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Analysis of Impact of Single Layer Uterine Closure at Repeat Cesarean Section

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Abstract
Objective: *To study effectiveness of single layer lower uterine segment closure in repeat caesarean cases in terms of scar dehiscence, intra operative complications such as adhesion, advanced bladder and adhesion at the time of next caesarean section.*
Aim: *To analyse the impact of single layerlower uterine segment uterine closure at repeat cesarean section cases.*
Method: *A Retrospective analysis of 70 cases undergoing repeat cesarean section who had primary cesarean with single layer lower uterine segment closure in Department of OBG at Dr B R Ambedkar medical college and hospital. Intra operative difficulties and post operative complication were noted. Data was collected and analysed using computer software.*
Results: *A total of 70 cases was analysed who had single layer uterine closure there were 8 case of advanced bladder, Thinned out lower uterine segment in 14 cases , 2 underwent uterine artery ligation,2 had scar dehiscence and in 16 cases adhesions were noted. Among them 28 had Emergency caesarean deliveries and 42 were taken up for Elective section.*
Conclusion: *Single layer uterine closure is as effective as double layer sutures as it is faster, equally effective as double layer closure, shortens operative time, minimise usage of suture material, reduces infection rate, decreased bood loss, lower rate of endometritis and shortens hospital stay*

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I. Introduction

Cesarean section is one of the oldest procedures performed in the history of surgery. Cesarean section is delivery of fetus through surgical incision on uterine wall after 28 weeks of gestation. Since the first documented caesarean delivery in 1020 AD, various modifications have been made in the technique. It was surgery performed as a last resort, mostly peri- or post-portem.[1]. With minor variation, surgical performance of caesarean delivery is comparable worldwide. Among them Uterine closure at cesarean delivery is a factor that is potentially modifiable.

Initially, the uterine wound developed in cesarean section was not sutured as it was opined that the contraction and relaxation of the uterus would make the placement of uterine sutures ineffective.[2] It was Lebas who, in 1769, first advocated closure of uterine incision. It was Max Sanger who in 1882 insisted that suturing of the uterus was essential [3] and he introduced a silver suture that produced minimal tissue reaction.The surgical techniques used at caesarean section vary between surgeons, and few of these techniques have been evaluated in randomised controlled trials .

As most of the obstetricians must haveexperienced that continuous suturing in already thinnedout lower segment leads to cutting through the sutureline, creating holes. In double layer closuretechnique in first layer so that transverse thinned outmuscle fibers which creates little tension on suture line and hampers the vascularity less and hencepromotes healing. The second layer of continuousrunning sutures folds the muscle over the first layer sopreventing the first layer to get loose during involution.Traditionally the uterus was closed in two layers but recently many obstetrician prefer single layer closure as it is faster, equally effective as double layer closure, shortens operative time, minimise usage of suture material, reduces infection rate, decreased bood loss, lower rate of endometritis and shortens hospital stay.

There is a evidence that suggests that the surgical technique for uterine closure following Cesarean delivery influences the healing of the Cesarean scar, but there is still no consensus on the optimal technique. Single layer closure was associated with few lower uterine segment abnormalities such as reduced local ischemia, hematoma formation and infection which was based on radiographic study. Deficient uterine scar healing represents a side effect with negative consequences. Serious obstetric complications may occur in the

subsequent pregnancy such as uterine scar dehiscence (0.6-3.8%), uterine scar rupture (0.2-3.8%) and cesarean scar pregnancy, which may be associated with morbidly adherent placenta.[4] This is reduced in single layer uterine closure when compared to double layer uterine closure.

II. Methods

A Retrospective study was conducted in DR B R Ambedekar Medical College and Hospital in Department of obstetrics and gynaecology over a period of 2 years i.e 1st January 2018 to 31st December 2019.All patientswho underwent repeat cesarean section with single single layer uterine closure in previous section was analysed.

The minimum sample size was estimated using the Kish Leslies formula

$$n = \frac{z^2 p (1-p)}{d^2}$$

where n= minimum sample size

Z= represents the desired level of statistical significance which is equivalent to 1.96 for a 95% confidence interval.

p = Expected proportion in the population. (0.014)

d =level of acceptable error which is set as 5%

n= 21 subjects.

Inclusion criteria

All patientswho underwent repeat cesarean section with previous single single layer uterine closure done by single surgeon in Department of OBG at Dr B R Ambedkar medical college and hospital.

Exclusion criteria

Parity greater than three

Pregnancy associated with complications such as placenta previa, abruptio placenta.

Previous section with double layer uterine closure.

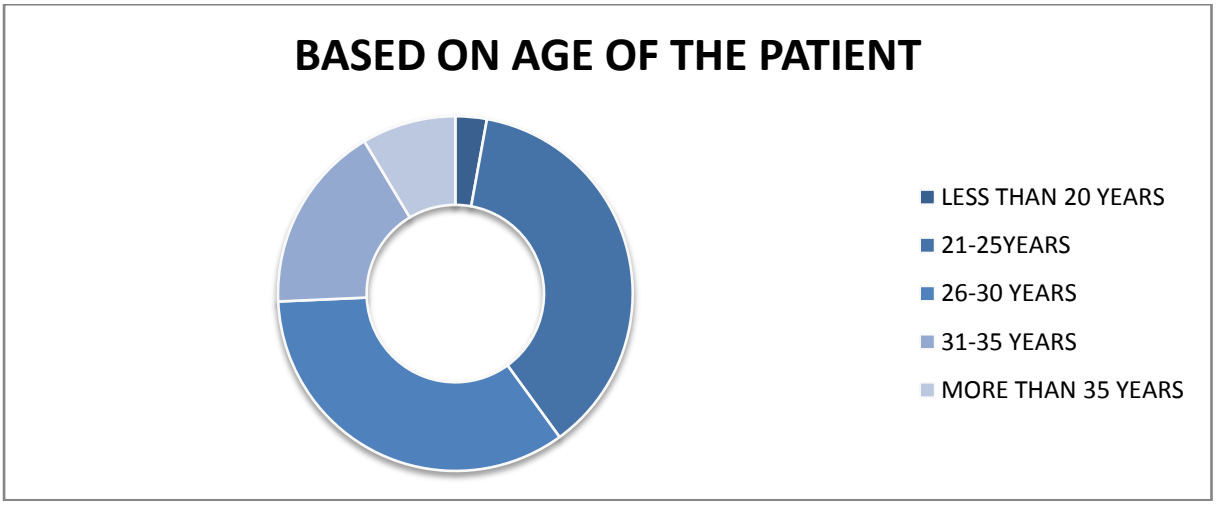
Previous H /o uterine surgeries such as myomectomy.

All patientsundergoing repeat cesarean section with previous single single layer uterine closure done by single surgeon in Department of OBG at Dr B R Ambedkar medical college and hospital were analysed Intra operative difficulties such as adhesions, bladder advancement , scar integrity and adhesions noted and post operative complication such as pphwere analysed. . Data was analysed using computer software

III. Results

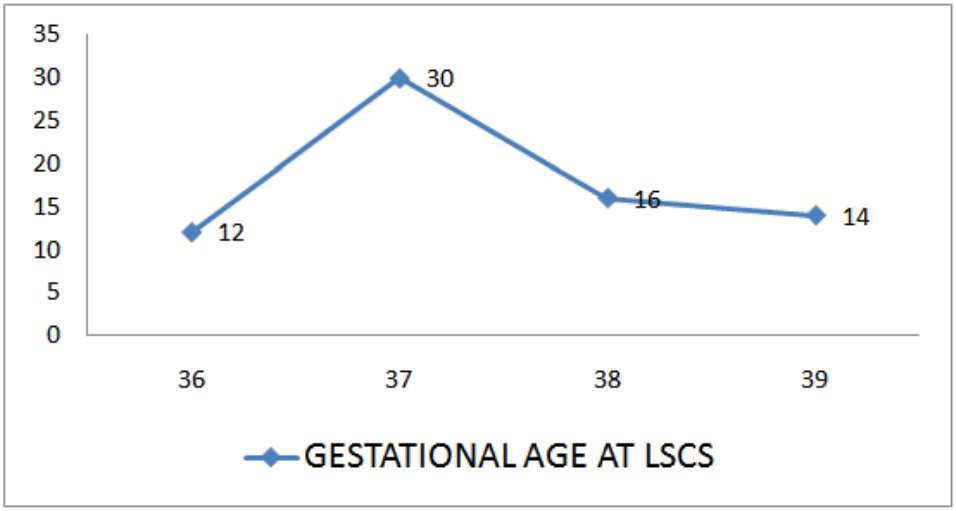
ACCORDING TO AGE

Among 70 patients who were analysed less than 20 years were 4 and between 21-25 years were 28 and age group 26-30 were 24 and age group 31-35 were 12and more than 35 years were 4.

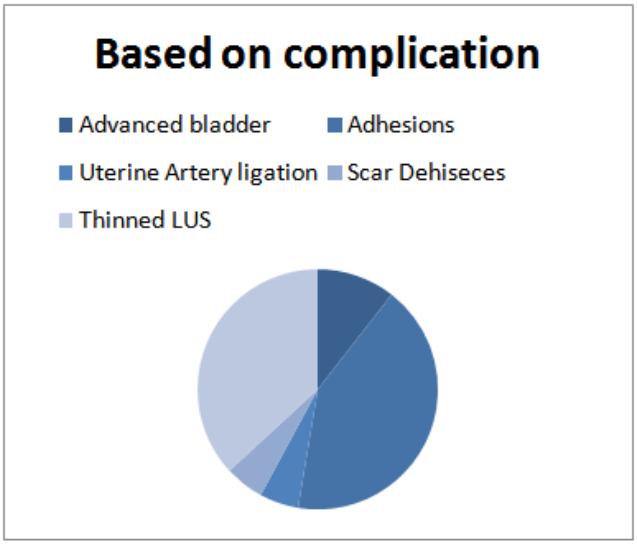


GESTATIONAL AGE AT LSCS

Based on gestational age at which Cesarean was done were at 36 week of gestation 12 patients and at 37 weeks of gestation 30 patients around 38 weeks 16 patients and at 39 weeks 14 patient were taken up for cesarean section.



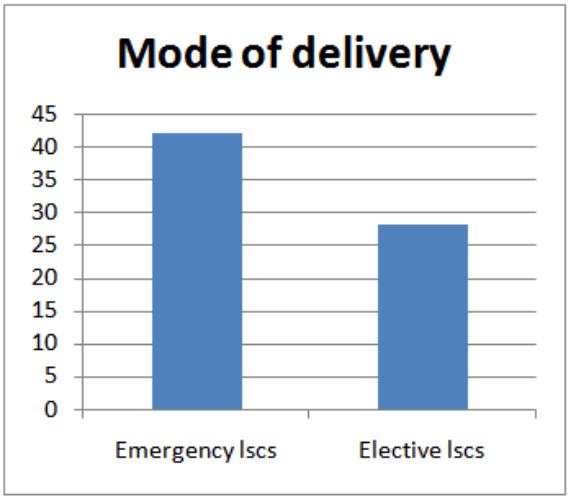
BASED ON COMPLICATIONS



Among 70 patients who underwent repeat cesarean section,4 patients had advanced bladder,2 underwent uterine artery ligation,2 had scar dehiscence and in 16 cases adhesions were noted and in 14 cases lower uterine segment was thinned out.

MODE OF DELIVERY

In 70 cases analysed among them 28 had Emergency caesarean deliveries and 42 were taken up for Elective section.



IV. Discussion

In our study of 70 cases who had single layer uterine closure in primary caesarean section and who underwent repeat cesarean section,8 patients had advanced bladder, Thinned out lower uterine segment in 14 cases2 underwent uterine artery ligation,2 had scar dehiscence and in 16 cases adhesions were noted. Among them 28 had Emergency caesarean deliveries and 42 were taken up for Elective section.

Yazicodluf et al. also found that by selecting full thickness suturing technique including decidua one may significantly lower the incidence of incomplete healing of uterine incision after caesarean section.(9) Hayakawa et al. conducted a study to evaluate wheather the method for myometrium closure effects on caesarean section scars of lower uterine segment.(10) They concluded that methods for myometrial closure as well as other factors influence the conditions of myometrial healing and incidence of scar defects one month after caesarean section varies with method applied for myometrial suturing.

Nineteen studies were identified comparing single layer with double layer closure of the uterus, with data contributed to the meta-analyses from 14 studies. Therewere no statistically significant diCerences identified for the primary outcome, febrile morbidity (nine studies; 13,890 women; RR 0.98; 95% CI 0.85 to 1.12). Although the meta-analysis suggested single layer closure was associated with a reduction in mean blood loss, heterogeneity is high and this limits the clinical applicability of the result. There were no differences identified in risk of blood transfusion (four studies; 13,571 women; average RR 0.86; 95% CI 0.63 to 1.17; Heterogeneity: Tau2 = 0.15; I2 = 49%), or other reported clinical outcomes.

V. Conclusion

Single layer uterine closure is as effective as double layer sutures as it is faster, equally effective as double layer closure, shortens operative time, minimise usage of suture material, reduces infection rate, decreased bood loss, lower rate of endometritis and shortens hospital stay.

These results have implications for clinical practice, the potential effects of different surgical techniques on longerterm outcomes, including the functional integrity of the uterinescar during subsequent pregnancies, are now becomingincreasingly important for guiding clinical practice.

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