

Changing Prevalence of Cesarean Section, Repeated Cesarean Section and Indications for Repeated Cesarean Section Over 10 year Period at a Tertiary Care Center, Karachi

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Abstract

Objective: To study the change in frequency of cesarean section, repeat cesarean section and the indications for repeated cesarean section after 10 years at a tertiary care center in Karachi.

Methods: This study was conducted in the department of Obstetrics and Gynaecology, unit 1, Abbasi Shaheed Hospital. This retrospective analysis used departmental records to compare cesarean section rates for 2 years, 10 years apart. i.e. 2002 and 2012. The study thus spans a twelve month period extending from 1st January 2002 to 31st December 2002 and twelve months from 1st January 2012 to 31st December 2012. Using data from both study periods women who had successful vaginal birth after cesarean and women who had a repeat cesarean section were determined. Additionally, the rate of repeat cesarean section and indications for repeat cesarean section were analyzed for each study period.

Results: In year 2002, 411 out of 1425 total births had cesarean. The cesarean section rate was 28.8%, whereas in 2012, the cesarean section rate was 44% (615 out of 1212 total births). Ninety-two out of 411 (22.38%) in 2002 had prior cesarean section, whereas 192 out of 615 (44%) had prior cesarean section in 2012.

In those with previous cesarean section, successful vaginal birth after Cesarean section was 38% in 2002 and 21.88% in 2012. The leading indications for repeat cesarean were non-progress of labour, fetal distress and scar tenderness. Maternal wish contributed to 4.6% repeat cesareans in 2012, whereas only 1.7% of study population desired repeat cesarean section in 2002.

Conclusion: Cesarean rates are on the rise in this tertiary care center of Karachi. As compared to ten years back, the rate has risen from 28.8% to 44%. The overall high section rate at this center may be accounted for by the fact that it deals with high risk Obstetrics and referred cases from Karachi and the province of Sindh. However, 16% rise in overall cesarean is quite dramatic.

Keywords: Cesarean section, previous cesarean section, vaginal birth after cesarean section

IRB: Approved by Head of Department of Gynaecology, Karachi Medical and Dental College, 2002.

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Introduction

The rising threat to women's lives as a consequence of morbidly adherent placenta secondary to uterine scarring is a frightening reality. Cesarean

section is the commonest obstetric operation. The most profound impact of high cesarean section is on the management of subsequent pregnancy and labor of patients with previous scar¹.

In the first half of the 20th century, a cesarean section implied that once a cesarean always a cesarean. In 1957, a review of obstetric literature by Dewhurst showed that uterine rupture as feared occurred almost exclusively in women who had previously undergone a classical cesarean section. This observation heralded the era of the trial of scar or vaginal birth after cesarean section. In the absence of recurring indications one previous section no

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longer dictated an elective repeat cesarean section².

Favorable factors for successful vaginal birth include a previous vaginal delivery, prior cesarean section for nonrecurring conditions like breech presentation, normal Body Mass Index, low birth weight & favorable bishop scoring. With non recurring indications such as a breech presentation, fetal distress as indication of the primary section, the predicted success rate of trial of labor ranges from 72% to 76%³. Conversely, factors that may reduce the likelihood of successful vaginal birth include a history of more than one previous section, induction of labor, or failure to progress (cephalopelvic disproportion) during previous pregnancy. After evaluating the case for suitability, a trial of labor to achieve vaginal delivery is the standard protocol for cases with the previous cesarean section for a non-recurrent cause³.

World Health Organization recommends best outcomes for mothers and babies are expected when cesarean section rates are between 5% and 10%. Rates above 15% seem to be less beneficial⁴.

When first measured by Taffel the national U.S. cesarean section rate was 4.5% in 1965. In 1985, the national cesarean section rate increased six times, the major contributor to cesarean delivery being repeated caesarean section⁵. A rate of 34% in Pakistan has been reported⁶.

Increasing proportion of population booking for antenatal care has prior cesarean delivery. These women are at increased risk of complications compared to women with previous vaginal delivery. By determining the most common indications for repeat cesarean section in our population with previous cesarean, we can attempt to reduce the number of emergency sections and thus decrease the risks and complications associated with such cases. The purpose of our study was to see the overall cesarean section rate, repeat caesarean section rate and indication for repeat cesarean section over the period of 10 years at a tertiary care center of Karachi.

Methods

This study was performed at Obstetrics and Gynaecology Department unit 1 of Abbasi Shaheed Hospital and Karachi Medical Dental College by collection of data retrospectively from hospital records for the year 2002 and 2012. The study thus spans a twelve months period extending from 1st January 2002 to 31st December 2002 and twelve months from 1st January 2012 to 31st December 2012. Consent for study was obtained from departmental head for use of data. The labour room records from January to December of each year were compiled and analyzed. Study design was retrospective, cross sectional descriptive comparative. As cesarean section rate of each year had to be calculated, all women delivering at Abbasi Shaheed Hospital during the study period were included to calculate the cesarean rate. The overall cesarean section rate for each year was calculated. Thereafter, women with previous one cesarean section were included. Excluded were women with recurrent indications for cesarean e.g. previous two scars, cephalo pelvic disproportion, placenta previa, and those with multiple pregnancy, malpresentation and macrosomia. Those selected for VBAC (Vaginal Birth After Cesarean) had singleton pregnancy with longitudinal lie, cephalic presentation, and average sized baby. Inclusion and exclusion criteria were same for both years. Routine departmental policy of maternal and fetal surveillance during VBAC was followed. Trial of labor was discontinued on one of three conditions i.e. lack of cervical dilatation over 2 hours of active phase of labor, fetal distress or when there was suspicion of impending rupture. A proforma was filled. It included patients' bio data, obstetric history including gravida, parity, and date of last delivery and indication of previous section. Outcome of pregnancy, mode of delivery and indication of repeat cesarean were included in the proforma.

Results

During year 2002, 1425 deliveries took place in Obstetrics and Gynaecology Department unit 1 of

Abbasi Shaheed Hospital, 411 had a cesarean section (rate was 28.8%). Out of these 411, 92 (22.38%) were patient with previous scar. Of these 92, 57 (62%) underwent repeat cesarean and 35(38%) were delivered successfully by vaginal route (Table 1).

During the year 2012, 1212 patients were admitted in the labour ward in Gynaecology unit I. 615 of these 1212 (44%) had a section. Out of these 615, 192 (31.21%) were those with previous scar. Out of these, 150 (78%) underwent repeat cesarean and 42 (21.8%) were delivered successfully by vaginal route (Table 1).

In year 2002, 19(33.33%) of 57 with previous scar underwent repeat cesarean sections due to failure to progress, in 11 (19.29%) the indication was fetal distress, in 10 (17.54%) indication was scar tenderness. In year 2012, 150 women had previous 1 scar. Repeat cesarean sections were performed due to failure to progress 39 (26%), the indication was fetal distress in 32 (21.3%) and 31 (20.66%) sections were done due to scar tenderness. Pregnancy induced hypertension, Breech, maternal wish and diabetes were among other significant indications (Table 2).

Discussion

Present study reveals that cesarean rates are on the rise in this tertiary care center of Karachi. As compared to ten years back, the rate has risen from 28.8% to 44%. The overall high section rate at this center may be accounted for by the fact that it deals with high risk Obstetrics and referred cases from Karachi and the province of Sindh. However, 16% rise in overall cesarean is quite dramatic.

Similar cesarean section rates have been reported from other parts of Pakistan (34% in Lahore in 2010)⁶ and in neighboring countries such as Iran where a study reports overall cesarean section rate of 34% in year 2000 and 2006 with only a change in indications for cesarean section⁷.

In USA cesarean delivery rate increased from 26% to 36.5% between 2003 and 2009; 50.0% of

the increase was the result of an increase in primary cesarean delivery done predominantly for suspected fetal distress and arrest of cervical dilatation. Maternal request contributed to 8% of the cesareans⁸.

The National Sentinel C-section audit (England and Wales) reported that the overall C-Section rate in 2001 was 21.5 %. The most common indication for women having a repeat cesarean section were previous section (44%), maternal request (12%) failure to progress (10%) presumed fetal compromise (9%) and breech presentation (3%)⁹.

The repeat cesarean section rate in our study was 78% in 2012 compared with 62% in 2002. Major indications of repeat cesarean section in our study were similar in both years and similar to previous reports^{8,9} and include failure to progress, fetal distress and scar tenderness. Maternal request accounted for 4.6% of repeat cesarean section in 2012 compared with 1.7% in 2002.

Our repeat cesarean section rate is much higher than that in a similar study from Pakistan in 2007 where VBAC (Vaginal Birth after Cesarean) was achieved in 70% with vigilant monitoring. But leading indication for repeat cesarean were similar i.e. failure to progress, fetal distress and scar tenderness¹⁰. Electronic fetal monitoring is not always available at our institute making careful fetal monitoring difficult and possibly accounting for early recourse to cesarean delivery and high repeat section rate.

A similar study in Poland reports successful vaginal birth after cesarean section in only 48%¹¹.

A comparison of mid and late pregnancy preferences and mode of deliveries show that 57% of women want the same mode of delivery at both times and 65% of women actually have the birth they choose¹².

Many health professionals are not enthusiastic to even offer vaginal birth after cesarean. The Listening to Mothers survey found that many women with a previous cesarean would have opted for a

Table 1. Laboring patients in 2002 and 2012 with their mode of delivery **Table.2** Indications of Repeat Cesarean Section

Total number of Laboring Patients	Year 2002 (n=1425)		Year 2012 (n=1212)	
	n	(%)	n	(%)
Total no. of Cesareans	411	(28.84)	615	(44)
Patients with previous 1 Cesarean In Study Population	92	(22.38)	192	(31.21)
Mode of delivery in Patients with previous cesarean	Repeat cesarean section		Repeat cesarean section	
	57	(62)	150	(78.12)
	Vaginal birth		Vaginal birth	
	35	(38)	42	(21.88)

INDICATIONS of repeat section	Year 2002 (n=57)		Year 2012 (n=150)	
	n	(%)	n	(%)
Failed progress of labour	19	(33.3)	39	(26)
Fetal distress	11	(19.29)	32	(21.33)
Tender scar	10	(17.54)	31	(20.66)
Pregnancy Induced Hypertesion	8	(14.03)	26	(17.3)
Breech	6	(10.52)	11	(7.3)
Diabetes Mellitus	2	(3.50)	4	(2.6)
Maternal wish	1	(1.7)	7	(4.66)

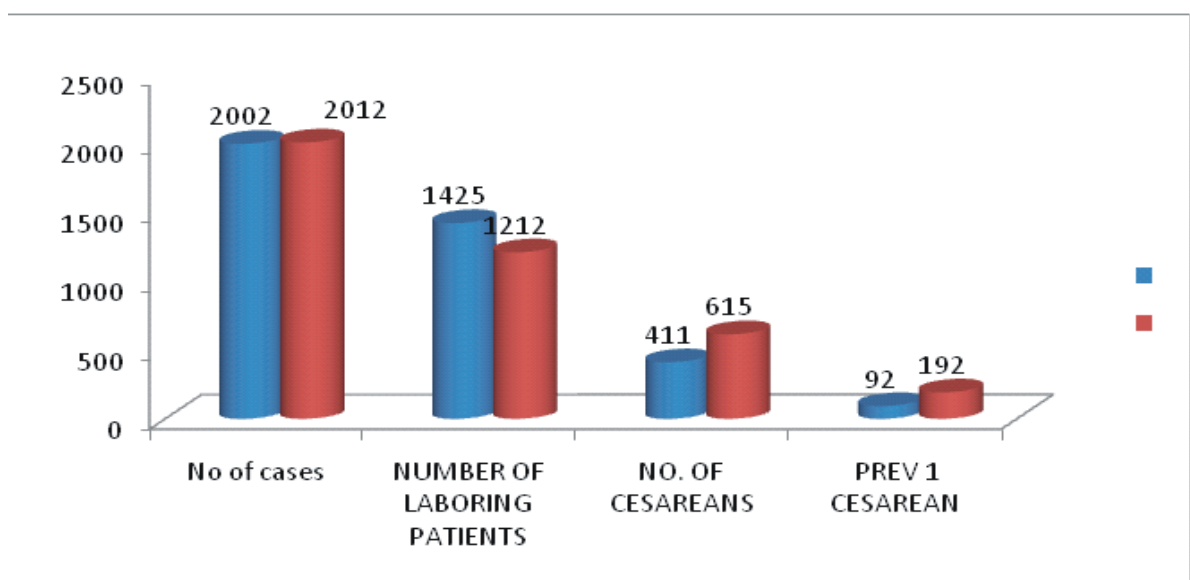


Fig 1. Trend of Cesarean Section in 2002 and 2012

vaginal birth after cesarean (VBAC) but did not because they were not offered a choice. Nine out of ten women continue to have repeat cesarean in current scenario¹³.

Few women opt for cesarean at request despite a lot of criticism, this finding is supported by the survey, where only 1 woman had a cesarean on request out of 1600 study participants those who have looked at this question in other countries have found similar results^{13,14}. Women who have cesareans have less chance of mother-infant bonding after birth and less efficient breastfeeding¹⁵.

Spontaneous onset of labor (89%) and previous vaginal birth (88.2%) are the strongest positive predictors of vaginal birth after cesarean while cesarean due to previous non-progress of labor is the strongest negative predictor¹⁶.

Once a woman is delivered by cesarean, her options in a subsequent pregnancy are either trial of labor or an elective repeat cesarean. The primary cesarean rate is increasing and vaginal birth after cesarean delivery (VBAC) rates are decreasing. The 2010 Eunice Kennedy Shriver National Institute of Child Health and Human Development Conference on VBAC, recommends that measures should be taken to ensure that VBAC is available to women¹⁷.

The use of Trial of Labor After Cesarean (TOLAC) has declined though the clinical risks of TOLAC remain low¹². Cesarean delivery rates in the United States have sky rocketed. The rate is 6 times higher than the 1970s rate. This has important implications for women in next pregnancies so vaginal birth should be promoted^{18,19}. Not the least among these is morbidly adherent placenta with repeated cesarean sections. This is particularly relevant in Pakistan where large family size is preferred and almost all couples would like to have 3 to 4 children.²⁰

Our retrospective analysis over 10 years shows rising cesarean rate and repeat cesareans as in the rest of the world. But various problems are faced by patients with previous cesarean section in developing countries like Pakistan with lack of resources.

stetric risks are increased by low booking rate, poor patient compliance and high illiteracy rate²¹, as in this study majority of the women were non-booked and referred for obstetric complications.

It is recommended that fetal scalp blood sampling should be done as this is the most reliable method for assessing fetal distress. However in our institute, such facilities were not available hence, our trial was restricted. Absolute diagnosis of fetal distress is essential to increase the rate of vaginal deliveries so that reduction of primary cesarean rate for dysfunctional labor would ultimately result in a reduction of overall cesarean rate and with proper intrapartum monitoring, vaginal birth can be successful in patients carefully selected.

All must be done to stop the rising trend in cesareans section, particularly in developing world where resources are low.

Conclusion

Cesarean rates are on the rise in Abbasi Shaheed Hospital, Karachi. As compared to ten years back, the rate has risen from 28.8% to 44%. The 16% rise in overall cesarean is quite dramatic.

Conflict of Interest

Authors have no conflict of interests and no grant/ funding from any organization for this study.

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