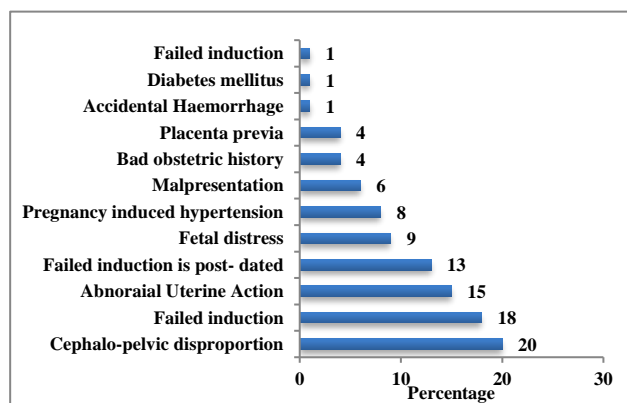
Puerperium was studied meticulously with special reference to the character of lochia, uterine involuntary changes, condition of the breast, pyrexia, and any urinary problem etc. Particular emphasis was given on the occurrence of the following complications, uterine scar dehiscence, puerperal sepsis, retained placenta, postpartum haemorrhage and bladder injury. Nature of abdominal wound healing in all cases of repeat caesarean section was studied elaborately. Condition of the baby was assessed by Apgar score at 1 and 5 minutes. Special emphasis was given on the weight of the baby concerning the mode of delivery and complication occurring during labour and delivery. During the first 7 days, the baby was observed closely for well-being with the total background and results in hand. Ethical clearance from College and prior informed consent was taken before the study.

**Statistical analysis**

All characteristics were summarized descriptively. For continuous variables, the summary statistics of mean± standard deviation (SD) were used. For categorical data, the number and percentage were used in the data summaries and diagrammatic presentation. Data were analyzed using SPSS software v.23.0. and Microsoft office 2007.

**RESULTS**

Among total vaginally delivered 4689 (89.74%) cases in study period, caesarean sections were 536 (10.25%). Among those repeat sections were 154 (2.93%), from which 100 cases of Post caesarean section were studied in this paper. The incidence of caesarean section in the present study was 81%. Out of 100 cases, 44 were put for vaginal delivery. 56 cases directly put for caesarean section. One case ended in hysterectomy.

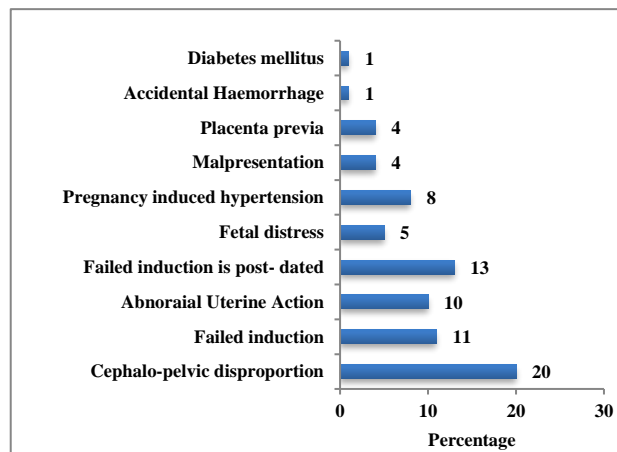


**Figure 1: Indication of primary caesarean section.**

Figure 1 shows commonest indication was cephalopelvic disproportion which was present in 20 (20%), foetal

distress in 9 (9.0%) cases and failure of induction in 18 (18%) cases.

The major cause of repeat sections was cephalopelvic disproportion in 20 (20%) cases. Failed induction is post-dated were in 13 (13%) cases. Fetal distress was in 5 (5%) and malpresentation was in 4 (4%) cases.



**Figure 2: Indication of repeat caesarean section.**

The prevalence rate of postoperative wound sepsis was highest among all the postoperative complication (40%). 41 (41%) cases had puerperal pyrexia and 59 (59%) cases were afebrile. The most common antenatal complication in the third trimester of pregnancy was anaemia (13%). Out of 100 cases, 83 (83%) were booked in the antenatal clinic, of which 68 (68%) were delivered by Caesarean section and rest 15 (15%) per vaginam). Total perinatal mortality in the booked group was (64/1000). Among unbooked cases of which 13 (13%) cases were delivered by caesarean section and rest 3 (3%) per vaginam). Perinatal mortality was (192/1000) quite higher than the booked group.

**Table 1: Frequency of recurrence of the previous indication of caesarean Section in the present study.**

Previous Indication of CS	No. of cases	Recurrence in the present study	%
Cephalo-pelvic disproportion	20	18	90
Failed induction	18	2	11
Abnormal uterine action	15	2	13
Failed induction is post-dated	13	3	23
Fetal distress	9	1	11
Pregnancy induced hypertension	8	0	0
Malpresentation	6	0	0
Placenta previa	4	0	0
Accidental haemorrhage	1	1	100
Diabetes mellitus	1	0	0
Failed induction	1	1	100

One subtotal hysterectomy was done due to rupture of previous lower segment scar. When labour was induced

by stripping of membrane and ARM, 50% delivered vaginally and rest 5 underwent caesarean section of

which three, due to failure of induction in ost dated pregnancy, one, due to scar tenderness and last one due to foetal distress. In addition to above two methods of induction when syntocinon drip combined with them, for augmentation, the outcome was better, 8 cases delivered vaginally and in 3 cases caesarean section had to be done, in 2 cases there was scar tenderness and in one case there was foetal distress. 4 cases of malpresentation were found in post caesarean cases.

The Table 1 show that recurrent indication like cephalopelvic disproportion recurrent in 90% of cases. But in non-recurrent indication like abnormal uterine action recurrence rate was 13%. Malpresentation is also recurrent in the present study.

The Table 2 show that the incidence of caesarean section did not decrease with the increase in height of mother. On the other hand, it gradually increased with increase in height is not a guide about her obstetric future after a caesarean section.

Maximum vaginal delivery was achieved when the baby weight was between 2.01 kg to 2.50 kg. One case weighing less than 1500 gm underwent caesarean section due to severe antepartum haemorrhage. The scar rupture occurred when the baby weight was moderate to big size. In present study, 6 babies died in the repeat section group of which 1 baby was extremely underweight and premature, two had to deliver at 34 weeks due to antepartum haemorrhage and two died after the scar ruptured.

According to Figure 3, 2 patients had got placenta praevia. All were delivered by caesarean section. 1 baby died due to prematurity and underweight. 3 patients had got placenta located over the previous caesarean scar. One of them had got adherent placenta. That had to remove part by part. There was profuse bleeding from the site. Layers were given rapidly and then hot mops applied over the site before the closer of visceral peritoneum. The bleeding stopped but later on, 2 bottles of blood were transfused.

**Table 2: Relationship between mother's height and her obstetric future after caesarean section in the present study.**

Height	No. of cases	Indication of previous CS		Present performance		Percentage CS wise
		Recurrent cause	Non-recurrent cause	Caesarean section	Vaginal delivery	
4'0" to 4'6"	1	1	0	1	0	100.0
4'-6" to 5'-0"	56	13	43	50	6	89.3
5'-0" to 6'-6"	43	3	40	30	13	69.8

**Table 3: Complication after both methods of delivery.**

Complication	Vaginal Delivery (n=18)	%	Repeat caesarean section (n=81)	%
<b>Post-partum haemorrhage</b>				
Primary	0	0.0	1	1.2
Secondary	0	0.0	0	0.0
<b>Puerperal pyrexia</b>	1	5.6	8	9.9
<b>Urinary tract infection</b>	0	0.0	6	7.4
<b>Thrombophlebitis</b>	0	0.0	4	4.9
<b>Paralytic illius</b>	0	0.0	1	1.2
<b>Wound gaping</b>	1	5.6	5	6.2
<b>Retention of urine</b>	0	0.0	1	1.2
<b>Haematuria</b>	0	0.0	2	2.5
<b>Breast abscess</b>	0	0.0	3	3.7
<b>Total</b>	2	11.1	31	38.3

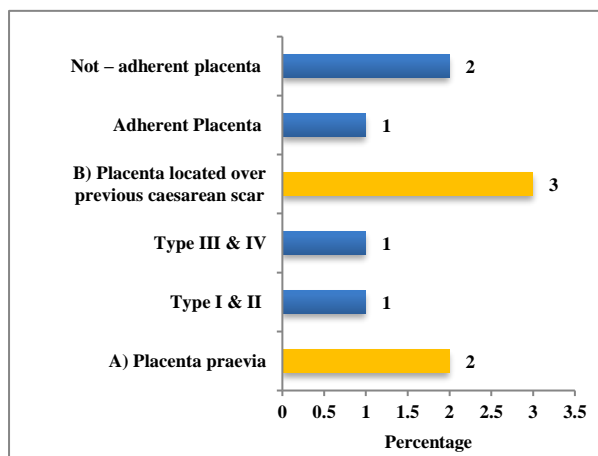
A total 88% of scars having scar tenderness were unhealthy. Extreme thinning of the lower segment was noted in 12 cases. 3 cases had got dehiscence of the scar. 1 case had demonstrated definite rupture. The scar was completely healthy in 3 cases. Out of 100 cases, there were dehiscence or rupture in 2 cases (2%). There was dehiscence in 1 case which were sectioned due to scar tenderness. The other one cases of rupture were due to obstructed labour, one in a case of abnormal uterine

action, other in a case of pregnancy induced hypertension. Both of them underwent hysterectomies and babies were stillborn.

The Table 3 show that postpartum complications were higher in the repeat section group. Rate of the non-union of the wound was 6.2% which was quite higher than the previous study. The two cases of haematuria occurred in

two rupture uterus which persisted for 3 to 4 days. The catheter was kept for 6 days.

In repeat section group duration of hospital stay was always more than vaginal delivery. Approximate stay in the repeat section was 8 days and in vaginal delivery 5 days. There was no maternal death in the present study. Rate of tubectomy was higher 63% in repeat section group. In 20 cases ligation were done without prior consent as the scar was grossly thinned out and during delivery of baby extended laterally.



**Figure 3: Abnormal placenta in post- caesarean cases.**

In vaginal delivery group, tubectomy incidence was 16.7%. The patient party had given their consent during admission but most of them denied tubectomy after their delivery. There were 8 cases of abortion among those 100 posts caesarean pregnancy. Out of those 8 cases, 7 had a history of abortion once after primary section and 1 case had such history twice.

## DISCUSSION

From the studies of post caesarean cases made so far, it is becoming more obvious to us that the rate of caesarean section has increased in recent times in post caesarean section pregnancy. It is more liberalized for maternal as well as fetal interest. The increasing safety in operation due to overall improvement in obstetric standard in the developed countries is responsible for its ever-widening application.

The incidence of post caesarean deliveries as studied by different authors in different periods also showed between 1-4%.<sup>4-7</sup>

In the present study, the rate of caesarean section was 10.25% which was more or less close to other study done on this topic. Caesarean section rate had increased from 6 percent to over 16% in 10 years.<sup>8</sup> The rate of caesarean section is 10% among the Hospital deliveries.<sup>9</sup> The gradual rise in the incidence of post-caesarean pregnancy is also due to increased no. of primary sections. Patient

who had got successful vaginal delivery was admitted 26% more often in active phase of labour than whose trial of labour ended in repeat caesarean section.<sup>10</sup> If the technique of section is perfect than the abortion in post caesarean section cases case is not significant. The post caesarean abortion rate was 11.6%.<sup>11</sup>

Anaemia, pregnancy-induced hypertension and diabetes mellitus found in this study is more coincidental. Placenta previa cases were also present. The exact etiology of implantation in the lower segment of post-caesarean pregnancy is still obscure. It might be due to alteration of blood supply to the lower segment due to change in quality and depth of endometrium or from changing shape and contour in the uterine cavity.<sup>12</sup> The increased incidence of malpresentation may be due to change in the contour of uterine cavity.<sup>13</sup>

Cephalopelvic disproportion was the commonest indication of the previous section in this study. It proves that previous indication of cephalopelvic disproportion was justified in almost all cases on the contrary.<sup>14</sup>

In the present study, oxytocin was used for augmentation but it was not used for induction of labour. Many studies advised against the use of oxytocin's and advocated that syntocinon can be used safely without risk.<sup>15-17</sup>

In the present study out of 100 cases, 20 cases have had their previous section due to cephalopelvic disproportion. Next large group was the failure of induction in premature rupture of membrane and postdated pregnancy. This group consisted of a total 51 cases. Rest cases were done for other non-recurrent indication like fetal distress, antepartum haemorrhage, pregnancy-induced hypertension, eclampsia, diabetes and malpresentation.

Out of 20 cases of cephalopelvic disproportion, all cases were delivered by repeat caesarean section. This proves that cases of recurrent indication have to be assessed for the second time before formulating a method of delivery.

The commonest indication of repeat section was cephalopelvic disproportion. In many other studies aslo, cephalopelvic disproportion was also the commonest indication.<sup>18,19</sup> In the present study maximum, a successful trial of labour was found in those patients who have had their previous section due to pregnancy-induced hypertension. Recurrence of the previous indication was observed in a good number of cases where the previous indication was a non-recurrent one. Timing of doing elective repeat section is important as because fetal survival is intimately related to it. But when it was done for some maternal indication e.g., antepartum haemorrhage, one has got little choice in timing the procedure.

Out of 100 cases in the present study, 18 (18%) cases had delivered vaginally, 15 cases were delivered by forceps (72.2%) and 3 cases were delivered normally (27.8%).

Exploration of the uterus was not done routinely but the cases were kept under observation for a couple of hours after delivery. There was no case of scar dehiscence in this group in the present study. Some study suggested prophylactic application of forceps in post caesarean cases.<sup>20</sup>

In present study 24 patients were admitted during labour and among them, the incidence of vaginal delivery was 45.8% in comparison with those patients admitted before labour 9.2%. The previous history of vaginal delivery was present in the 25 cases and among them, the incidence of vaginal delivery was 32%, in comparison with 75 cases with no history of previous vaginal delivery had an incidence of 13.3%. This proves that the previous history of vaginal delivery favored the outcome in the current pregnancy.

A total 3.9% incidence of placenta previa among post caesarean section cases was reported and suggested that scar in the lower segment favors low implantation of the placenta.<sup>21</sup> Dominant risk of the trial of labour after low transverse caesarean section is not scar dehiscence but placenta accreta, increta and percreta and maternal exsanguinations from postpartum haemorrhage.<sup>22</sup>

In the present study maternal morbidity was low in the vaginally delivered group than a repeat section and there was no maternal death. Incidence of primary postpartum haemorrhage 3.70% in comparison with 3.31% in repeat section group, few studies reported a much higher incidence (15.7%) of postpartum haemorrhage after repeat section. Secondary postpartum haemorrhage was more common (1.65%) after repeat section. Incidence of thrombophlebitis was no doubt more in case of repeat section due to prolonged infusion.<sup>22,23</sup>

## CONCLUSION

In recent time due to discovery of a lot of methods of assessing fetal well-being, the rate of caesarean section has increased from the past. That is why the incidence of post caesarean section pregnancy has also increased and it has become the commonest high-risk pregnancy. In properly selected patients' trial of labour is the best method of management. But authors must avoid difficult vaginal delivery and also prolong labour in post caesarean section pregnancy. The patient whose primary section was done due to cephalopelvic disproportion should be assessed thoroughly in her current pregnancy before placing her to elective repeat section. Recurrent and non-recurrent cause changes in the outcome. As there is always the possibility of scar rupture in a case of post caesarean section pregnancy one must think twice before doing the primary section. More research is required to evaluate and assess post caesarean section changes and establish the optimum time of management.

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