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Original Article

Cesarean section – changing trends - a National survey

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Abstract

Objectives: To study the changing trends in indications and technics of cesarean section in various parts of India. *Methods:* A clinical survey was carried out amongst 253 obstetricians from all over India selected at random regarding their practices of cesarean section in terms of indications and technics. *Results:* Result showed that previous cesarean section, severe pregnancy induced hypertension, failed induction of labor and infertility treated cases are now increasing amongst the indications for cesarean section. In technics, single layer closure (41.11% doctors) and nonsuturing of peritoneum, visceral or both, (35.96% doctors) are now increasing among obstetricians. Polyglycolic acid sutures (vicryl, centicryl, dexon) are replacing catgut for uterine closure. *Conclusion:* Being a common major surgery any changes in technic for better surgical result are always welcome. Changes in indications are mainly due to litigation fear and better neonatal facilities.

Key words : cesarean section, indications, technic

Introduction

Cesarean section is the most common major surgery performed in modern times. WHO made a consensus statement in 1985 that appropriate incidence for CS should be 10-15% and above this rate no additional benefits are gained. The incidence is now nearly stabilized at 9-18% in our country. Although the incidence is stabilized the indications are somewhat changing and so also the technic of cesarean section in the last two decades. Keeping this in mind current survey was carried out.

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Methods

A total 300 obstetricians were selected at random from all over India for the survey. Those with a minimum experience of more than 2 years after passing MD and having performed at least 50 cesarean deliveries were included in the survey. With this selection criteria, printed proforma was sent to each of them and out of 300 obstetricians selected, 253(84.34%) responded.

The proforma included different indications and varying surgical technics (Table 1).

Results

The responses of 253 obstetricians were tabulated and analyzed as shown in Table 1 and Table 3.

Table 1. Proforma sent to respondents.

Cesarean section : Changing indications & technics – Survey :

1. Indications: Tick R any 6 indications which are most common in your practice

CPD	( )	Fetal distress	( )
Breech	( )	Failure to progress	( )
Severe PIH	( )	Previous LSCS	( )
Failed induction	( )	Infertility treated	( )
APH	( )	Post maturity	( )
Diabetes	( )	Others	( )

Tick ✓ only one option in the following

2.	Abdominal incision:	Vertical	( )
		Transverse	( )
3.	Opening the uterine incision :	Splitting with fingers	( )
		Cutting with scissors	( )
4.	Uterus during closure:	Routinely delivered out	( )
		Usually kept inside	( )
5.	Uterine closure:	Single layer	( )
		Double layer	( )
6.	Suture material for uterine closure :	Chromic catgut	( )
		PGA (Vicryl/Centicryl)	( )
7.	Peritoneal suturing:	Both visceral & parietal sutured	( )
		Only parietal sutured	( )
		Neither sutured	( )

Table 2. Indications (responders 253).

Indications	Percentage of responders
Fetal distress	88.53
Failure of progress	77.07
Previous cesarean section	76.67
Cephalopelvic disproportion	63.24
Severe pregnancy induced hypertension	51.77
Breech presentation	51.77
Failed induction of labor	48.22
Infertility treated	24.90

Table 3. Technics.

	Headings	No. of cases Total 253	(%)
Abdominal incision	Vertical	55	21.73
	Transverse	198	78.26
Opening the uterine incision	Finger splitting	154	60.86
	Cutting with scissors	99	39.13
Uterus during closure	Routinely delivered out	87	34.38
	Usually kept inside	166	65.61
Uterine closure	Single layer	104	41.11
	Double layer	149	58.89
Suture material for uterine closure	Chromic catgut	142	56.12
	PGA (vicryl)	111	43.88
Peritoneal suturing	Both visceral and parietal	162	64.03
	Only one sutured	50	19.76
	Neither sutured	41	16.20

Indications

Fetal distress was the most common indication for the obstetricians (88.53%). However previous cesarean section was the 3rd most common indication (76.67%). The emerging new indications were severe pregnancy induced hypertension (PIH) (51.77%), failed induction (48.22%) and infertility treated cases (24.9%). Surprisingly antepartum hemorrhage (APH) was not a common indication.

Technics

Of the obstetricians surveyed, 21.74% are still taking a vertical incision on the abdomen. Those who are using transverse incision prefer vertical one only in cases of previous vertical incisions. For enlarging the uterine incision only 39.13% of the doctors are cutting with scissors while 60.86% of the doctors are using finger splitting method. Regarding position of the uterus during suturing, 65.61% of the obstetricians prefer to keep it inside the abdomen while 34.38% of them routinely exteriorize it out of the abdomen for suturing. Uterus is closed in traditional two layers by 58.89% of the obstetricians but 41.11% have switched over to single layer closure. Polyglactin / polyglycolic acid sutures (vicryl, centicryl, dexon) are now used more and more by obstetricians for uterine suturing (43.88%). Lastly regarding peritoneal suturing almost 1/3 of the obstetricians are not suturing at least one peritoneum (commonly visceral) while nearly 16.2% of them are not suturing both the peritoneum.

Discussion

Cesarean section being a common major surgery, any change in technic for better surgical results is always welcome. Changes in indications are mainly due to litigation fear and better neonatal facilities available in recent times. Fetal distress is topping the list in our survey. Most of these cases are genuine. However in some cases distress may be assumed, like in cases of oligohydramnios, intrauterine growth restriction (IUGR) etc. Even presence of meconium (thin) in the absence of fetal heart rate irregularity is not an indication for cesarean section (CS). But in private practice, experience of one mishap changes the obstetrician's attitude and for all meconium cases he or she then readily resorts to LSCS. More and more severe PIH cases are now delivered by cesarean section. This is because of safe anesthesia and better neonatal facilities. CS avoids the stress and risks of long induced labor. Although success rate of vaginal delivery in case of previous CS is upto 70%, in private set up obstetricians are more inclined to do repeat CS to avoid the rare risk of scar rupture and loosing the baby. The notable

change in indications is increasing incidence for failed induction and infertility cases. Due to availability of better inducing agents, induction is increasing in recent times. If not properly selected, some of them either fail or have prolonged labor and end up in CS. In infertility treated cases, pregnancy is precious and obstetricians readily and justifiably resort to early/elective CS.

Regarding technics, our survey showed that 21.74% of the obstetricians still continue with vertical abdominal incision. This may be due to their original training. Apart from being cosmetic, other short term and long term advantages of Pfannenstiel incisions are obvious. Except in cases of dire emergency and probably previous vertical scar, abdominal incision should always be transverse. It is simply a matter of training. With experience it does not cause delay in delivery of the baby and even repeat transverse incision does not cause problem. As evident from our survey, opening the uterine incision with finger splitting is still common. 39.13% of the obstetricians enlarge the uterine incision with scissors. Finger splitting is rapid, easy and initially causes less bleeding. But muscle fibers split only in the direction of fibers so there is less space available, which may cause difficulty in delivering the baby and extension of incision and ultimately more bleeding[1,2]. Incision enlarging with scissors gives enough space, presents nice edges to suture and leads to a strong scar. The survey showed that 65.61% of the obstetricians prefer to keep the uterus inside the abdomen during closure. Delivering the uterus outside makes suturing easy, atony is readily recognized, adnexa are better visualized, and extension of angles can be handled effectively. However gastrointestinal upsets and rare possibility of air embolism still remain. The systematic Cochrane review suggests that there is not enough information to permit definite conclusions about exteriorization [3]. In the institutional set up absolute sterile environment cannot be ensured and risk of contamination also remains. In recent times more and more obstetricians are now doing single layer uterine closure (41.11% in our survey). Numerous human, animal and histological studies have proved that single layer closure is strong enough and there is no increased risk of scar rupture in next delivery [4,5]. It saves operative time [4-6], requires less additional stitches, and leaves less suture material in the uterus. Cochrane systematic review has concluded that there are no advantages or disadvantages for routine use of single layer closure compared to two layer closure except a shorter operating time [6]. Nearly half of the obstetricians (43.88%) have now switched over to the use of polyglycolic acid (PGA, vicryl, centicryl) in preference to catgut. PGA is easy to handle, has delayed absorption, causes less tissue irritation, and does not support infection. In many surgeries catgut is now replaced by vicryl or centicryl and so is the case with CS. The greater cost of this suture material may be the reason why some obstetricians still continue using catgut.

More than 1/3 (35.96%) of the obstetricians surveyed are not suturing at least one peritoneum. Nearly 16.2% of the obstetricians are not suturing both visceral as well as parietal peritoneum. Many studies have confirmed its advantages[7-11]. Unlike skin, the peritoneum does not heal by approximation of its edges but rather formation of new peritoneal layer by proliferation of new mesenchymal cells within 24 to 48 hours. Suturing of peritoneum leads to more tissue reaction and adhesion formation [8,9]. This was confirmed by a clinical study using second look laparoscopy [11]. No suturing avoids this and saves operative time and money [7-10].

Misgav Ladach[12] technic is a new technic developed in Israel but it has not become popular in our country. As CS is the most common surgical procedure in obstetrics a technic that is quicker, cost effective and associated with fewer postoperative complications is of great value to the patient. This survey shows that increasing number of obstetricians is now doing single layer closure, uses delayed absorbable suture material, and does not suture one or both peritoneums.

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References

1. Hameed N, Ali MA. Maternal blood loss by expansion of uterine incision at caesarean section – a comparison between sharp and blunt techniques. J Ayub Med Coll Abbottabad 2004;16:47-50.
2. Shamsi A, Akhtar S, Mohyudin S. Comparison of intraoperative hemorrhage by blunt versus sharp expansion of the uterine incision at cesarean section. Pak Armed Forces Med J 2005;55:208-13.
3. Jacobs-Jokhan D, Hofmeyr GJ. Extra-abdominal versus intra-abdominal repair of the uterine incision at caesarean section. Cochrane Database Syst Rev. 2004: The Cochrane Library Issue 2;2006.
4. Durnwald C, Mercer B. Uterine rupture, perioperative

and perinatal morbidity after single layer and double layer closure at cesarean delivery. Am J Obstet Gynecol 2003;189:925-9.

5. Sood AK. Single versus double layer closure of low transverse uterine incision at cesarean section. J Obstet Gynaecol India 2005;55:231-6.
6. Enkin MW, Wilkinson C. Single versus two layer suturing for closing the uterine incision at caesarean section. Cochrane Database Syst Rev. 2:2006;3.
7. Bamigboye AA, Hofmeyr GJ. Closure versus non-closure of peritoneum at caesarean section. Cochrane Database Syst Rev 2003;4:CD000163.
8. Nagele F, Karas H, Spitzer D et al. Closure or nonclosure of the visceral peritoneum at cesarean delivery. Am J Obstet Gynecol 1996;174:1366-70.
9. Kustagi P, Veluri P. Is peritoneal closure necessary at cesarean delivery? Asian J Obstet Gynecol Pract 2001;5:35-8.
10. Manvi RS, Bhavi SB, Leelavati BA. Non-closure or closure of visceral and parietal peritoneum at cesarean section: a comparative study. J Obstet Gynaecol India 2000;50:62-4.
11. Tulandi T, Hum HS, Gelfand MM. Closure of laparotomy incisions with or without peritoneal suturing and second look laparoscopy. Am J Obstet Gynecol 1988;158:536-7.
12. Federici D, Lacelli B, Muggiasca L et al. Cesarean section using the Misgav Ladach method. Int J Gynaecol Obstet 1997;57:273-9.