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Assessment of the hospital records to determine the rate of caesarean deliveries and various indications of the procedure

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Abstract
Aim: The aim of the present study was to find the rate of caesarean deliveries and various indications of the procedure.
Methods: The present study was conducted in the Department of Obstetrics and Gynecology, Mamata Academy of Medical Sciences, Hyderabad, on women who underwent LSCS over a period of 4 months. Out of the 445 deliveries, 200 were delivered by cesarean section. All the mothers who underwent LSCS in this hospital in the designated period were included in this study.
Results: The LSCS prevalence was 44.94% in our institution. We have assessed the common indications of LSCS performed in this study population. In our study group, the range of age varies from 18 to 43 years with an average of 27.37±4.21 years, 30% of the women aged between 18-25 years, majority, i.e., 60% belongs to the age group of 26-35 years and only 10% observed in the higher age group. Out of the 200 cases, parity was distributed almost equally in this study group, i.e., 45% were primigravidae, and 55% were multigravida. 5% of the LSCS occurred at <32 weeks of gestation and 25% between 32-36 weeks. The majority of the LSCS were delivered between 37-40 weeks (70%) of gestation. Mode of conception was spontaneous for 97%, and 3% received infertility treatments. Mode of conception was spontaneous for 97%, and 3% received infertility treatments. LSCS was mostly done for 'previous LSCS' indication (42%), followed by failure of induction of labor (25%). Fetal distress was an indication in 40 cases (8%), Breech presentation in 6%, PPROM in 5%, CPD in 4%. Other indications such as preeclampsia, placenta previa, unfavorable cervix, multiple gestation, abruptio placenta, LSCS on demand etc., was 1%.
Conclusion: Although LSCS indications seen in our institute are the same in most institutions worldwide, efforts should be made to focus on reducing the primary LSCS rates thereby reducing the most common indication of previous LSCS in subsequent pregnancies.

Keywords: Caesarean section, indications, rate

Introduction

Cesarean section (CS) is a surgical procedure performed to deliver fetus through abdominal route. CS is one of the oldest operation in surgery [1]. The objective of CS in ancient world was for post mortem delivery but in modern medicine it has saved many mothers and babies. Increasing rate of cesarean section worldwide is an alarming concern for public health and obstetrician due to increase in financial burden and risk to health of the mother in comparison to vaginal delivery [2]. This increase rate in developed country is due to early diagnosis of fetal distress by continuous use of electronic fetal monitoring and malpresentation, however the cause of increase rate of CS in developing countries is not clear [3, 4].

One of the commonest surgery performed worldwide is caesarean section (CS). The surgery should only be performed when there is a valid reason to do so. The World Health Organization (WHO) has identified an ideal caesarean section (CS) rate for a nation of around 10-15% [5]. In recent times the proportion of delivery conducted by caesarean section has increased and has reached the epidemic proportion in some parts of the world. It has been suggested that factors, such as social, cultural, unequal accessibility to health services and clinical practice patterns might have been major contributors to the wide variation in caesarean section rates across different countries [6, 7]. The increasing trend of CS rates may indicate a trend towards a costlier medical delivery systems and lowered threshold of abnormality detection among the health care providers [8]. Studies have shown that there is no evidence of benefit for the health of mothers and babies in populations with values of CS rate above 15% [9, 10].

Induction of labor is thought to be associated with an increase in the risk of cesarean delivery both for nulliparous and multiparous women [18]. This has been demonstrated both for inductions on medical grounds and for elective inductions [5, 6]. More recent randomized comparisons have demonstrated that the effect of the induction of labor on the risk of cesarean In fact, caesarean deliveries are associated with increased risk of maternal and perinatal morbidity as compared to vaginal deliveries even in low risk cases [11].

Lower segment cesarean section (LSCS) is the most done procedure in obstetrics and is an important aspect of emergency obstetric care. Cesarean section can be a lifesaving intervention for mother and baby when clearly indicated or when a vaginal birth is contraindicated. Unnecessary cesarean sections pose a risk to mother and child and affect the morbidity and mortality adversely and the women's future reproductive function. It also raises the costs of delivery and maternal care [12]. The rapid rise in CS has become a grievous public health issue. Most institutions, both national and international (including WHO) state that the rates of LSCS should be between 10-15% [13] but practically, the rates are much higher. The rates have found to be increasing since the routine use of electronic fetal monitoring, better anesthesia, better operative techniques, and better neonatal facilities. The economic factor and the fear of litigation also plays an important part in the decision making for LSCS.

The aim of the present study was to find the rate of caesarean deliveries and various indications of the procedure.

Materials and Methods

The present retrospective study was conducted in the Department of Obstetrics and Gynecology, Mamata Academy of Medical Sciences, Hyderabad, on women who underwent LSCS over a period of 4 months. Out of the 445 deliveries, 200 were delivered by cesarean section. All the mothers who underwent LSCS in this hospital in the designated period were included in this study.

The study excluded all those women whose documentation was incomplete or absent. Variables including age, parity, gestational age, CS timing (elective or emergency), indications for LSCS were collected from their case records and entered in the proforma. Data were analyzed using descriptive statistics. Mean and the standard deviation was used to present all quantitative variables, and frequency and percentage were used for qualitative variables. A pie chart was used to present CS timing. All data were entered in Microsoft Excel and analyzed using SPSS version 20.00.

Results

Table 1: Baseline characteristics of the study population

Variables		Frequency	Percentage
Age	Range	18-43	
	Mean±Sd	27.37±4.21	
	18-25	60	30
	26-35	120	60
	36-45	20	10
Parity	Primi	90	45
	Multigravida	110	55
Gestational Age	<32 Weeks	10	5
	32-36 weeks	50	25
	37-40 weeks	140	70
Mode of conception	Spontaneous	192	96
	Treated Infertility	8	4
CS Timing	Elective	110	55
	Emergency	90	45

The LSCS prevalence was 44.94% in our institution. We have assessed the common indications of LSCS performed in this study population. In our study group, the range of age varies from 18 to 43 years with an average of 27.37±4.21 years, 30% of the women aged between 18-25 years, majority, i.e., 60% belongs to the age group of 26-35 years and only 10% observed in the higher age group. Out of the 200 cases, parity was distributed almost equally in this study group, i.e., 45% were primigravidae, and 55% were multigravida. 5% of the LSCS occurred at <32 weeks of gestation and 25% between 32-36 weeks. The majority of the LSCS were delivered between 37-40 weeks (70%) of gestation. Mode of conception was spontaneous for 97%, and 3% received infertility treatments. Out of the 200 LSCS performed, 45% were emergency cases and 55% were elective.

Table 2: Distribution of indications for cesarean section among the study population

Indications		Frequency	Percentage
Previous LSCS	Normal	80	40
	With scar dehiscence	4	2
Failed Induction		50	25
Fetal distress		16	8
Breech presentation		12	6
PROM		6	3
CPD		8	4
IUGR		8	4
PPROM		10	5
Preeclampsia		4	2
Placenta Previa		2	1
Unfavourable cervix		2	1

Multiple gestation	2	1
Abruptio Placenta	2	1
LSCS on demand	2	1
Preterm labour	1	0.5
Transverse Lie	1	0.5
Anaemia	1	0.5

LSCS was mostly done for 'previous LSCS' indication (42%), followed by failure of induction of labor (25%). Fetal distress was an indication in 40 cases (8%), Breech presentation in 6%, PPROM in 5%, CPD in 4%. Other indications such as preeclampsia, placenta previa, unfavorable cervix, multiple gestation, abruptio placenta, LSCS on demand etc., was 1%.

Table 3: Distribution of operational findings

Operational findings		Frequency	Percentage
Lower segment	Well formed	180	90
	Thin	12	6
	Not formed	8	4
Adhesions	Yes	8	4
	No	192	96
Scar dehiscence	Yes	2	1
	No	198	99
Scar Rupture (No)		200	100
Scar extension (No)		200	100

It was found that the lower segment was well formed in 90%, was thin in 6% and not formed in 4% of the study population. Adhesions were observed in 4% and scar dehiscence was present in 1% of cases. Scar rupture and scar extension were not present in this study group.

Discussion

Cesarean section (CS) is delivering a viable fetus after creating an incision in the abdominal wall and intact uterus [14]. Lower segment cesarean section (LSCS) is the most done procedure in obstetrics and is an important aspect of emergency obstetric care. Cesarean section can be a lifesaving intervention for mother and baby when clearly indicated or when a vaginal birth is contraindicated. Unnecessary cesarean sections pose a risk to mother and child and affect the morbidity and mortality adversely and the women's future reproductive function. It also raises the costs of delivery and maternal care [15]. The rapid rise in CS has become a grievous public health issue.

The reasons for the increase in the caesarean rates are multifaceted. Detection of foetal distress especially with the use of continuous electronic foetal monitoring may be an important reason. Liberal use of caesarean in high-risk cases like breech presentation, previous caesarean delivery, growth retarded foetus etc. along with avoidance of difficult manipulative or instrumental vaginal deliveries may be some other reasons. Our institution which is a tertiary centre gets a large number of complicated pregnancies as well as referred patients in critical stage which makes it difficult to keep the CS rates low.

Souza *et al*. showed a prevalence rate of 25.7% globally in their study conducted over a period of 1 year [8]. Simultaneously, the LSCS prevalence rate was 31.8% in the study conducted by Jawa *et al*. over a period of 6 months [16]. The overall Cesarean rate in India was found to be around 17%, and the rate of LSCS was found to be increasing from 8.5% to 17.2% over a period of 10 years from 2005 to 2015. [20] The study from Chennai, which was conducted over a period of 2 years, showed a CS rate of 47% in the private sector [17]. The Cesarean section, when compared showed that the rate was more in the private sector (54%) than in the public sector (24%) [18]. Analysis of the age group in this audit showed that most of the LSCS was performed in the age group of maximum fertility and this corresponds to other similar study [16, 19].

The LSCS prevalence was 44.94% in our institution. Analyzing the common indications for LSCS in our institute, the most common indication was previous LSCS (42.52%). Most clinical audits and studies done previously also showed an almost similar result [16, 20, 21]. Although previous LSCS without any obstetric complication is not an indication that supports a repeat LSCS, changes in the maternal and physician profile would have contributed to this increased rate. Maternal anxiety regarding the newborn infant, the obstetrician's sense of security for both the mother and the neonate seems to be responsible for repeated Cesarean sections. The second common indication found in this study was failed induction, especially in primigravida. This increase in primary LSCS increases future LSCS rate. Avoiding unnecessary inductions can reduce the rate of primary LSCS. So, it entrusts every obstetrician to strictly adhere to the standard protocol for induction of labor.

We have assessed the common indications of LSCS performed in this study population. In our study group, the range of age varies from 18 to 43 years with an average of 27.37±4.21 years, 30% of the women aged between 18-25 years, majority, i.e., 60% belongs to the age group of 26-35 years and only 10% observed in the higher age group. Out of the 200 cases, parity was distributed almost equally in this study group, i.e., 45% were primigravidae, and 55% were multigravida. 5% of the LSCS occurred at <32 weeks of gestation and 25% between 32-36 weeks. The majority of the LSCS were delivered between 37-40 weeks (70%) of gestation. Mode of conception was spontaneous for 97%, and 3% received infertility treatments. Out of the 200 LSCS performed, 45% were emergency cases and 55% were elective. Jawa A *et al*. had shown that elective LSCS was done in 25.4% of the study population, and emergency LSCS was done in 74.6% cases [16]. This study shows that emergency LSCS was performed in 44% of the study population which includes both inhouse patients as well as referrals from periphery. We had referred cases from periphery due to various complications as our institute is a tertiary care center. This is another reason for the increase in the institutional CS rate.

The demand for LSCS as an indication was found only in 1% of the study population in this audit. This was mainly due to the fear of vaginal delivery or labor pain, fetal risk, and avoidance of injury to pelvic floor and convenience. Obesity, advanced lifestyle with changes like unhealthy food habits with resultant obesity and sedentary lifestyle, lack of exercise during pregnancy, etc., also would have contributed to the increasing trend in LSCS. The audit did not include neonatal and maternal outcome as the primary aim of the study was to conduct an audit on indications of LSCS. Moreover, most of the patients had one or more overlapping indications which were different in each case. Hence an association of indications with LSCS could not be performed. An audit involving more patients considering neonatal and maternal outcome would have given a better outcome.

Conclusion

While the indications for lower segment caesarean section (LSCS) observed in our institution align with those commonly observed worldwide, it is imperative to prioritise efforts aimed at decreasing the primary LSCS rates. By doing so, we can effectively mitigate the most prevalent indication for LSCS in subsequent pregnancies, which is a history of previous LSCS.

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