



Frequency of Complications of Vaginal Delivery in Patients with a History of Cesarean Section

Edgar Allan Villagómez Mendoza^{1*}, Rubén Razo Solano², Saúl Palapa Ramirez² and Alan Moisés Santana Ramirez³

¹Fourth Year Resident Physician of Gynecology and Obstetrics, General Hospital Dr. José María Rodríguez, State of México, Mexico

²Obstetrician Gynecologist, General Hospital Dr. José María Rodríguez, State of México, Mexico

³Coordinator of Medical Programs IMSS, General Hospital Dr. José María Rodríguez, State of México, Mexico

*Corresponding Author: Edgar Allan Villagómez Mendoza, Fourth Year Resident Physician of Gynecology and Obstetrics, General Hospital Dr. José María Rodríguez, State of México, Mexico.

Received: January 19, 2021

Published: January 28, 2021

© All rights are reserved by Edgar Allan Villagómez Mendoza, et al.

Abstract

Objective: To determine the frequency of complications of vaginal delivery in patients with a history of cesarean section.

Methods: Prospective, observational, and descriptive study carried out from June 2019 to June 2020, with a total of 45 cases in the study period, 45 patients attended for resolution of gestation were analyzed, all with a history of cesarean section, they were concentrated in a database in the Excel program and quantitative and qualitative analysis of the study variables was carried out (gestations, maternal age, interpregnancy interval, indication for previous cesarean section, type of complication, obstetric outcome and, if necessary, reasons for a repeat cesarean section measures of central tendency were specified. Statistical significance was made as $p < 0.05$ and was performed using the Chi-square test and Fisher's exact statistic for nominal variables. Inclusion criteria: patients with full-term pregnancies, history of a transverse segmental cesarean section without contraindication for vaginal delivery, the reason for the previous cesarean section, and interpregnancy interval greater than 18 months.

Results: 45 patients were studied, complications were analyzed in 40%, by type of obstetric outcome, complications appeared in 36% of women with childbirth, and in 45% of women with a cesarean section, In patients with a vaginal outcome, the most frequent complication was third-degree B perineal tear in 12% of cases, however, in patients with repeat cesarean section, the most frequent complication in 20% of cases was the obstetric hemorrhage. The complications obtained in the study were not statistically major.

Conclusions: Cesarean section is a major surgical procedure that implies higher morbidity and mortality than childbirth, admitting delivery after cesarean section is a safe method in patients with a history of cesarean section with transverse segmental incision without contraindication for vaginal delivery, however, strategies should be developed to improve delivery care, decrease obstetric bleeding, and improve the obstetrician's ability to assess the risk of uterine rupture.

Keywords: Delivery After Cesarean Section; Vaginal Delivery; Cesarean Birth; Flamm Score

Introduction

The number of women with a history of cesarean section is increasing, which is why it is already considered a public health problem. In the United States, the cesarean section rate is reported to be up to 56.2%, which is equivalent to 6236 placentas previa and 4504 placentas accreta increasing maternal death. A similar situation occurs in Mexico, the latest report refers a 33% rate of cesarean sections, the existence of a previous cesarean section increases the risk of placental insertion abnormalities, either placenta previa or placental accreta, and is the main risk factor for uterine rupture in a subsequent pregnancy, the percentage increases to 3% if the incision was classic body type or Sanger, the increase in repeat cesarean section has been related to greater maternal morbidity, especially obstetric hemorrhage, for which improvement has been seen in In the care of delivery after cesarean section, the literature reports fewer maternal and fetal complications if a vaginal resolution of the delivery is chosen [1-5].

In the 1960s it was considered that all patients with a previous cesarean section should have a repeat cesarean section in all their following pregnancies, however, current evidence refutes this premise. The routine elective cesarean section for the second delivery of a woman with a previous low transverse segmental cesarean section generates an excess of maternal morbidity and mortality, as well as a high cost for the health system. For this, studies have been carried out where delivery after cesarean section is attempted with success reflected in the increase in vaginal delivery rates by 28.3% with a decrease in the cesarean section rate up to 20%, which contributes to lower maternal morbidity and mortality as well as a lower risk of complications in future pregnancies. The published series have shown the success of vaginal delivery after cesarean section in 60-80% of cases, therefore it is recommended to submit all patients to an attempted vaginal delivery after cesarean section unless there is obstetric, medical, or fetal contraindication that prevents it. Management of patients in a trial of labor is similar to those of patients who do not have a previous cesarean section, however, continuous intrapartum monitoring is essential, in which we identify the possibility of uterine rupture. In turn, the progression of labor may be different, in a study the dilation between 4-7cm was slower compared to first-time patients with spontaneous labor, however, this disappears when oxytocin is used as an inducer, providing an additional risk for uterine rupture, there are no studies that determine an induction scheme that predisposes to

this complication [6-9], in a study the second period of labor was analyzed determining a percentage of risk for uterine rupture for each hour of the second stage, that is, 1 hour 0.7%, greater than or equal to 3 hours 3%, therefore it is necessary to assess maternal-fetal complications regarding the type of delivery and to be able to discriminate the risk-benefit according to the way of resolution of pregnancy [10]. The objective of this research is to determine the frequency of complications of vaginal delivery in patients with a history of cesarean section in a second-level hospital.

Material and Methods

The prospective, observational and descriptive study carried out from June 2019 to June 2020, with a total of 45 cases in the study period, 45 patients attended for resolution of pregnancy were analyzed, all of them with a history of a cesarean section. Data such as maternal age, obstetric outcomes (vaginal delivery or cesarean delivery), interpregnancy interval, if a repeat cesarean section is required and indication for it, indication for the previous cesarean section, type of complications raised, was concentrated in a database in the Excel program and quantitative and qualitative analysis of the study variables was carried out (pregnancies, maternal age, interpregnancy interval, indication for the previous cesarean section, type of complication, obstetric outcome and if necessary, what the indication was) trend measures were used centrally. Statistical significance was taken as $p < 0.05$ and was performed utilizing the Chi-Square test and Fisher's exact statistic for nominal variables. Inclusion criteria: patients with full-term pregnancies, with a history of a low transverse segmental cesarean section, a single gestation in cephalic presentation without contraindication for vaginal delivery, knowing the indication for a previous cesarean section, interpregnancy interval greater than 18 months. Exclusion criteria: having more than one cesarean section, myomectomy, or some surgery that merits entering the uterine cavity. Elimination criteria: preterm pregnancies, maternal or fetal contraindication for vaginal delivery.

Results

45 patients who were suitable for labor were studied, all had a history of cesarean section, the indications for it were in 24.4% due to lack of progression of labor, circular cord in 13.3%, and loss of fetal well-being in 11.1% (Table 1). The mean age of the patients was 26.2 years (± 4.8); the most frequent age group in these patients was 25 to 29 years old (37.8%), followed by 20 to 24 (35.6%) and

30 to 34 years (13.3%). The most prevalent interpregnancy interval was 3 years (31.1%), followed by 4-5 years (28.9%) and two years (26.7%), however, 3 patients were observed with a longer interpregnancy interval at 10 years (6.6%)

| Indication | N = 45 | % |
|-----------------------------------|--------|------|
| Lack of progression of labor | 11 | 24.4 |
| Circular cord | 6 | 13.3 |
| Loss of fetal well-being | 5 | 11.1 |
| Cephalopelvic disproportion | 4 | 8.9 |
| Preeclampsia | 4 | 8.9 |
| Pelvic presentation | 4 | 8.9 |
| Oligohydramnios | 3 | 6.7 |
| Premature membrane rupture | 3 | 6.7 |
| Pregestational diabetes | 1 | 2.2 |
| Fetal macrosomia | 1 | 2.2 |
| Previous placenta Placenta previa | 1 | 2.2 |
| Post-term | 1 | 2.2 |
| Transverse situation | 1 | 2.2 |

Table 1: Indication of for previous cesarean section.

The most frequent obstetric outcome was vaginal delivery in 55.6% of cases, repeat cesarean section occurred in 44.4%, the main cause of the latter being stationary labor in 45% of cases, followed by loss of fetal well-being in 30% and severe preeclampsia in 10% of cases respectively (Table 2). In the patients studied, complications occurred in 40%, when analyzing by type of outcome, in the group of women with childbirth complications, they occurred in 36% and women with cesarean section in 45%, however, these differences were not statistically significant (p = 0.375).

| Reason | N = 20 | % |
|--|--------|------|
| Stationary labor | 9 | 45.0 |
| Loss of fetal well-being | 6 | 30.0 |
| Severe preeclampsia | 2 | 10.0 |
| Premature detachment of a normally positioned placenta | 1 | 5.0 |
| Fetal macrosomia | 1 | 5.0 |
| Uterine rupture | 1 | 5.0 |

Table 2: Reason for Indication of for repeat cesarean section.

When analyzing the complications that can occur in both outcomes; obstetric hemorrhage occurred in 11.1% of all patients, when breaking down the information it was documented in 4% of women with childbirth and 20% of women with cesarean section; but these differences were not statistically significant (p = 0.155). Hysterorrhaphy dehiscence occurred in 6.7% of all patients. When the information was broken down, it was documented in 0% of women with childbirth and 15% of women with cesarean section; but these differences were not statistically significant (p = 0.080). Premature detachment of a normally positioned placenta was present in 2.2% of all patients. When the information was broken down, it was documented in 0% of women with delivery and 5% of women with cesarean section; but these differences were not statistically significant (p = 0.444). Uterine rupture occurred in 2.2% of all patients. When the information was broken down, it was documented in 0% of women with childbirth and 5% of women with cesarean section; but these differences were not statistically significant (p = 0.444) (Table 3).

| Complication | All patients | | Delivery labor | | Cesarean section | | P |
|--|--------------|------|----------------|------|------------------|------|---------|
| | N = 45 | % | N = 25 | % | N = 20 | % | |
| All | 18 | 40.0 | 9 | 36.0 | 9 | 45.0 | 0.375* |
| Obstetric hemorrhage | 5 | 11.1 | 1 | 4.0 | 4 | 20.0 | 0.155** |
| Hysterorrhaphy dehiscence | 3 | 6.7 | 0 | 0 | 3 | 15.0 | 0.080** |
| Premature detachment of a normally positioned placenta | 1 | 2.2 | 0 | 0 | 1 | 5.0 | 0.444** |
| Uterine rupture | 1 | 2.2 | 0 | 0 | 1 | 5.0 | 0.444** |

Table 3: Complications presented in patients.

* Chi-square

** Fisher’s exact statistic.

Of the patients with childbirth as an outcome, the most frequent complication was 3rd degree B perineal tear (12%), followed by 2nd degree perineal tear (8%), vaginal wall hematoma (8%), 3rd-degree perineal tear grade A (4%) and obstetric hemorrhage (4%) (Table 4).

| Complication | N = 25 | % |
|----------------------------|--------|------|
| None | 16 | 64.0 |
| 3rd degree B perineal tear | 3 | 12.0 |
| 2nd-degree perineal tear | 2 | 8.0 |
| Vaginal wall hematoma | 2 | 8.0 |
| 3rd degree A perineal tear | 1 | 4.0 |
| Obstetric hemorrhage | 1 | 4.0 |

Table 4: Complications presented in patients with a vaginal delivery outcome.

Of the patients with a cesarean section as an outcome, the most frequent complication was obstetric hemorrhage (20%), followed by total hysterorrhaphy dehiscence (10%), partial hysterorrhaphy dehiscence (5%), and premature detachment of normal inserted placenta (5%).) and uterine rupture (5%) (Table 5).

| Complication | N = 20 | % |
|--|--------|------|
| None | 11 | 55.0 |
| Obstetric hemorrhage | 4 | 20.0 |
| Total dehiscence of hysterorrhaphy | 2 | 10.0 |
| Partial dehiscence of hysterorrhaphy | 1 | 5.0 |
| Premature detachment of a normally positioned placenta | 1 | 5.0 |
| Uterine rupture | 1 | 5.0 |

Table 5: Complications presented in patients with cesarean section outcome.

Discussion

Despite the small sample size, all patients were found to be fit for labor. The sample reported a mean age of 26 years, 60% of patients had two pregnancies, the indications for previous cesarean section and repeat cesarean section coincide with the bibliography, the latter with a tendency of recurrence due to the indication of for the previous cesarean section of 24.4% and 44.4% in our study, the most prevalent indication being lack of progression of labor; the non-recurrent causes of repeat cesarean section was the loss of fetal well-being in 30% of the cases. We found that 55.6% of the sample had vaginal delivery as an obstetric outcome versus 60-80% as reported in the bibliography, a major complication was observed in a patient with an interpregnancy interval greater than

10 years; Uterine rupture, interpregnancy interval greater than 4 years has been described in literature as a compromise in uterine vascularity produced by rigidity and atherosclerosis of the spiral arteries, producing placental hypoperfusion and finally endothelial damage, which is reflected in the properties of uterine extensibility and contractibility due to the loss or stiffness of muscle fibers, that is, the shorter the interval is (less than 18 months or more than 4 years) the weaker the uterine scar will be, so in this study, in patients who had lack of progression of labor was related in 6.6% with dehiscence of hysterorrhaphy, of which only 2.2% progress to uterine rupture [11-15], when comparing with the literature the risk of uterine rupture is reported in patients with a history of low transverse cesarean section and induction with oxytocin of up to 1.1%. Complications occurred in 36% for patients with vaginal delivery and 45% in patients with repeat cesarean section, however, this difference was not statistically significant with a p = 0.375, when comparing with the bibliography the evidence showed greater morbidity when a However, 37.7% of vaginal deliveries proceeded without any complications; the prevalence of cesarean section was higher in patients who repeated the previous indication for cesarean section, corroborating what has been described in the literature [16-18].

Uterine rupture was infrequent during labor; almost with that reported in the bibliography 1.1% versus 2.2%, the diversity of complications mentioned did not occur with any complications in the evolution of the patients, it is admitted that delivery after cesarean section it is a safe method with a favorable maternal prognosis [19,20]. The limitations of the study were probably that the sample is small due to the study period.

Conclusion

Cesarean section is a potentially complicated major surgery procedure that implies morbidity and mortality higher than delivery. It is generally accepted that delivery after cesarean section is a safe method, which should be offered to all women with a low transverse incision, interpregnancy interval, patients over 18 years of age, who are having a single pregnancy patients, in cephalic presentation, with adequate fetal weight and those who have no contraindication for vaginal delivery; however, the attempt of labor should not be carried out if without the infrastructure to perform an emergency cesarean section within the first 30 minutes of the indication. The complications obtained in the study were not sta-

tistically significant, however, it is advisable to place greater emphasis on these complications, as strategies to improve delivery care and thus prevent perineal tears, active management of the third period, and/or stepped management of the obstetric bleeding and thus reduce the prevalence of bleeding, promote adequate prenatal control that guarantees fetal well-being, the ability of the obstetrician to assess the risk of uterine rupture through the use of ultrasound criteria in measuring the thickness of the uterine segment, determining the type of incision of the previous cesarean section and the clinical findings, could increase the safety of labor, recognizing oxytocin as a safe inducer, without forgetting the risk of uterine rupture, so that neither the elective repeat cesarean section, nor the labor are safe or risk-free. It was observed that maternal morbidity is always lower in childbirth than in cesarean section, with a higher risk when labor fails and an emergency cesarean section is indicated, therefore, the appropriate selection of suitable patients is required to attempt a trial of labor and thus contribute to increasing the success of vaginal delivery in patients with a history of cesarean section, hence reducing associated complications.

Bibliography

- García C., et al. "Parto después de cesárea ¿una opción segura?" *Ginecología y obstetricia de Mexico* 83 (2015): 69-87.
- Vargas A., et al. "Parto vaginal después de una cesárea, aplicando un puntaje al momento del ingreso en un hospital". *Revista Peruana de Ginecología y Obstetricia* 59 (2013): 261-266.
- Cuero O., et al. "Parto vaginal después de una cesárea previa, hospital san juan de dios, Cali (Colombia). Estudio de cohort". *Revista Colombiana de Obstetricia y Ginecología* 62 (2011): 148-154.
- Campos J., et al. "Parto vaginal después de una cesárea". *Rev Hosp Mat inf Ramon Sarda* 26 (2007): 15-20
- Landon MB., et al. "Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery". *The New England Journal of Medicine* 351 (2004): 2581.
- Macones GA., et al. "Maternal complications with vaginal birth after cesarean delivery: a multicenter study". *American Journal of Obstetrics and Gynecology* 193 (2005): 1656.
- Lavin JP., et al. "Vaginal delivery in patients with a prior cesarean section". *Obstetrics and Gynecology* 59 (1982): 135.
- Flamm BL., et al. "Vaginal birth after cesarean delivery: results of a 5-year multicenter collaborative study". *Obstetrics and Gynecology* 76 (1990): 750.
- Miller DA., et al. "Vaginal birth after cesarean: a 10-year experience". *Obstetrics and Gynecology* 84 (1994): 255.
- McMahon MJ., et al. "Comparison of a trial of labor with an elective second cesarean section". *The New England Journal of Medicine* 335 (1996): 689.
- Hammad IA., et al. "Peripartum complications with cesarean delivery: A review of Maternal-Fetal Medicine Units Network publications". *Journal of Maternal-Fetal and Neonatal Medicine* 27 (2014): 463.
- American College of Obstetricians and Gynecologists' Committee on Practice Bulletins Obstetrics. "ACOG Practice Bulletin No. 205: Vaginal Birth After Cesarean Delivery". *Obstetrics and Gynecology* 133 (2019): e110.
- Grantz KL., et al. "Labor patterns in women attempting vaginal birth after cesarean with normal neonatal outcomes". *American Journal of Obstetrics and Gynecology* 213 (2015): 226.e1.
- Graseck AS., et al. "Normal first stage of labor in women undergoing trial of labor after cesarean delivery". *Obstetrics and Gynecology* 119 (2012): 732.
- Hehir MP., et al. "Second-Stage Duration and Outcomes Among Women Who Labored After a Prior Cesarean Delivery". *Obstetrics and Gynecology* 131 (2018): 514.
- Stock SJ., et al. "Outcomes of induction of labor in women with previous cesarean delivery: a retrospective cohort study using a population database". *PLoS One* 8 (2013): e60404.
- Palatnik A and Grobman WA. "Induction of labor versus expectant management for women with a prior cesarean delivery". *American Journal of Obstetrics and Gynecology* 212 (2015): 358.e1.
- Lappen JR., et al. "Outcomes of Term Induction in Trial of Labor After Cesarean Delivery: Analysis of a Modern Obstetric Cohort". *Obstetrics and Gynecology* 126 (2015): 115.

19. Harper LM., *et al.* "Association of induction of labor and uterine rupture in women attempting vaginal birth after cesarean: a survival analysis". *American Journal of Obstetrics and Gynecology* 206 (2012): 51.e1.
20. Lydon-Rochelle M., *et al.* "Risk of uterine rupture during labor among women with a prior cesarean delivery". *The New England Journal of Medicine* 345 (2001): 3.

Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

Website: www.actascientific.com/

Submit Article: www.actascientific.com/submission.php

Email us: editor@actascientific.com

Contact us: +91 9182824667