ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 05 | May - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

AN OBSERVATIONAL STUDY ON INDICATIONS FOR PRIMARY CESAREAN SECTION AT A TERTIARY CARE CENTRE

Obstetrics & Gynaecology

Dr. Sanjana Kurimella	Ms Obg
Dr. Subhashini Revu	Ms Obg
Dr. Ratna Manjula Songa	Md Dgo
Dr. Siddhartha Kancharla	Md
Dr. Karuna Guguloth*	Ms Obg *Corresponding Author

ABSTRACT

Background: Caesarean section is the most commonly performed obstetric surgical procedure which with a suitable indication is potentially lifesaving. But it has many disadvantages for both mother and baby. **Aims and Objectives:** Hence, the present study is taken up to analyze various indications of primary cesarean section in a tertiary hospital, with an aim to reduce the C-section rate. **Material and Methods:** This is a Retrospective Observational study conducted at GGH Guntur, a tertiary care center, for 1 year from 1st October 2022 to 30 September 2023. All primary cesarean sections done at GGH, Guntur during the study period were included. All Repeat cesarean sections, primary sections done in other hospitals and referred to GGH Guntur, and patients with a previous history of laparotomy done for any obstetric or gynecological cause were excluded. **Results:** During the study period, out of 7548 deliveries, Normal deliveries were 3591, whereas Total cesarean sections were 3957. Of them, 2148 were primary cesarean sections and 1809 were repeat cesarean sections. So, the rate of primary cesarean section in our hospital was 54.3%. Fetal distress (32%) was found to be the most common indication for primary c-section followed by Cephalo Pelvic Disproportion (CPD) (26%). **Conclusion:** Our study highlights the need to lower c-section rates. Efforts like counseling women about the benefits of Normal Vaginal Delivery(NVD), precise use of partograph, judicious use of oxytocin with other labour-inducing agents, timely admission and wise decision making while considering c-section, and expertization of instrumental vaginal delivery skills should be taken to achieve this.

KEYWORDS

primary caesarean section, indications, fetal distress, CPD.

INTRODUCTION:

Caesarean delivery is a surgical procedure that delivers a viable fetus through an incision that passes through both the mother's abdomen and the uterus[1]. It is the most commonly performed obstetric surgical procedure which with a suitable indication is potentially life saving[2]. By definition, caesarean delivery excludes operations performed to deliver either an extrauterine pregnancy or a fetus extruded from the uterus after rupture [3,4]. If the fetus is pre-viable, the same procedure is termed as abdominal hysterotomy. Caesarean Section is described as primary (first caesarean) and repeat caesarean delivery (any caesarean after the first) [3]. In 1985 WHO stated that the regional caesarean section rate should not exceed 10 to 15%. But in many countries, the number of caesarean deliveries has increased steadily over the years [5]. A 2018 report by Lancet shows, that in India, the percentage of caesarean deliveries has doubled from 9 to 18.5% consistent with a global increment of 21% [5,6].

Aims And Objectives:

To analyse various indications of primary caesarean section.
To reduce the primary caesarean section rate.

MATERIAL AND METHODS:

This is a Retrospective Observational study conducted at GGH Guntur, which is a tertiary care centre, for a period of 1 year from 1st October 2022 to 30 September 2023. The data collected and analysed included demographic details such as age, parity, booking status, area of stay, and indications for a caesarean section. The collected data was statistically processed using the MS Excel program, and the analysis was conducted using simple descriptive statistics, which were presented as frequency tables.

Inclusion Criteria:

All primary caesarean sections done at GGH, Guntur during the study period were included.

Exclusion Criteria:

All Repeat caesarean sections, primary sections done in other hospitals and referred to our GGH Guntur, patients with previous history of laparotomy done for any obstetric or gynaecological cause were excluded.

RESULTS:

During the study period, there were a total of 7548 deliveries at our hospital. Normal deliveries were 3591. Total caesarean sections were 3957. Of them, 2148 were primary caesarean sections and 1809 were repeat caesarean sections. So, the rate of primary caesarean section in our hospital during this period was 54.3%. Being a referral unit, our institute caters to a large number of referred cases, which may be one of causes for high primary caeserean section rate.

Table 1: Total No. of NVDs, LSCS and Deliveries.

Month	Total no of NVDs	Total No. of LSCS	Total no. of deliveries
October 2022	427	421	848
November 2022	393	394	787
December 2022	354	336	690
January 2023	233	280	513
February 2023	167	239	406
March 2023	235	261	496
April 2023	280	255	535
May 2023	282	314	596
June 2023	274	335	609
July 2023	286	371	657
August 2023	345	393	738
September 2023	315	358	673
Total	**3591**	**3957**	**7548**

The above table shows monthly statistics of total number of Deliveries, NVDs and LSCS from October 2022 to September 2023.

Table 2: No. of Primary, repeat and total LSCS

Month	Primary LSCS	Repeat LSCS	Total no. LSCS
October 2022	253	168	421

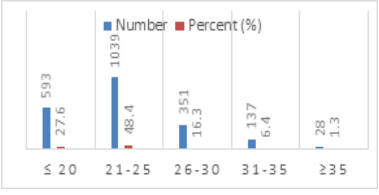
November 2022	238	156	394
December 2022	187	149	336
January 2023	151	129	280
February 2023	112	127	239
March 2023	148	113	261
April 2023	134	121	255
May 2023	181	133	314
June 2023	176	159	335
July 2023	204	167	371
August 2023	186	207	393
September 2023	178	180	358
Total	**2148 (54.3%)**	1809 (45.7%)	**3957**

The above table shows monthly statistics of primary and repeat LSCS during our study period.

Table 3: Summary

Total Deliveries	**Total NVDs**	**Total caesarean Sections**	
7548	3591	3957	
		Primary	Repeat
		2148	1809
		54.3%	45.7%

Table 4: Age wise distribution of Primary caesarean section cases.



More number of cases were seen between 21 to 25years of age.

Table 5: Distribution of primary C sections based on parity

Parity	**Number**	**Percentage**
Primigravida	1525	71
Gravida2	473	22
Gravida3	107	5
>G-3	43	2

71% of cases of primary caesarean section were primigravida and 29% are multigravida as shown in above table.

Table 6: ANC Regestration

Registration	**Number**	**Percentage**
Booked	902	42
Unbooked	1246	58

In our study 42% were booked cases and 58% were unbooked. Being a referral centre, many cases were referred from various places. So, most of them were unbooked.

Table 7: Distribution based on origin

Origin	**Number**	**Percentage**
Rural	1332	62
Urban	816	38

Most of the cases were referred from surrounding rural areas. Hence 62% of them were hailing from rural area & 38% from urban area as shown in the above table.

Table 8: Contraceptive method opted during primary caesarean section.

	No.	**Intracaesaren PPIUCD**		**Tubectomy**		**None**	
		No	**%**	**No**	**%**	**No**	**%**
Primi	1525	488	32	0	0	1037	68
G2	473	39	8.2	372	78.6	62	13
G3	107	1	0.93	104	97.2	2	1.86
>G3	43	0	0	43	100	0	0

Most(68%) of the primi gravidas didn't opt for any contraceptive method. Only 32% chose PPIUCD. Majority(78.6%) of 2nd gravidas accepted permanent sterilization but 39% opted for PPIUCD because of various reasons.

Table 9: Indications for primary C sections.

Indication for primary C-section	**Number**	**%**
Fetal distress	688	32
CPD	559	26
Failed induction	236	11
Prolonged PROM	140	6.5
Malpresentation & Malposition	150	7
Severe oligohydramnios	107	5
APH	54	2.5
Multiple gestation with non-vertex presentation	86	4
Contracted pelvis	43	2
Pelvic mass causing obstruction	21	1
Others	64	3
Total	2148	100

DISCUSSION:

In our study the most common indication for primary c-section was found to be fetal distress (32%) followed by cephalo pelvic disproportion (CPD)(26%). Others include Failed induction (11%), Malpresentation & Malposition (7%), Prolonged Premature Rupture Of Membranes(PPROM)(6.5%), Severe oligohydramnios (5%), Multiple gestation with non-vertex presentation(4%), Antepartum Heamorrhage(APH) (2.5%), Contracted pelvis (2%), Pelvic mass causing obstruction (1%) and Others (3%).

Similar incidence was seen in Arpitha SBet al. study in which 40.3% of cases were performed due to fetal distress, followed by failed induction (10.1%), breech (10.1%), CPD (8%), Deep Transverse Arrest (DTA)(3.6%), cord prolapse (0.7%)[7]. Whereas Samal R et al, study shows fetal distress (42.6%) malpresentation (26.4%) CPD (14.7%) failed induction (4.5%) and cord prolapse (1.5%) [8]. Sharma et al study which was done for the overall section rate shows previous section was the most common indication with 22% followed by CPD (15.8%), breech (12.5%), Meconium Stained Liquor (MSL) (11.2%), failed induction (9%)[9]. In Omar AA et al study, the commonest indication was failure of progress (30.1%) followed by fetal distress (20.2%)[10].

64.7% were aged between 21 to 30 years in our study. In Arpitha SBet al. study 65.9% [7], in Samal R et al, study 83.8% [8] of them were of same age group.

71% of cases of primary caesarean section were primigravida and 29% were multigravida in our study. The rate of primary caesarean in primigravida v/s multigravida in Arpitha SBet al.study is 70.2 and 29.7% [7] while in Sharma R et al, study it is 57.1% and 42.7% respectively[9].

Caesarean section rates have been increasing globally since the 1980s and 1990s, although to varying degrees between countries [10]. As per Wang et al, the incidence of complications is 2.2 times greater in those who undergo Caesarean section as compared with vaginal delivery[11].

There can be Intraoperative complications like Extension of uterine incision, severe haemorrhage, broad ligament hematomas, Uterine lacerations. And sometimes rare complications like bladder injury, urethral injury, gastrointestinal tract injury can occur [12].Other complications like Post Partum haemorrhage (PPH), shock, urinary tract infections(UTI), abdominal wound infections, peritonitis, intestinal obstruction, Deep Vein Thrombosis (DVT) and thromboembolic disorders, wound gaping, hematomas, Secondary PPH burst abdomen, prolonged hospital stay and recovery time, anaesthetic complications like hypotension, aspiration, spinal headache, can also occur[12].

The fetus and newborn are subjected to short term risks such as injury of the presenting fetal part and neonatal respiratory distress, including tachypnoea and persistent pulmonary hypertension. Additionally, long term risks have been suggested, including increased likelihood of immunological disorders.

Rising primary caesarean delivery attributes to an increase in previous caesarean delivery rate. Women with a history of 2 or more previous caesarean sections are more likely to experience dense intra-abdominal adhesions and bladder injury during caesarean section [13]. So, It is important to inform individuals about the potential hazards of Caesarean section before going to perform one and make decision only when there is a clear indication. Hence present study is taken up to analyse various indications of primary caesarean in a tertiary hospital, with an aim to reduce caesarean section rate.

In this study, fetal distress was found to be the most common indication of primary caesarean sections at a rate of 32%. Continuous Electronic Fetal Monitoring (EFM) aims to detect fetal distress and reduce neonatal deaths and cerebral palsy cases. However, it has been found to increase caesarean delivery rates without improving health outcomes[14]. It's recommended to confirm fetal distress through fetal blood sampling before caesarean delivery. Using this technique resulted in a 32% decrease in caesarean delivery rate for fetal distress in a study by Irvine and Shaw [15]. Unfortunately, this technique is not available at our centre. Objective fetal hypoxia assessment could lower cesarean delivery rates and improve health outcomes [16].

Cephalopelvic disproportion takes the 2nd place with 26% which is a difficult diagnosis and cannot be predicted with certainty as it is subjective. Hence, many unnecessary caesarean deliveries were performed in low risk pregnancies to prevent one true CPD [17]. Plotting partograph is very important as it diagnose arrest of labour. Artificial rupture of membranes and oxytocin drips helps in progression of labour in case of inadequate uterine contractions.

11% of cases were performed due to Failed induction. Induction should be considered only when the cervix is favourable which can be assessed using modified Bishop's score. Sweeping of membranes prior to induction can also shorten the induction to delivery interval [18].

All women with malpresentations like breech and transverse lie in our study had caesarean delivery. The Breech Trial of 2000 found that elective caesarean delivery for breech presentation significantly reduces perinatal mortality, neonatal morbidity and mortality, compared to planned vaginal delivery, and has greatly influenced the management of breech delivery[19].

CONCLUSION:

The most common indication in performing a primary C-section was found to be fetal distress followed by CPD and failed induction. Other lesser-known causes were prolonged PROM, malpresentation, severe oligohydramnios, etc.

Proper antenatal care and counselling to expectant mothers should be given with regard to hospital delivery planning. Accurate diagnosis of fetal distress and CPD, plotting partograph for every case in labour, inducing when cervix is favourable, considering ECV in selected breech cases are certain ways to reduce the rate of primary caesarean section.

Most of the primary C- sections end up in repeat C sections. Hence, every effort to reduce primary caesarean section rate is important to reduce repeat C section rate and all the associated maternal and neonatal complications.

Ethical approval: The study was approved by the Institutional Ethics Committee.
Funding: No funding source.
Conflict of interest: None declared

REFERENCES:

1. Sung S, Mahdy H. Cesarean Section. [Updated 2023 Jul 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; **2024** Jan-. Availablefrom: https://www.ncbi.nlm.nih.gov/books/NBK546707/.
2. Panna LK, Mirza TT, Rahim R, Gush AK, Shikha SS, Sharmin T. Indications of Primary Caesarean Section: In A Medical College Hospital, Bangladesh. Mymensingh Med J. **2019** Apr;28(2):286 290. PMID: 31086139.
3. Malhotra N, Puri R, Malhotra J, Kurjak A, Chervenak FA. Donald School Manual of Practical Problems in Obstetrics. 1st ed. JP Medical Ltd; **2012.**
4. John Patrick o'Grady, Timothy K. Fitzpatrick, Martin L. Gimovsky , Locy . Bager Zwirello. Kevin Giordano, Operative obstetrics. Cesarean delivery and Surgical Sterilization, Chapter 18, 2nd Ed. 509.
5. World Health Organization. Appropriate technology for birth. Lancet. 1985; 2:436 -7.
6. Ye J, Betrán AP, Guerrero Vela M, Souza JP, Zhang J. Searching for the optimal rate of medically necessary cesarean delivery. Birth. **2014** Sep;41(3):237 -44.
7. Arpitha S, Ballu AM. Analytical study on indications of primary cesarean section in tertiary care hospital. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. **2019** Aug 1;8(8):3179- 83.
8. Samal R, Palai P, Ghose S. Clinical study of primary caesarean section in multiparous women in a tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. **2016** May 1;5(5):1506- 9.
9. Sharma R, Dogra P. Indications and rate of caesarean delivery at tertiary care hospital: a retrospective study. concern. **2017**;7:8.
10. Omar AA, Anza SH. Frequency Rate and Indications of Caesarean Sections at Prince Zaid Bin Al Hussein Hospital Jordan. JRMS. **2012** Mar;19(1):82- 6.
11. Wang BS, Zhou LF, Coulter C, et al. Effects of Cesarean section on maternal health in lowrisk nulliparous women: a prospective matched cohort studying Shanghai, China. BMC Pregnancy and Childbirth **2010**; 10:78
12. Dc Dutta. Textbook of Obstetrics
13. Sobande A, Eskandar M. Multiple repeat caesarean sections: complications and outcomes. Journal of Obstetrics and Gynecology Canada. 2006 Mar 1;28(3):193 -7.
14. Graham EM, Petersen SM, Christo DK, Fox HE. Intrapartum electronic fetal heart rate monitoring and the prevention of perinatal brain injury. Obstetrics & Gynecology. 2006 Sep 1;108(3 Part 1):656- 66.
15. Irvine LM, Shaw RW. Fetal blood sampling and caesarean section for fetal distress; results of a pilot study. Journal of Obstetrics and Gynaecology. 1989 Jan 1;10(1):32 -4.
16. Al Mulhim A, Abu Heija AT, Ali AH, et al. Factors affecting the rate and the indications of primary cesarean section. Bahrain Medical Bulletin 2001, 23(4): 160- 162.
17. Rouse DJ, Owen J, Goldenberg RL, Cliver SP. The effectiveness and costs of elective cesarean delivery for fetal macrosomia diagnosed by ultrasound. JAMA. 1996;276(18):1480- 6.
18. Heinemann J, Gillen G, Sanchez Ramos L, Kaunitz AM. Do mechanical methods of cervical ripening increase infectious morbidity? A systematic review. Am J Obstet Gynecol. 2008;199(2):177- 88.
19. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. Term Breech Trial Collaborative Group. Lancet. 2000 Oct 21;356(9239):1375 83. doi:10.1016/s01406736(00)02840 -3. PMID: 11052579.