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The rates and indications of caesarean section in district Hospital Shivpuri: A retrospective study from Madhya Pradesh

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Abstract
Background: Caesarean section (CS) is one of the most common procedures to prevent health threatening risk to mother and infant. CS rates are rising. CS accounts for an increase in maternal mortality and morbidity as well as having considerable financial implications.
Aims and Objectives: To find out the rates and indications for CS and associated maternal morbidity in patients undergoing elective and emergency CS.
Materials and Methods: Seven hundred and sixty eight women who underwent elective or emergency CS were studied retrospectively at District Hospital Shivpuri. Records were searched for patient' sage, residence, parityand antenatal care. Nature of surgery, previous obstetrics history, indication of CS, indication for repeat CS and maternal complication among study cohort were also recorded. Data was analyzed using IBM SPSS ver. 20 software.
Results: Out of 768 (17.49% women who underwent CS, most of them belong to 20-29 years age group (58.33%), were multipara (54.29%), were booked cases (52.08%), belong to rural area (61.32%) and underwent emergency C section (82.03%). A total 30.98% underwent repeat CS. Most common maternal factor responsible for CS were lower segment CS (30.98%), cephalopelvic disproportion (CPD) (16.92%) and non- progress of labor (7.55%) whereas among fetal factor, most common were fetal distress (7.03%), breech (5.98%), and severe oligohydroamnios (5.46%). Most common indication for repeat CS was CPD (30.25%), fetal distress (15.96%) and scar tenderness (14.7%).Incidence of maternal complication was 18.09%. Post-operative fever (5.72%), surgical site infection, minor (5.59%) and atonic postpartum hemorrhage (1.82%) were the most common maternal complications.
Conclusion: Being a district hospital, a high rate of Caesarean deliveries was observed. The type of CS indication showed a normal pattern, all CS had a medical indication. The commonest indication of CS was previous CS.

Keywords: c section, cephalopelvic disproportion, repeat c section, maternal complication, indications of cs

Introduction

Cesarean section (CS) has been one of the most debated topics in maternity care as the rates of CS are increasing globally [1, 2]. CS is one of the commonly performed surgical procedures and like others is also associated with significant risk of morbidity and mortality [3]. CS is not benign and should be performed only when circumstances distinctly require it. In 1985, World health Organization (WHO) has made consensus recommendation for optimal CS rate of 10-15% [4].

There is a requirement of establishing a set of guidelines on CS and same should be implemented to insure that the CS is performed in the presence of specific and clearly defined indications only [5]. Most of the obstetricians believe that CS is a simple and efficient procedure and it is far superior to secondary interventions such as vacuum delivery or emergency caesarean section. But opposite school of thought also exists. Thus, CS is a matter of professional controversy [6]. Controversy over the rate of CS is also there. The relative benefits of higher or lower rates are also debatable. Today caesarean birth accounts for 15-25% of all the deliveries in developed countries, with maternal mortality of less than 1:10,000 [7, 8].

Reasons for increasing in CS include fetal distress, more liberal use of cesarean section for breech presentation, abdominal delivery of growth-retarded infant, delayed childbearing, increasing maternal body mass, multiple gestations, prematurity, and improved safety of cesarean section [9].

This retrospective analytical study was done to find out the rates and common indication for CS in a District Hospital of Shivpuri, Madhya Pradesh, which is one of the major referral central for this area.

Materials and Methods

A retrospective study was done including 768 women who underwent CS at District Hospital, Shivpuri, Madhya Pradesh, from June 2016 to November 2016.All the women undergoing elective or emergency C section were included.

Data was obtained from operation theater record, labor and neonatal ward records and patients case notes. Partogram was used to diagnose prolonged labor and fetal lie was suspected on clinical signs and was confirmed using ultrasound. Fetal distress was diagnosed by fetal heart count and sometimes together with meconium stained. The hospital does not use CTG.

In cases of caesarean sections, their indications were recorded along with other demographic profile like age and residence (urban/rural). Nature of surgery (emergency/planned), previous obstetrics history, and present obstetric parameters like antenatal care, gestational age, lie and presentation,

number of foetuses, birth weight etc. were also recorded in pre-approved format.

The caesarean rate was calculated as the number of caesarean birth in a year divided by total number of deliveries in that year. The rate for each indication was calculated. The number of total, primary and a repeat caesarean delivery was also calculated. The indication of repeat C-section, complications during surgery and post-operative period were also recorded. All the data was analyzed using IBM SPSS Ver. 20 software. Cross tabulation and frequency distribution was used to prepare table. Data is expressed as numbers and percentage.

Results

Out of 4391 deliveries at study place, 768 (17.49%) were done through caesarian section, out of which 558 (72.65%) were done due to maternal indications whereas 210 (27.34%) were done due to fetal indications.

Table 1: Showing demographic parameters among study cohort

Parameters		No of patients	Percentage
Age (years)	14-19	10	1.30
	20-29	448	58.33
	30-39	271	35.28
	40-49	39	5.08
Parity	Primipara	341	44.40
	Multipara (G2-G4)	417	54.29
	Grand multipara (G5+)	10	1.30
Antenatal Status	Booked	400	52.08
	Unbooked	368	47.92
Residence	Urban	297	38.67
	Rural	471	61.32
Type of CS	Emergency	630	82.03
	Elective	138	17.96

Data is expressed as number of patients and percentage, CS; caesarian section

Table 2: Showing Caesarean Section Rates in study cohort

Parameters		No of patients	Percentage
Mode of Delivery	Vaginal	3623	82.50
	Abdominal	768	17.49
Primary/ Repeat	Primary	530	69.01
	Repeat	238	30.98
Type of C Section	Emergency	578	62.08
	Elective	353	37.92

Data is expressed as number of patients and percentage

Table 3: Showing different maternal and fetal indication in present study

Parameters		Frequency	Percentage
Indication	Maternal	558	72.65
	Fetal	210	27.34
Maternal Indication	Pervious LSCS	238	30.98
	CPD	130	16.92
	Non- Progress of labor	58	7.55
	Failed indection	57	7.42
	PIH	39	5.07
	Obstructed labor	10	1.30
	Placenta praevia	8	1.04
	Prolonged infertility	6	0.78
	Abruption	4	0.52
	BOH	4	0.52
	Advanced Age	4	0.52
Fetal Indication	Fetal Distress	54	7.03
	Breech	46	5.98
	Severe Oligohydroamnious	42	5.46
	Post Datism	25	3.25
	Twins	11	1.43
	Transverse lie	8	1.04
	Mal position	8	1.04
	Large Size Baby	8	1.04
	Severe IUGR	4	0.52

	Cord prolapsed	4	0.52

Data is expressed as number of patients and percentage, LSCS; lower segment caesarian section, CPD; cephalopelvic disproportion, PIH; pregnancy induced hypertension, BOH; bad obstetric history, IUGR; intrauterine growth restriction.

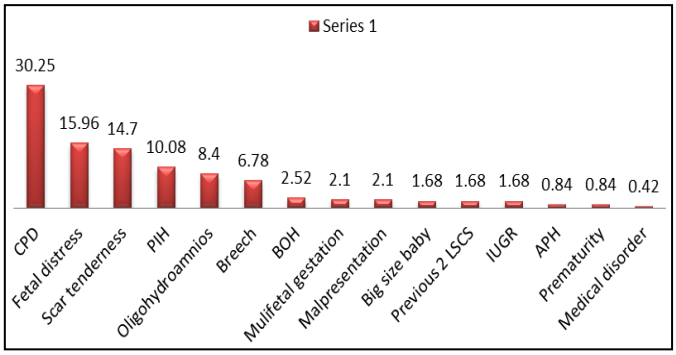

Fig 1: Showing indications for repeat C section in study cohort

Data is expressed as percentage, CPD; cephalopelvic disproportion, PIH; pregnancy induced hypertension, BOH; bad obstetric history, Big size baby; baby having weight 3.5 or more, IUGR; intrauterine growth restriction, APH; antepartum haemorrhage. In present study 238 cases were of repeat C Section.

Table 4: Showing Maternal Complications in study cohort

Complications	No of patients	Percentage
Post Operative Fever	44	5.72
Surgical Site Infection minor	43	5.59
Atonic PPH	14	1.82
UTI	11	1.43
Gaped wound	8	1.04
Intra operative Hemorrhage	8	1.04
Anesthetic Complication	7	0.91
Minor Bladder Injury	4	0.52
Total	139	18.09

Data is expressed as number of patient and percentage, PPH; postpartum haemorrhage, UTI; urinary tract infection

Discussion

The increase in rate of CS is a concern in both developed and developing countries [2, 9]. The rates of both primary and repeat cesarean delivery have been on the rise [10]. District Hospital of Shivpuri is the referral centre for entire district including PHCs (Primary Health Centre), CHC (Community Health Centre), private hospitals and some parts of adjoining districts. Given the situation, it is difficult to minimize the CS rates at study place because of large number of referred cases.

In present study, maximum patients belong to the age group 20-29 years (58.33%) which is considered as the age group of maximum fertility. Results are in agreement with the Gupta *et al.* [11] and others Indian studies [12, 13]. Maximum cases were from the rural are in present study which is opposite to what was reported by Gupta *et al*. This may be due to unawareness among rural women and the unimproved transport facilities from the rural area to the hospital.

In present study the rate of CS observed is 17.49%, which is higher than the accepted upper norm of WHO ie.15%.The possible reason for this may be due to the fact that the population of Shivpuri district is around 17 lacks [14] and district hospital of Shivpuri is the major referral centre and patients are being referred from nearby and also all distant PHCs, CHC and private hospitals. Even higher rates were reported from Mumbai by Sibha *et al.* (28.93%) [15] and Saha *et al* (29%) [16] From Kolkata compared to present study rates. CS rates are continuously increasing in India as reported by Singh *et al.* [17] from Haryana (31% in 2007 and 51.1% in 2012), Subhashini *et al.* [18] from Andhra Pradesh (20.33 in 2009 and 25.66% in 2014), Yadav *et al.* [19] from Gujarat (23.48% in 2004 and 28.87% in 2013) and Manjulatha *et al.* [20] from Andhra Pradesh (16.60% in 2002 and 22.40% in 2012). The reasons for the increased caesarean are multifaceted like increased institutional deliveries, avoiding difficult manipulative or instrumental vaginal deliveries, foetal distress detected especially with the use of continuous electronic foetal monitoring, liberal use of caesarean in high risk cases like breech presentation, previous caesarean delivery, growth retarded foetus, multiple pregnancy and preterm baby [11]. In agreement to Gupta *et al*. previous caesarean delivery was the most common factor involved for CS in present study along with breech presentation.

Wide variation is observed in CS rates between developed and developing countries. CS rates reported in Africa [21] was 6.2% whereas study from United Kingdom reported 24.1% [22]. Another study from Samdal *et al* from rural area of Nepal reported 9.5% CS rates [23]. Similar to the reports of previous studies conducted by Singh *et al.* [17], Jawa A *et al.* [12], Chavda *et al.* [24], Nikhil *et al.* [25] and Bade *et al.* [26] in present study also previous CS was the most common indication for CS.

Second and third most common indication in present study was CPD (16.92%) and non- progress of labor (7.55%) respectively. In agreement to present study Gupta *et al* also reported arrest of labour (13.65%) as the second most common cause of CS [11]. The increase in labour arrest disorders is possibly because of decrease in the difficult instrumental deliveries over a period of time in our institute. Other important indication in present study for CS were failed induction (7.42), pregnancy induced hypertension (5.07), fetal distress (7.03%), breech (5.98%), severe oligohydroamnious (5.46%) and post datism (3.25) which are similar to the reports of Singh *et al.* [17], Jawa A *et al.* [12], Chavda *et al.* [24], Nikhil *et al.* [25], Bade *et al.* [26] and Balci *et al.* [27].

The CS has higher risk of maternal complications compared to vaginal deliveries [28]. Incidence of Maternal complication in present study was 18.09%. Among them post-operative fever (5.72%), surgical site infection minor (5.59%)] and atonic postpartum hemorrhage (PPH) (1.82%) were the most common. Similar to present study Gupta *et al* also reported surgical site infection (4.40%) and atonic PPH (3.01%) as the most common maternal complications [11].

In our study patients who had at least two LSCS were less because such patients were timely referred to Kamla Raja Hospital Gwalior because of absence of facilities of obstetrics emergency unit and blood component therapies at study place

as these patients have high maternal morbidity and mortality rates.

Conclusion

CS rate observed in present study was above the recommended rates by World health Organization (WHO) of 15% for developing countries. Safe reduction of the rate of primary caesarean deliveries will require different approaches for each indication. Individualization of the indication and careful evaluation, following standardized guidelines, practice of evidenced-based obstetrics and audits in the institution, can help us limit CS rate. In our study as the previous CS was a major maternal indication, it is recommended that trial of vaginal birth after cesarean section (VBAC) should be encouraged. The aim is to reduce maternal mortality/ morbidity and parinatal mortality. All efforts are being made in district hospital Shivpuri to reduce maternal mortality/morbidity, to decrease post caesarean morbidity there is need of obstetric critical care ICU and facilities of blood component therapy.

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